



Regional Bureau
for Science and Culture
in Europe



Green
Building
Council
Italia



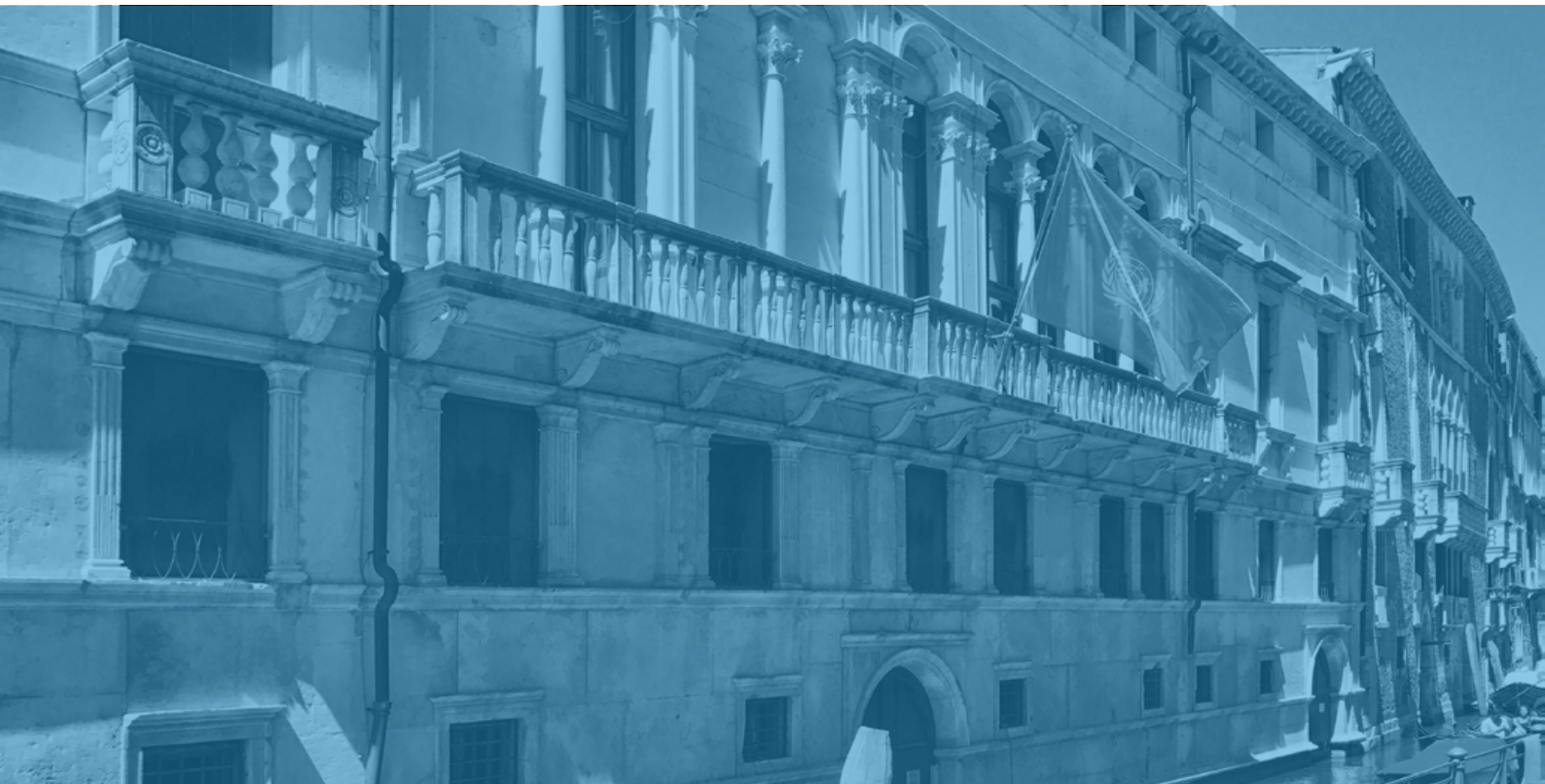
Cheap
GSHPs



International Workshop | 22-23 May 2019

Enhancing Ground Source Heat exchangers and Pumps for a sustainable built environment

📍 Venice (Italy)



“We know that the world has the tools, the technologies and the wealth to address *climate change*, but we must show more determination in moving towards a green, clean, sustainable energy future.”

[Secretary-General's remarks at a press encounter at the UN Headquarters, in New York, 05 Oct 2017]

Background

The H2020 project Cheap-GHSPs aims at reducing the total cost of low enthalpy geothermal systems by improving current drilling/ installation technologies and designs of Ground Source Heat Exchangers. The outcomes are of relevance to further expand the inherent potentiality of shallow geothermal power systems for heating and cooling purposes. The use of the novel heat pumps for higher temperatures developed within the project, are capable to reduce the costs in the market for retrofitting buildings, including historical ones.

The international workshop will shed lights on such promising innovations which have taken on the scientific consortium of the project with the design and the implementation of a wide array of demonstrative sites located in diversified urban and climatic environments. Such sites located in Ireland, Belgium, Germany, Spain, Greece and Croatia have performed as laboratories for the development of good practices to test and uptake innovative solutions and ideas, inspiring shifts in policies, planning and technology being inspirational beyond case-based boundaries to a worldwide scale. The project has brought plenty of evidence of the compatibility of such innovative systems with the requirements of preservation and conservation along with the need for a comfortable environment and a more decarbonised economy that have to find their way to market.

GBC Italia

The initiative includes the participation and support of the Green Building Council Italia (GBC Italia), the United States Green Building Council (US GBC) and World Green Building Council (World GBC).

GBC is extensively contributing to the rise of a new conceptual paradigm by merging the holistic concept of sustainability to the built environment, both historical and modern, through a set of innovative protocols.

These protocols such as the LEED® - Leadership in Energy and Environmental Design and the newly developed LEED® for historical buildings are applied to more than 170.000 square meters daily all around the globe. LEED® in Europe complies with the rules and standards of the European market and they are accustomed to a large set of urban contexts: such as for **GBC Historic Building®**, GBC HOME® for residential buildings, GBC for apartments and others for cities and districts. They may well perform as international depository for Cheap-GSHPs solutions which can be marketable after a due work of standardization.

Structure & Location

The 2-day event will be held at the premises of the **UNESCO Regional Bureau for Science and Culture in Europe**, and it is structured in two days: the first day more technologically targeted, the second one market and institutionally oriented with an end session devoted to explore the potentiality of a synergistic relationship with the expanding market of green certificates for built heritage.

Goals

- Promote and disseminate the achievements of Cheap-GHSPs project in enhancing shallow geothermal technology in built environments;
- Promote the interface between public-private actors and the adoption of an interdisciplinary approach for enhancing innovation and management capacity in sustainability for civil and heritage buildings;
- Strengthen the dissemination of information and know how on sustainable energy potentials in the construction field and in particular for UNESCO designated sites and cultural heritage in general;
- Exploring the potentialities of GBC (Green Building Council) for civil and Historic Building™, as an energy-environmental rating system, bridging the gap between energy efficiency, environmental sustainability and heritage preservation.

Target group

With its interdisciplinary approach, the workshop targets geologists, engineers, architects, energy managers and practitioners in modern and historical heritage, green building and construction chain-industry professionals along with buildings and cities managers, including UNESCO designated sites. These professionals and practitioners are asked to display new capacities and knowledge on how to master energy-environmental issues in the age of climatic change and emissions energy targets.



Palazzo Guinelli (Ferrara, Italy):
Registered for certification with *GBC Historic Building* protocol



Scientific Committee

D. Poletto, J. Baker, M. Rosati, E. Planche
UNESCO Regional Bureau for Science and Culture in Europe – SC and CLT units

A. Bernardi, G. Cadelano, F. Cicolin
CNR – ISAC

A. Galgaro, M. De Carli, G. Emmi, G. Dalla Santa
UniPD

M. Mari
GBC Italia

S. Paparella
REMTECH EXPO, Salone del Restauro

A. Griletto
Assorestauro

9.00	Registration of participants
I Session	Introduction
9.30	Welcoming UNESCO (J. Baker, Head of Science Unit – CNR-ISAC Cheap-GSHPs project coordinator, GBC; A. Bernardi, CNR ISAC - Coordinator of Cheap-GSHPs)
9.45	Sustainable Energy Governance and UNESCO: an introduction to the International workshop (D. Poletto – SC Unit - UNESCO Regional Bureau for Science and Culture in Europe)
10.00	UNESCO designated Sites and Sustainable energy: laboratories for climate change mitigation policies and practices (D. Poletto, Reka Viragos UNESCO; Chiara Ronchini RIBA RIAS - Scotland)
10.30	Overview on the Shallow Geothermal market in Europe and the new 2030 EU energy policy framework (Thomas Garabetian – EGEC policy officer)
10.45	The H2020 Cheap-GSHPs project: main features (A. Bernardi, CNR ISAC - Coordinator of Cheap-GSHPs)
11.10	Coffee Break
II Session	Technological Innovation, standard and barriers in Shallow geothermal systems
11.40	Standards and barriers for the application of Shallow geothermal systems (Riccardo Pasquali, SLR Ltd)
11.55	New solutions for helicoidal heat exchangers and installation methodologies (David Bertermann, FAU)
12.10	New solutions for coaxial heat exchangers and installation methodologies (Luc Pockelé, RED srl)
12.25	New solutions for heat pumps with geothermal sources (Mauro Mantovan and Fabio Poletto, Galletti Belgium & Hiref Srl)
12.40	Question time
13.00	Lunch - Buffet
14.00	Geo-technological innovations: Maps and thermo-geological data bank (Antonio Galgaro and Giorgia Dalla Santa, University of Padua-Department of Geosciences)
14.20	Introduction to demo-cases in the field (Dimitrios Mendrinos, CRES)
14.30	Real Case studies: Residential ecohouse in Putte near Mechelen, Belgium (Luc Pockelé and Giulia Mezzasalma, RED srl) Technical Museum Nikola Tesla of Zagreb Croatia (Davide Poletto UNESCO and Fabio Poletto Galletti/Hiref) Belfield House at University College Dublin, Ireland (Riccardo Pasquali, SLR Ltd)
15.00	Coffee Break
15.30	Universidad Politécnica de Valencia, Spain (Borja Badenes, Universidad Politécnica de Valencia) Erlangen Erlangen-Eltersdorf, Germany (Johannes Mueller - University of Erlangen) Bioclimatic office building of CRES-Pikermi, Greece (Dimitris Mendrinos, CRES)
16.00	Results from the virtual case studies (Giuseppe Emmi University of Padua Department of Industrial Engineering): Ballyroan Library Dublin, Ireland Residential Retrofit Glencree Wicklow, Ireland Complex of Santa Croce Florence, Italy Ca' Rezzonico and Ca' Lupelli Venice, Italy Manens-Tifs S.p.A. Headquarter Padua, Italy Grupo Ortiz Office Buildings Vallecas – Madrid, Spain Historical building Bucharest, Romania Historical Museum of Bosnia and Herzegovina Sarajevo, The Orthodox Bođani Monastery, Serbia Office building of Brogeda-ChiassoSwitzerland
17.00	Question time and discussion
17.30	End of the day

Project Cheap-GSHPs: Prototype of Heat Pump at the Technical Museum Nikola Tesla – Zagreb (Croatia)



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DAY 2

III Session

9.00

Cheap-GSHPs' Decision Support System and Design Tools

Cheap-GSHPs DSS (Decision Support System and innovative tool) for shallow geothermal facilities: introduction and interactive demonstration (Amaia Castelruiz, Tecnalia)

9.20

Tools for shallow geothermal design
(Michele De Carli, University of Padua)

9.40

Interactive demonstration and discussion (Michele De Carli – University of Padua & Amaia Castelruiz, Tecnalia)

11.30

Coffee Break

IV Session

12.00

The impact of Cheap-GSHPs innovations in environmental sustainability (Nick O'Neill, SLR Ltd)

12.15

Green building protocols as market entry point for Cheap GHSPs innovation in built environment (Alfonso Senatore, Ongreening Ltd)

12.30

Lunch - Buffet

V Session

Technology and Green building certification for a sustainable built heritage

Marco Mari (Deputy President of GBC Italia), greetings and moderation

13.30

The value of combining heritage & sustainability in the European built environment

Alessandro Bratti (Deputy President of the European Environment Agency)

Francesco Scoppola (General Director of Education and Research Dept. of MiBAC (The Ministry of Cultural Heritage and Activities) of Italy)

Alessandro Zanini, President of Assorestaura - Italian Association for Architectural, Artistic and Urban Restoration

14.30

GBC Historic Building® protocol for sustainability in built heritage: International Case Studies

Andrea Fornasiero (Member of USGBC Technical Committee and President of GBC Italia Standard Committee)

Mahesh Ramanujam (President of USGBC)

Daniele Guglielmino (Senior Sustainability GBCI)

Silvia Paparella (REMTECH EXPO, Salone del Restauro)

16.00

End of workshop



*MEIS (Ferrara, Italy):
Certified with GBC Historic Building protocol, GOLD level*



www.cheap-gshp.eu
www.unesco.org/venice

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