

# Deliverable D5.4

## Evaluation of performance in real demonstration facility No 1

### WP5

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**Project acronym** GEO4CIVHIC

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#### ***Dissemination Level***

<b>PU</b>	Public	
<b>CO</b>	Confidential, only for members of the consortium (including the Commission Services)	<b>X</b>
<b>CI</b>	Classified, as referred to in Commission Decision 2001/844/EC	

## Publishable summary

The deliverable D5.4 “Evaluation of performance in real demonstration facility No 1” is a confidential document delivered in the context of WP5, Task 5.3: “Demonstrations on real cases study” with regard to the Sub tasks 5.3.1 Real case No. 1 Historical Building in La Valletta (MALTA)

This document is intended to provide a summary of all the preparatory activities for the Malta case study. In addition, a forward looking strategy is proposed for the smooth execution of the works in view of the interruptions caused by the COVID-19 pandemic.

In this case study a historic building is planned for retrofitting with a dual air/ground source heat pump. At the moment the building is used as a tourist centre given the historical garden located just adjacent to the building. The building is also planned to be converted into a cafeteria and a number of retrofit solutions are planned in the future following the drilling of geothermal heat exchangers and the installation of the heat pump and fan coils.

The renovation exercise will mainly consist of drilling a number of boreholes for the dual source heat pump having the necessary terminals to be connected to new fan coil units. The rotating and vibrating drilling head, developed by ThyssenKruppInfrastructures, will be used for all boreholes. Following the installation, a monitoring system will be adopted for monitoring the performance of the borehole heat exchangers and the heat pump throughout an entire year of operation.

The dual source) heat pump (geothermal and air as source) is particularly suited for the demanding cooling performance of the Maltese climate which is classified as having a Mediterranean climate according to the Köppen climate classification (Csa), with very mild winters and hot summers. Rain occurs mainly in winter, with summer being generally dry.

The demo case will provide a demonstrable evidence of how ground source heat pumps can be installed in an agile and efficient manner in compact spaces. In addition, it will serve the purpose of demonstrating the effectiveness of ground source heat pump solutions in central Mediterranean climates.