

Deliverable D5.4

Evaluation of performance in real demonstra- tion facility No 1

WP5

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CO	Confidential, only for members of the consortium (including the Commission Services)	X
CI	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 activities for the Malta case study.

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

The renovation exercise consists in drilling a four boreholes for the dual source heat pump to be connected to new fan coil units. The rotating and vibrating drilling head, developed by Terra-Infrastructures, will be used for all boreholes. Following the installation, a monitoring system monitors the performance of the borehole heat exchangers and the heat pump.

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 provides evidence of how ground source heat pumps can be installed in an agile and efficient manner in compact spaces using a novel rotating-vibrating drilling head and co-axial steel heat exchangers. In addition, it serves the purpose of demonstrating the effectiveness of ground source heat pump solutions in central Mediterranean climates.