

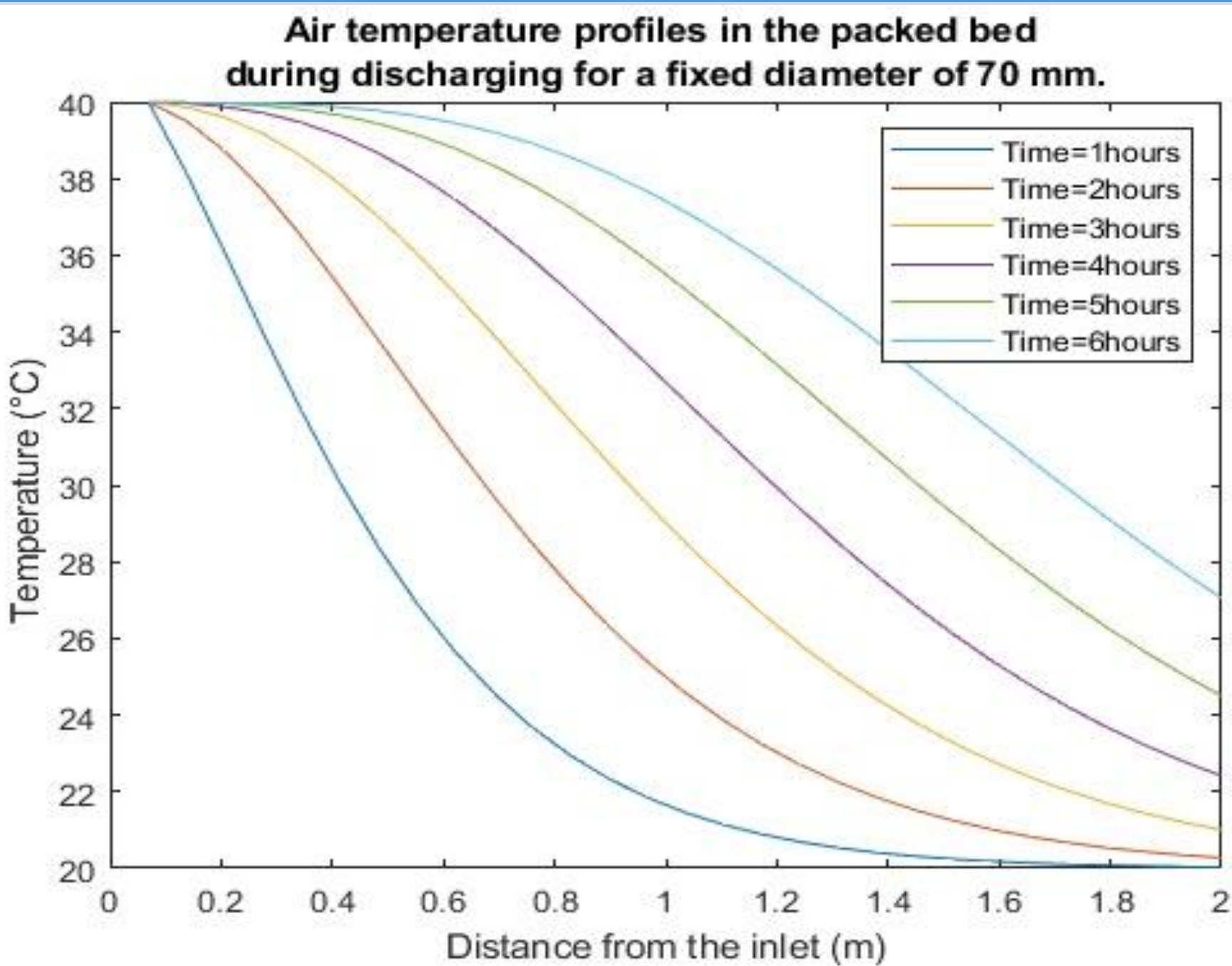
# Design Specification of Pilot Scale 142 kWth Air/Rock Thermocline Thermal Energy Storage Solution For The CSP Power Block Cooling Process

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## Introduction

The main purpose of this project is to design the specifications of a cold energy rocks storage for 142 kWth with the same rocks conditions as a real plant. This device is a potential addition to any cooling system of a CSP plant as it's part of the WASCOP (Water Saving for Concentrated Solar Power) project.

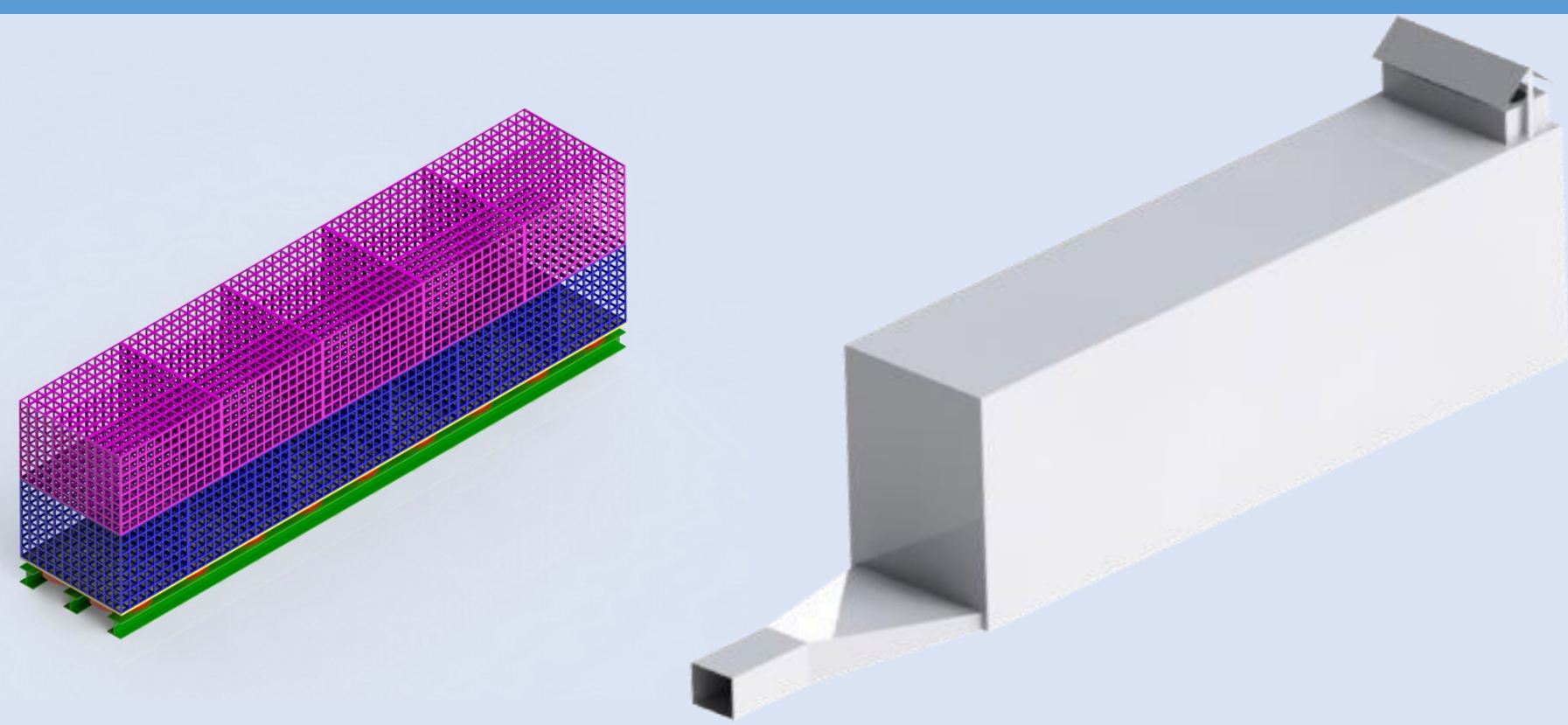
## Thermal Model



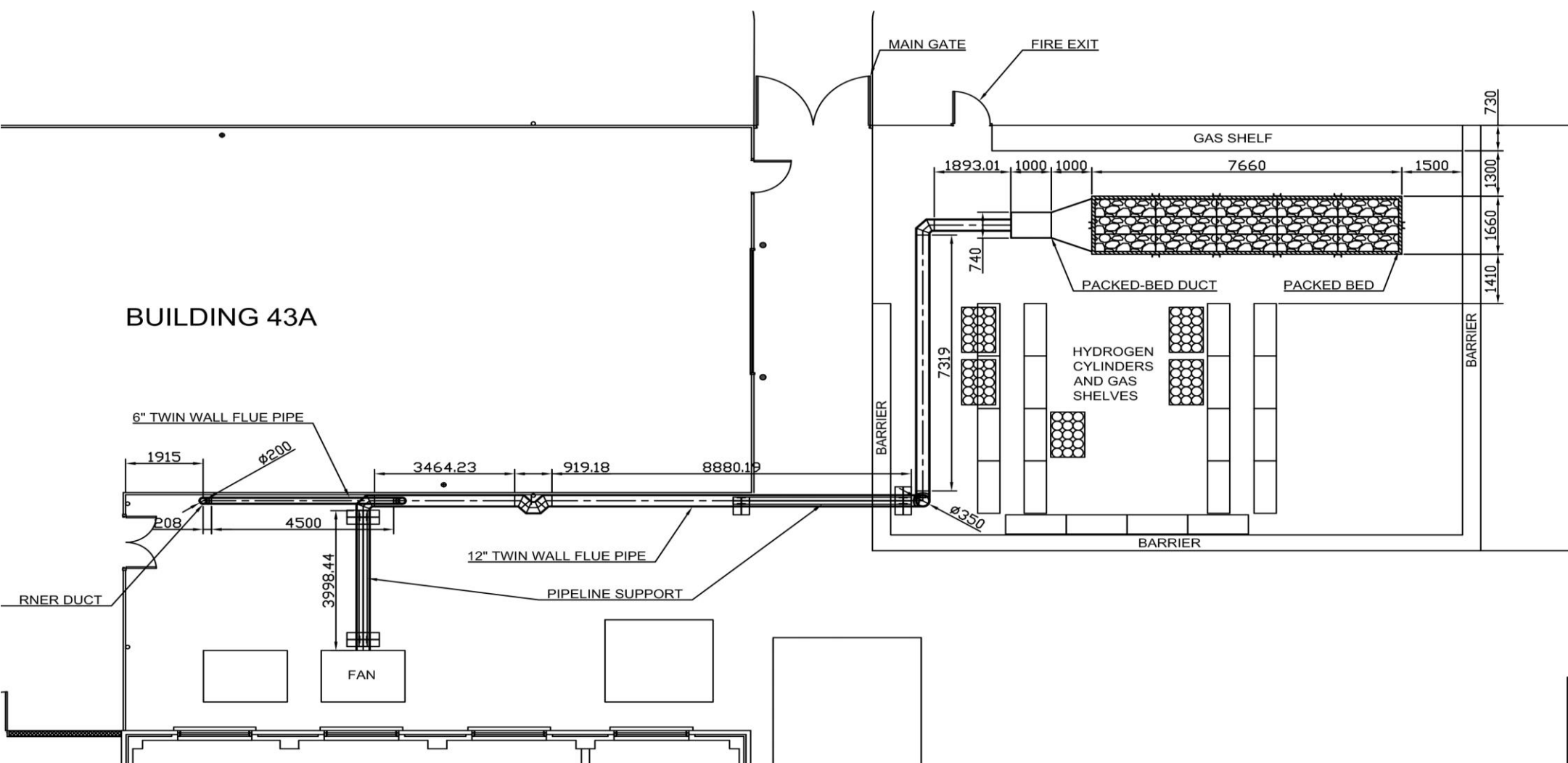
Cold energy will be stored during the night within the rocks in a packed bed and released during the day to cool down condenser. A fan will be used during days and nights to force air into the system. It is very important to be able to properly predict the temperature profile within the packed bed since it enables to optimize the charging time during the night and the outlet temperature of cooled air during operations. Thus, it enables us to evaluate energy savings.

## Structural Design

The prototype has been built in a box shape, where the inlet airflow is located in the bottom of the structure. The design and arrangement of gabions were made for best convection between the rocks and the air.



## Overview Layout



## P&ID

