Tool Day 2017 Edinburg, Scotland

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Hypotheses

- With the vents and the doors closed, the room becomes stuffy

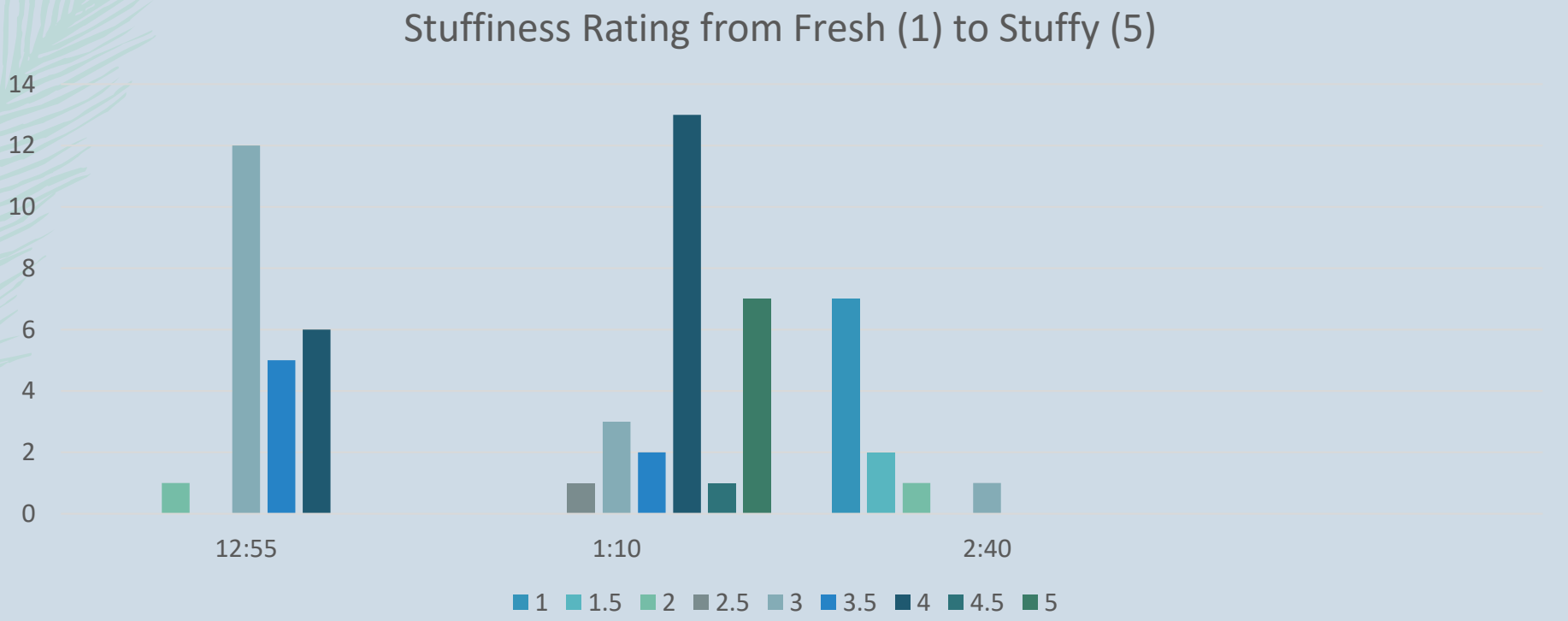
Corollary Hypotheses

- With vents and doors closed with people in it, the room temperature will rise at a rate of half a degree centigrade per fifteen minute.
- With vents and doors closed with people in it, the temperature will stratify.
- When the vents and doors open, the top cools faster than the bottom of the room.
- When the vents and doors open, the room temperature will cool down at a rate of 1 degree centigrade per five minute

Methodology

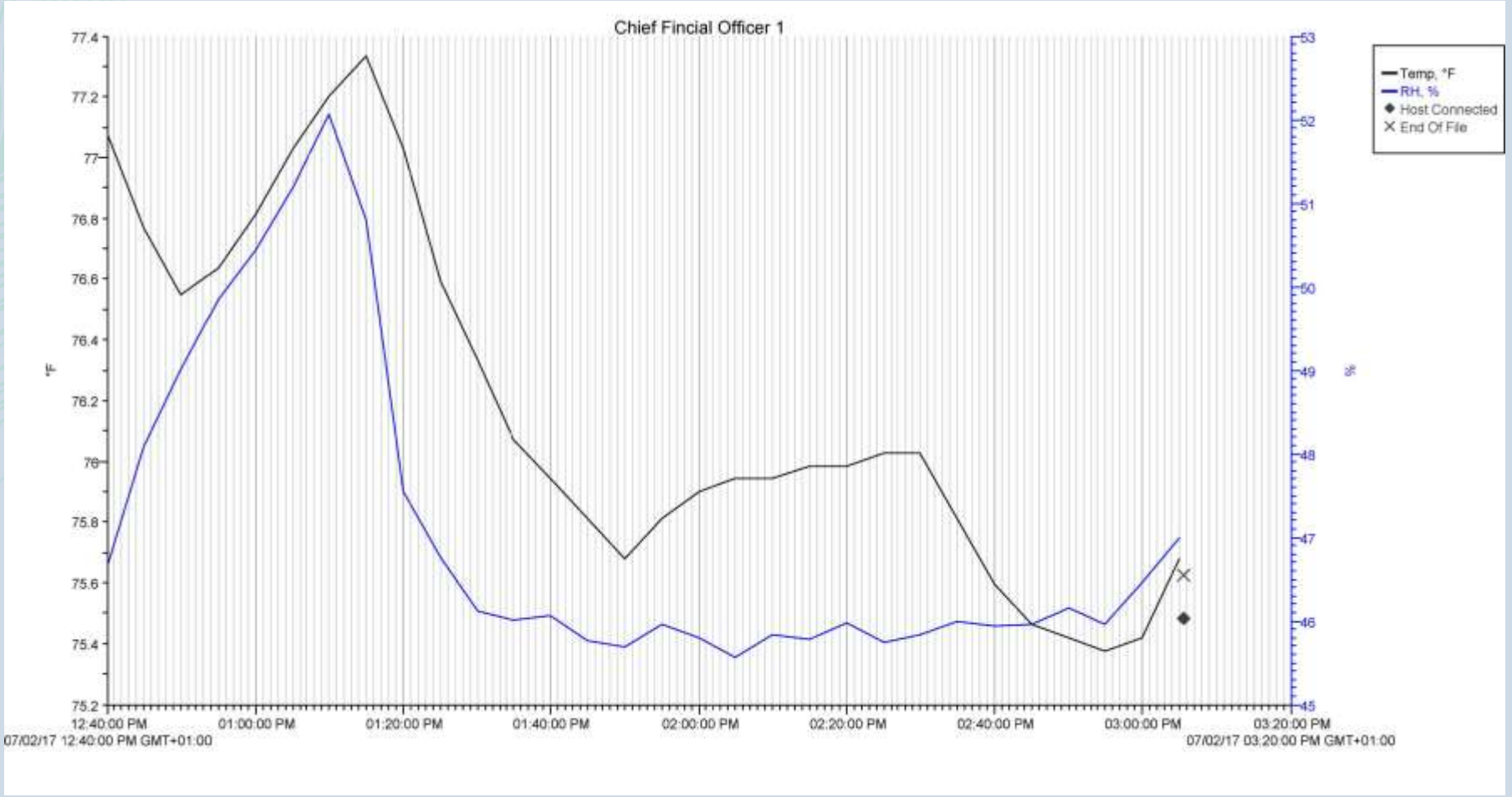
- Close the operable windows and doors and place HOBO data readers around the room, 3 feet up, on the ground and on the table.
- Took a survey 10 minutes after closing the windows and doors and again at 25 minutes from when everything was closed on the air freshness rating from 1 to 5.
- We opened all the windows and doors and let the HOBOs record data while it cooled down
- We let the air circulate through the room, and redid the survey and hour and a half after opening the windows and doors and collected the data from the HOBOs.

Human survey data collection



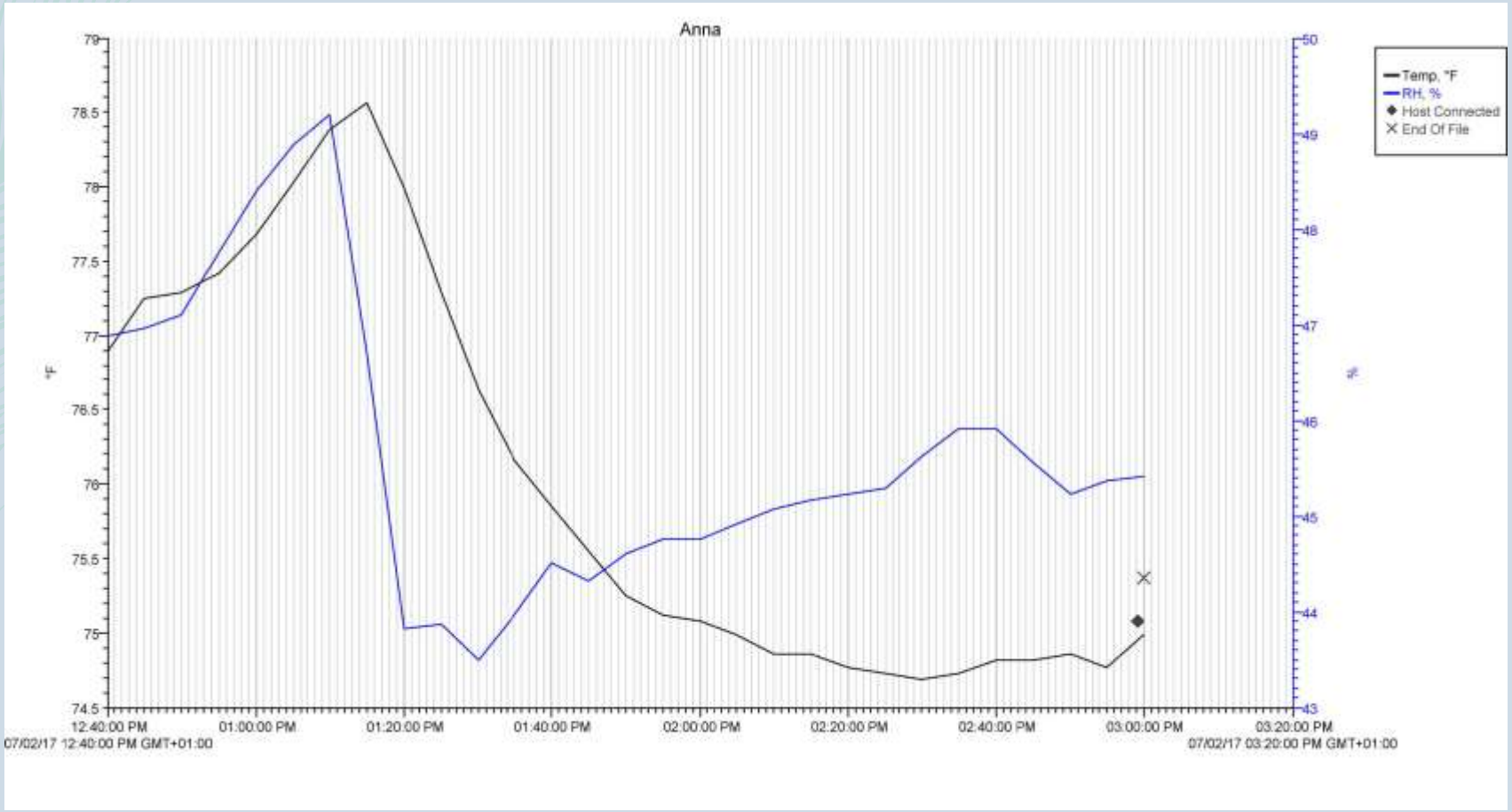
HOBO Data

- High placed Hobo



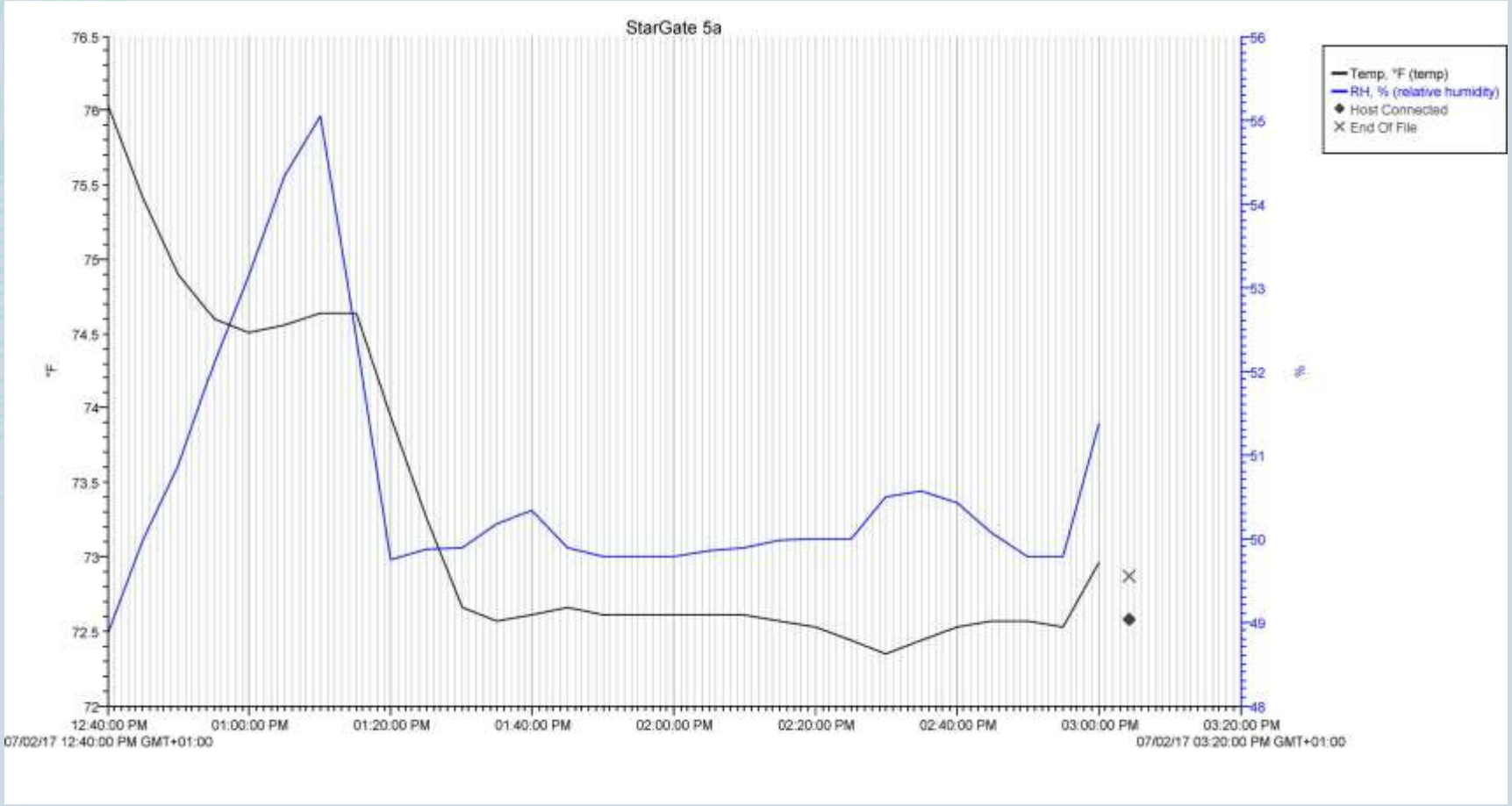
Hobo Data

Medium Placed HOBO



HOBO Data

- Low Placed HOBO



Variables

- Temperature changing
- Relative humidity changing
- Stuffiness changing

-- Could not track (externality)

- Where people came from when they entered the room

Conclusion

Hypotheses testing

- True: With the windows closed the room grew stuffy and upon their opening became less so.
  - False: The temperature rose faster than half a degree centigrade in fifteen minutes
  - True: The temperature stratified as it rose
  - False: the top did not change in temperature faster than the bottom; the bottomed changed faster.
  - False: The temperature fell quicker than one degree centigrade in 5 minutes.
  - Other Notes: The higher the temperature and humidity, the more stuffy the room was rated by those inside.

Group Photo