

Drying solutions

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Introduction

When looking for areas that we might reduce our carbon footprint it became evident that the way we were drying materials was focused on a low management/high volume approach. We decided to review this.



Drying room

The 'good' old days

Driven by a perceived need to process large volumes of material our drying facilities were geared around being able to put large volumes of samples and washed finds in a space that was heated through thermostatic oil heaters and a dehumidifier to stop it turning into a sauna where nothing would dry.

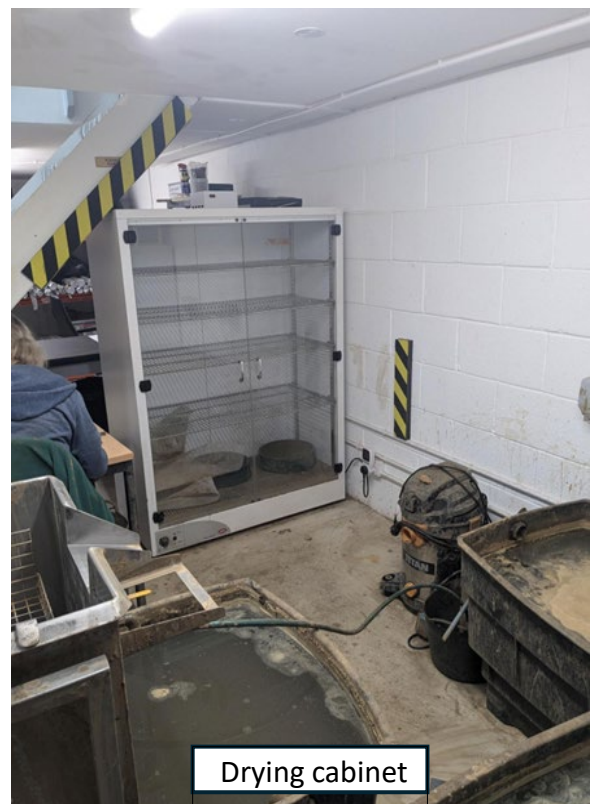
The existing method wasn't ineffective and allowed a good throughput. However, the space that was being heated included considerable areas where no finds were drying so the electricity consumption and environmental impact from the set up was quite high.

The existing system used 2 x 2kW heaters and a 1kW dehumidifier

Technical considerations

An initial review considered improving air circulation within the current set up and assessing drying times. The drying times turned out to be quite long, in the order of days which to allow throughput necessitated operating the room over long periods of time for even a small number of samples of finds.

A number of different options were assessed beyond this due to the lack of scalability and the fact that the drying room itself had a high operating cost, including on the environment. The uncertainty was whether bespoke drying cabinets, which weren't able to hold as much material, could improve on the drying time and therefore match the throughput of the existing system. In many respects the solution was obvious, but the blocker was the perception of the amount of material that the existing drying room could hold. However, that perception did not take into account the length of time the material was in there before it could move to the next stage of processing, both for finds and environmental samples.



Drying cabinet

A solution The new unit uses up to 2.5kW and turns out to have drying time in the order of hours rather than days. It is more directly accessible within the lab and allows a greater efficiency in managing the material passing through it. So using half the power and a fraction of the time. It comes at a not insignificant cost but this would be offset in fuel savings within a year (or less) and the carbon footprint will show measured reduction.