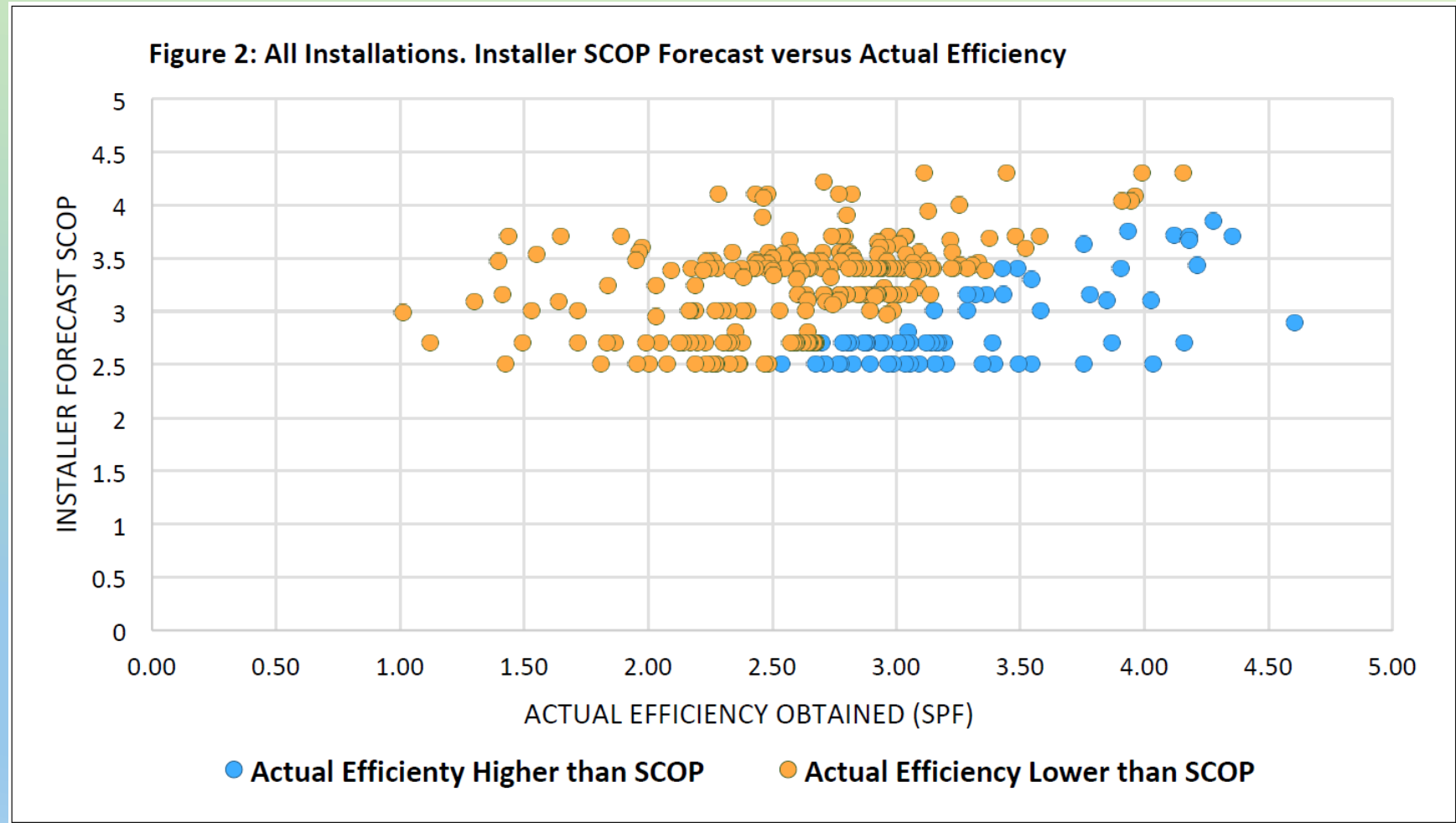


**How to install heat pumps so that they work and provide thermal comfort whilst saving money.**

# The reality of heat pump performance in the UK

This data is taken from RECC's analysis of the OFGEM Metering For Payment Data over the duration of the RHI.



The overall average actual efficiencies for the heat pumps included in the final analysis was as follows:

**All RHI accredited ASHP's:**

**2.67**

# How do we design a system that performs and will cut energy bills and save carbon and have low running costs

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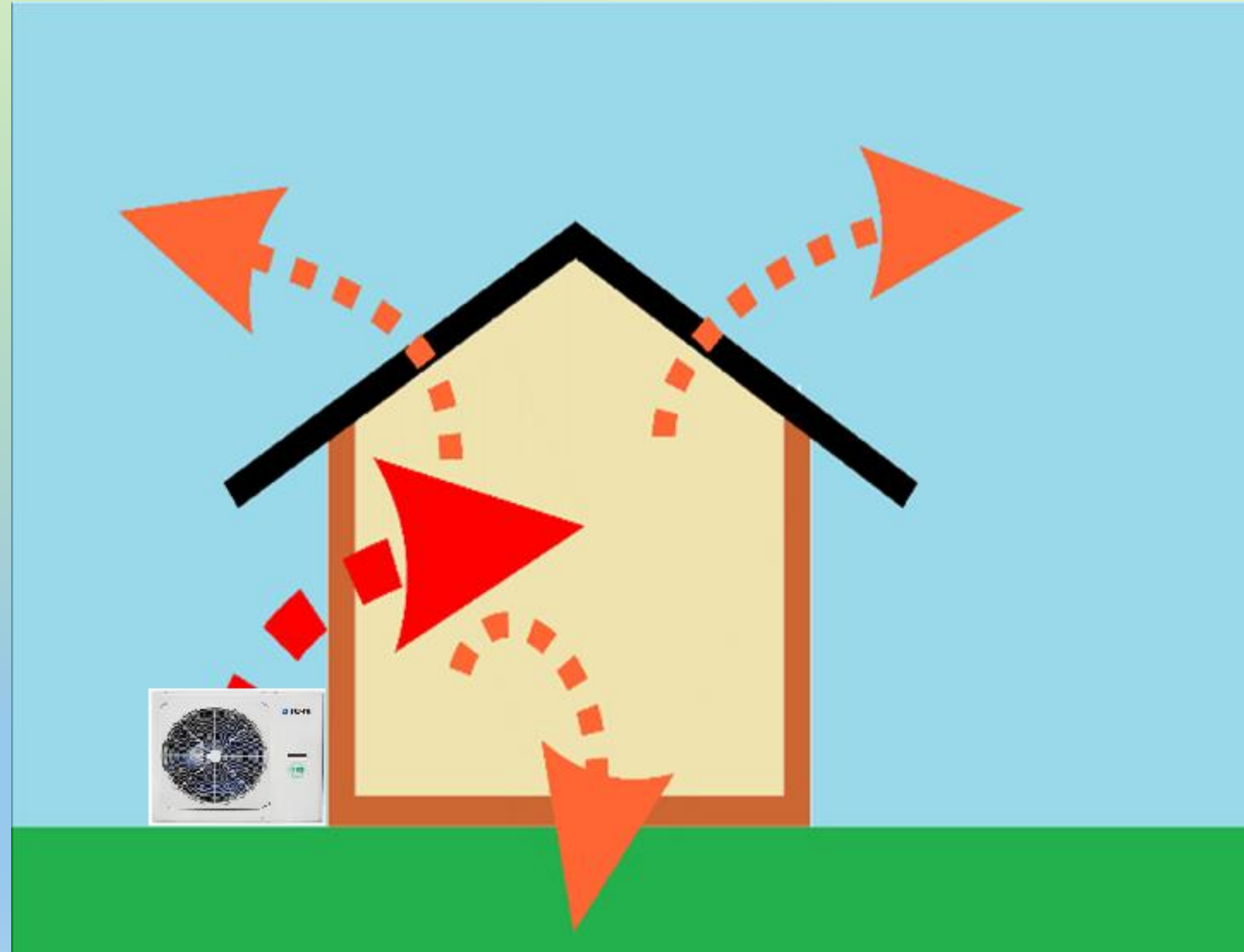
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- Heat pumps perform best when they are treated with moderation and only deliver the heat required at the specific time.

# Houses Leak heat



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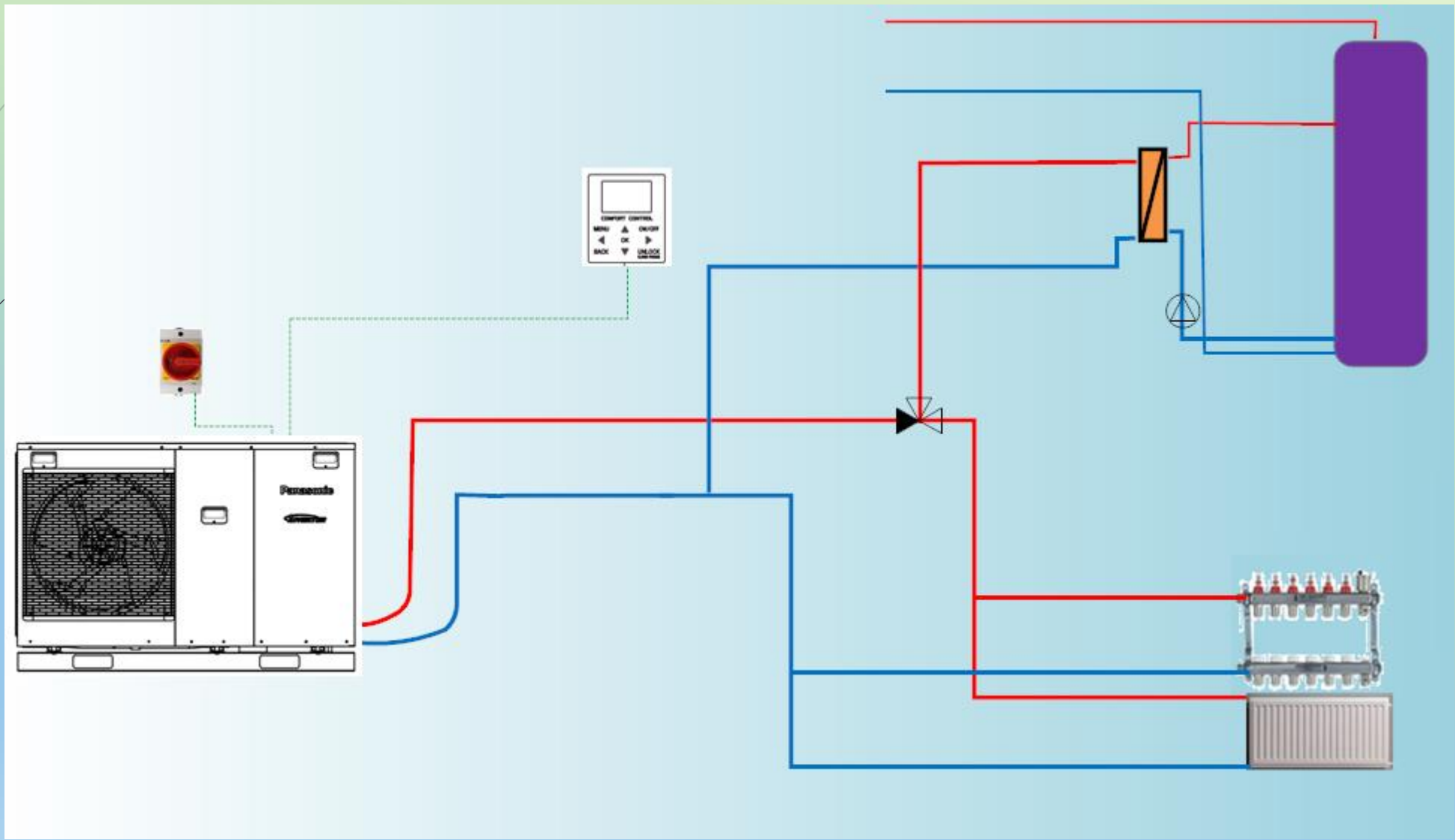
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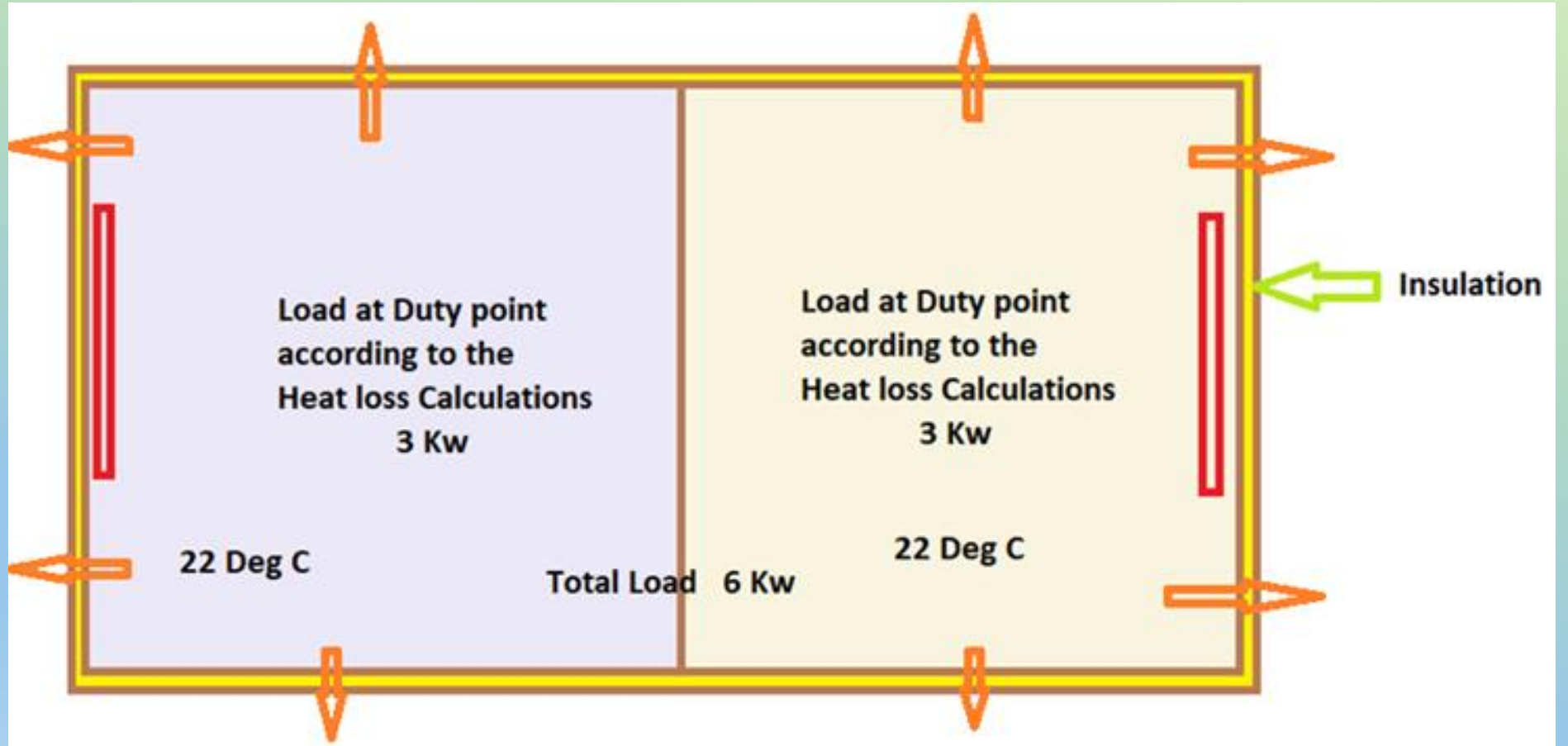
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- ▶ Allow the system to run as long and as low as possible.

# High Performing Heat Pump System Design



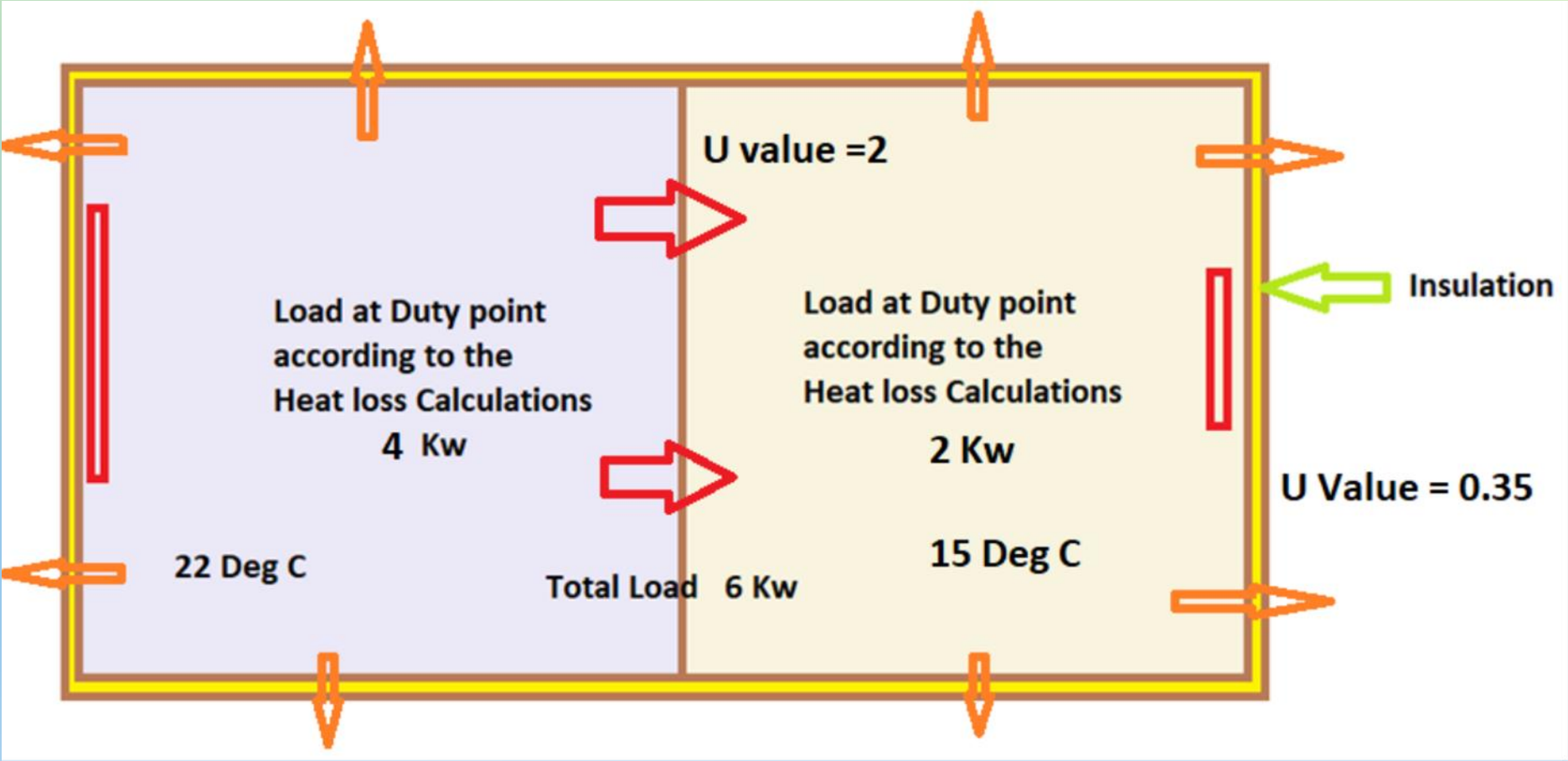
# Some fundamental pitfalls to avoid.

## Zoning

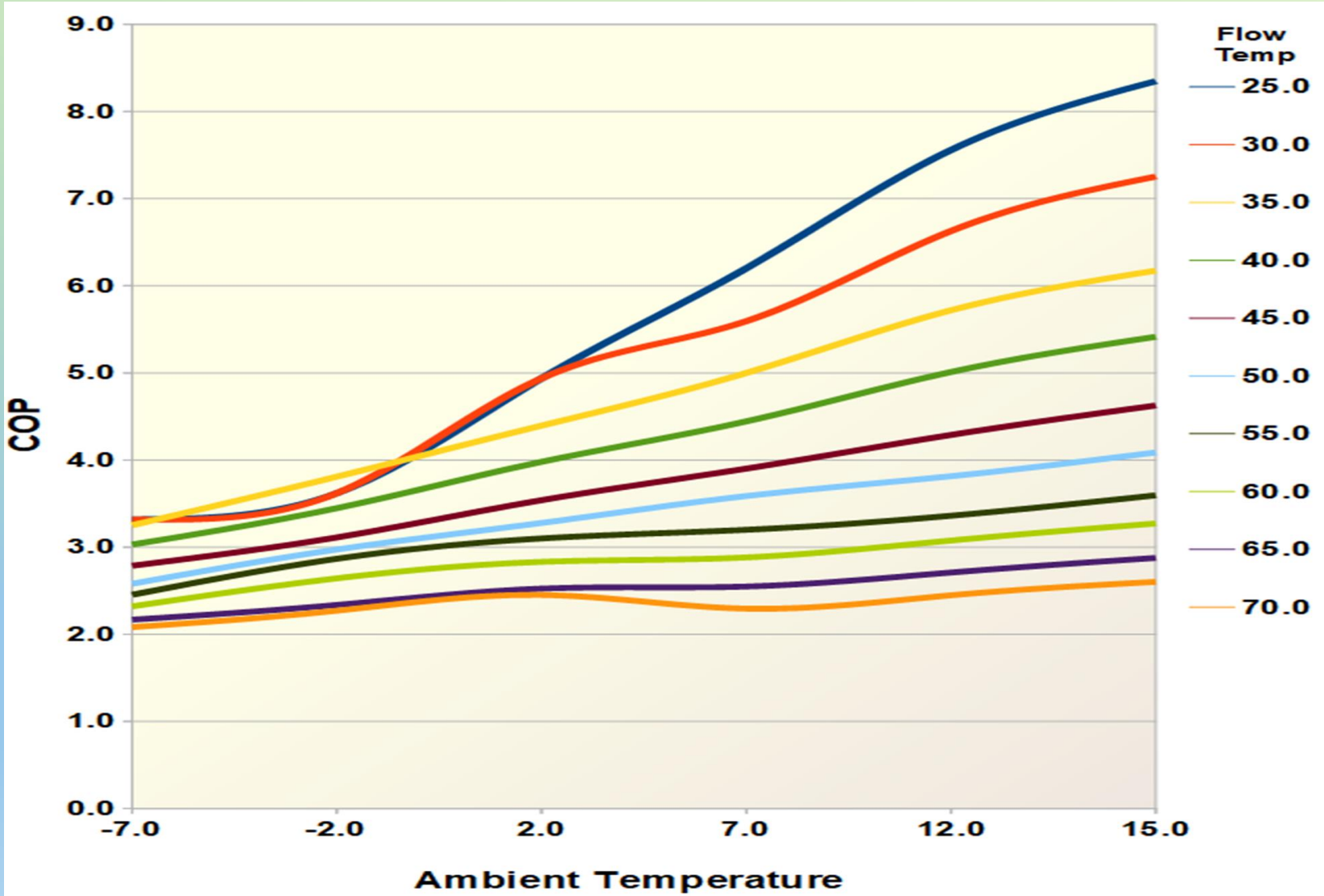




# Zoned Installation

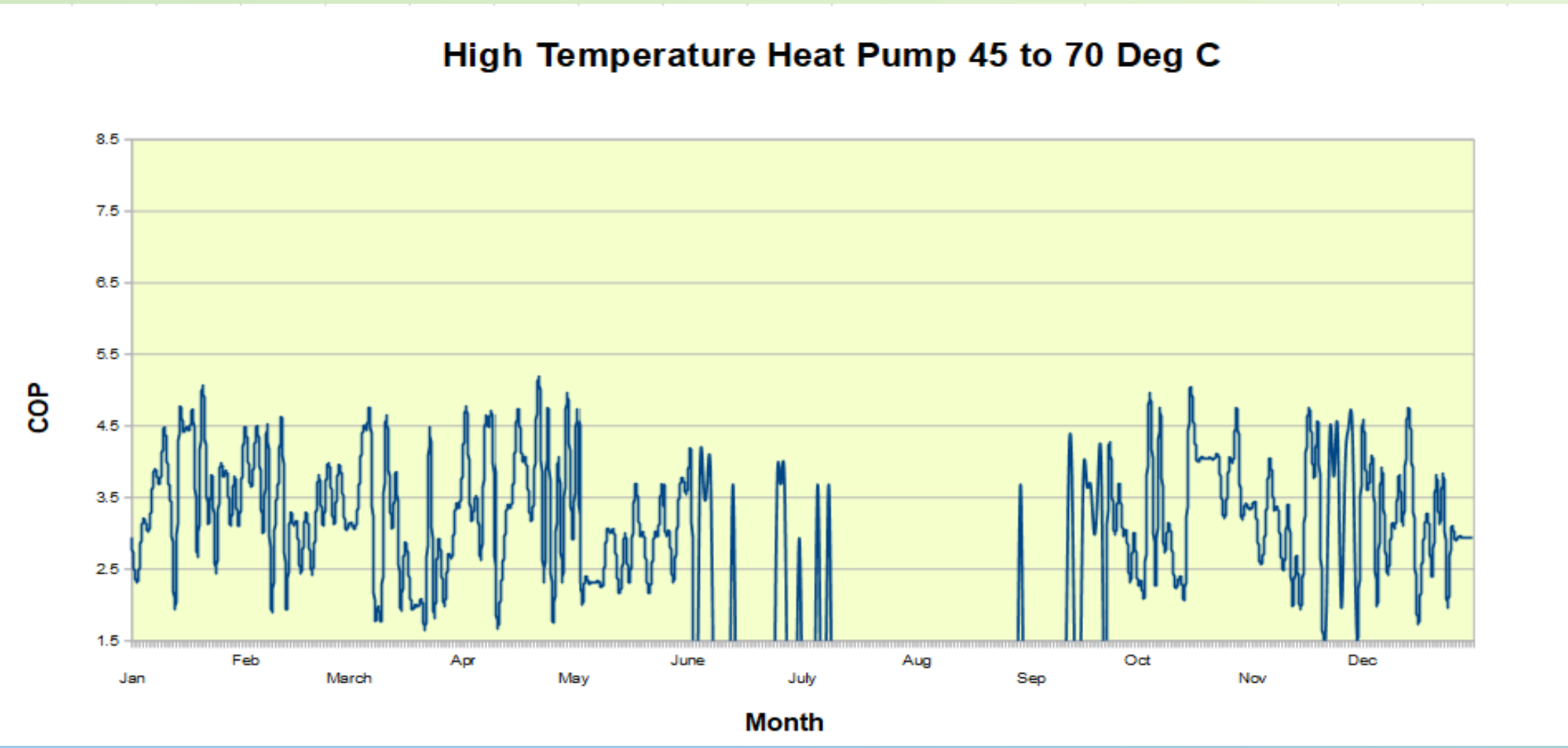


# High Temperature heat pump



# Calculated SCOP Using Manufacturers Published Data

## 2.47

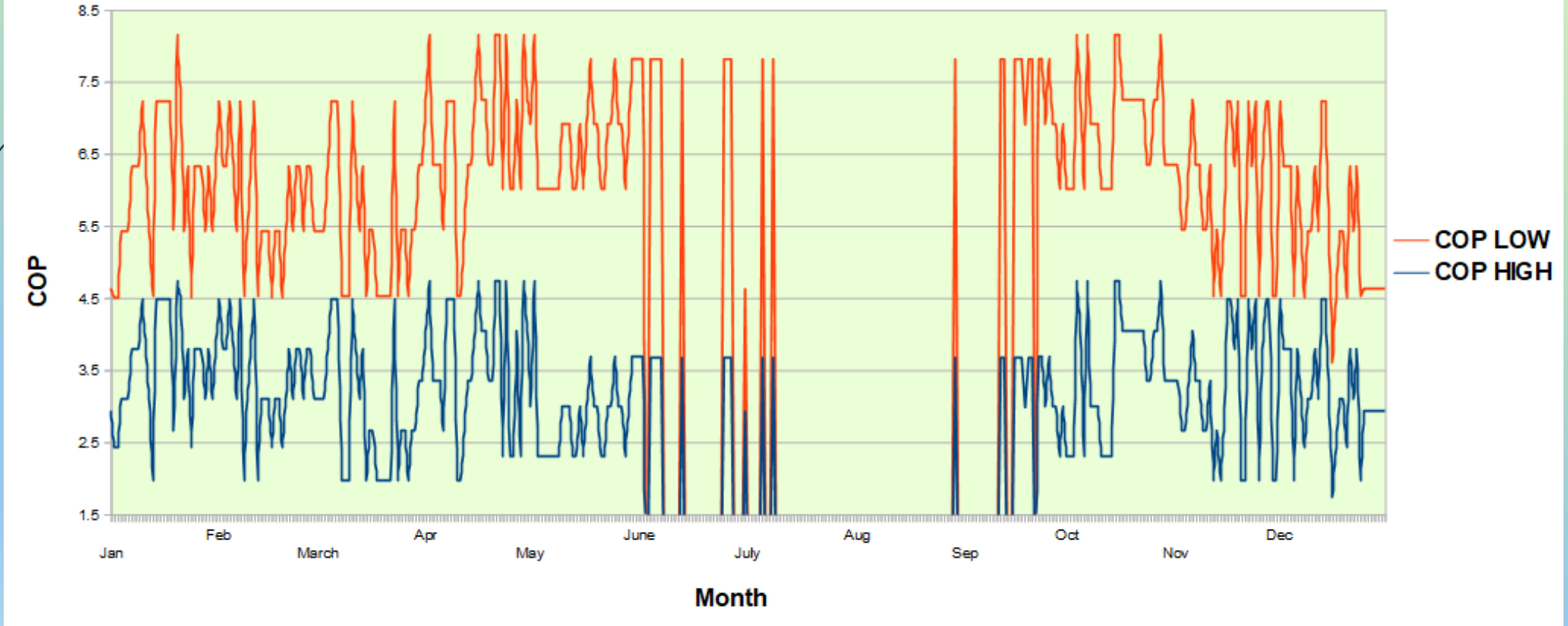


Hourly temperature readings at Birmingham Airport 2022 on a 9 Kw Duty Point load

**Calculated**  
**SCOP High Temp Operation**  
**2.47**

**Low Temperature Operation**  
**4.71**

**Comparison between Low temoearture and High Temperature Operation.**  
**High Temperature 45-70 Deg C**      **Low Temperature 25-45 Deg C**



# Running Cost Comparison

- @ 30p/Kw Hr Electricity and 9p /kw Hour Gas and Boiler Efficiency of 85%
  
- High Temperature :    £3410.00                    +£540.00                    20% increase
  
- Low Temperature:        £1840.00                    -£1040.00                    35% reduction

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**Thank you**

**Any Questions?**