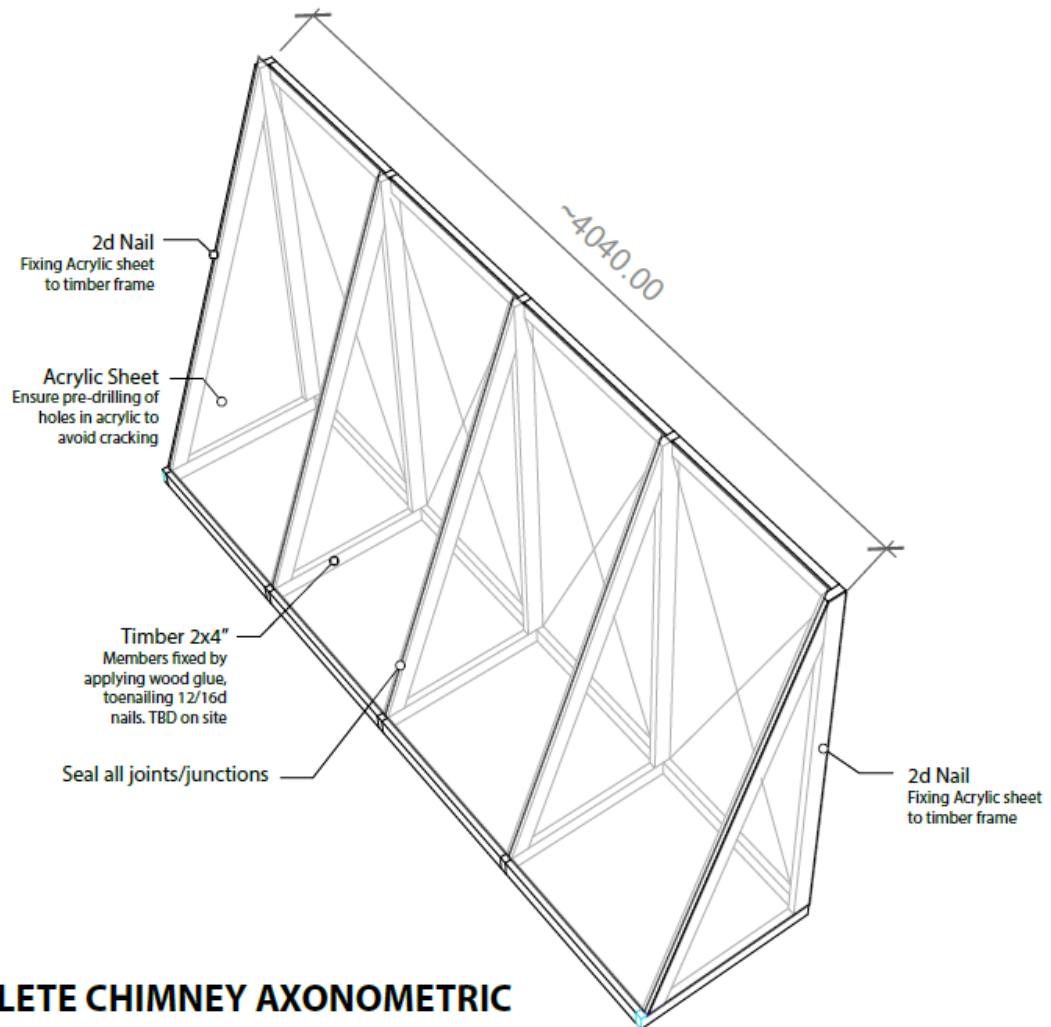


Carrasco-Tenezaca *et al.* Effect of passive and active ventilation on malaria mosquito-house entry and human comfort: an experimental study in rural Gambia. Journal of the Royal Society Interface.

Supplementary material



COMPLETE CHIMNEY AXONOMETRIC
Not To Scale

Figure S1. Axonometric view of solar wall

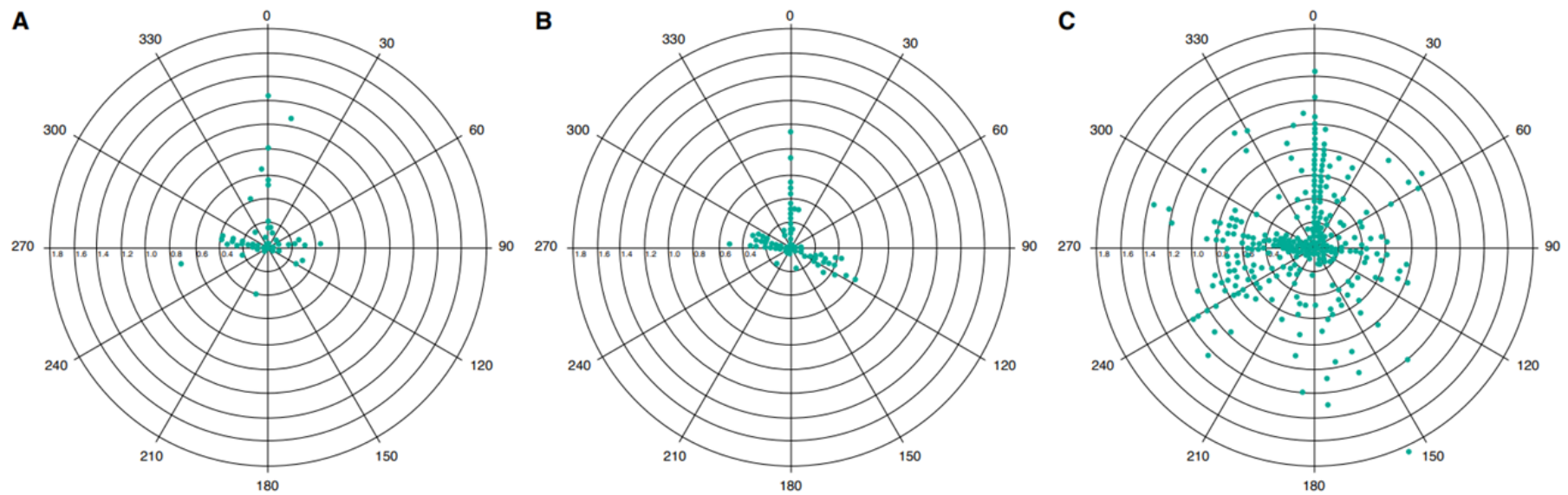


Figure S2. Wind rose showing wind speed (in m/s) and direction during the Solar chimney experiment. Where A= first part of the night (21.00 h to 23.59 h), B= second part of the night (00.00 h to 07.00 h) and C= day

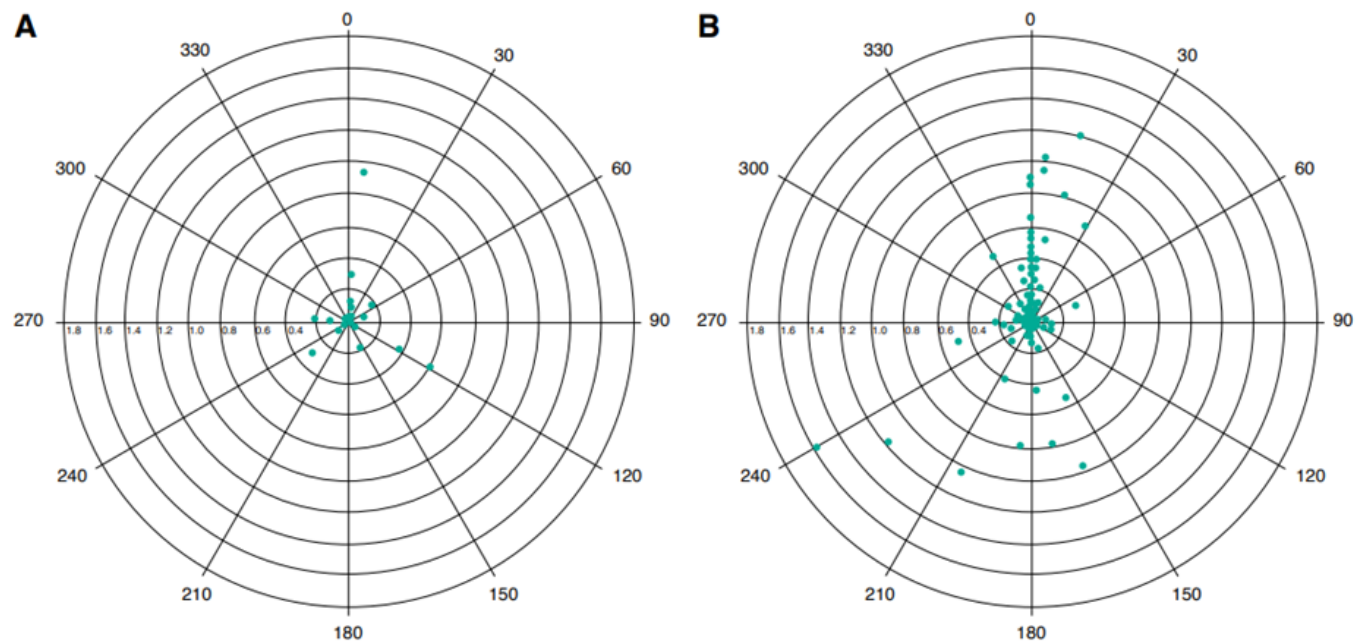


Figure S3. Wind rose showing wind speed (in m/s) and direction during the ceiling fans experiment. Where A= first part of the night (21.00 h to 23.59 h) and B= second part of the night (00.00 h to 07.00 h)

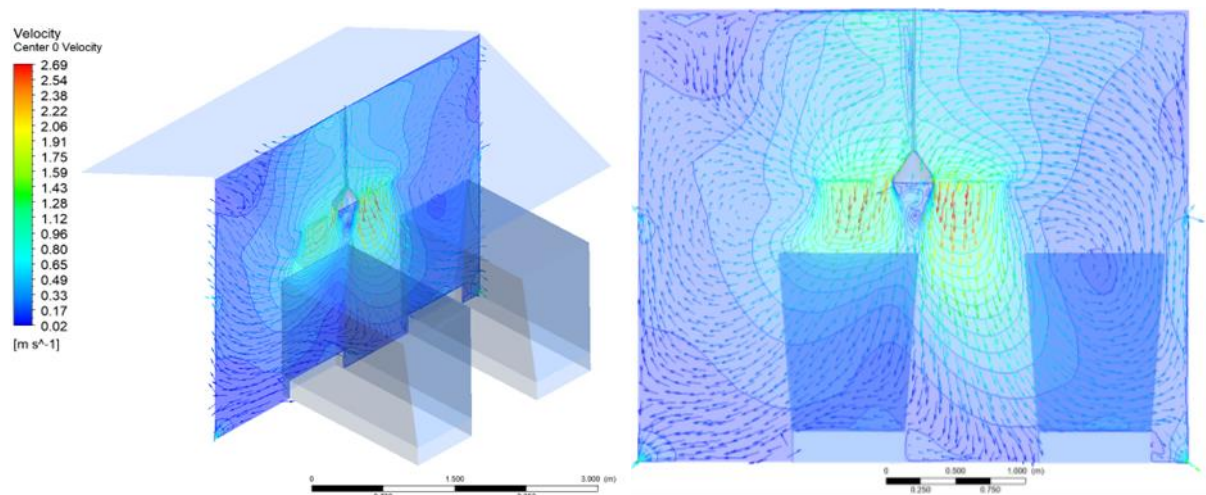


Figure S4. Velocity plot in the house with ceiling fan

The fan induces an air speed of 2.69 m/s, which is reduced when it passes through the bednet, and eventually becomes 0.36 m/s on average when it reaches the sleepers.

Table S1. Relative humidity during experiment 1.

RH= relative humidity. Linear regression results, adjusted for house position, sleeper pair and night

| House typology | Time period | | | | | | | | |
|----------------|---------------------------------|----------------------|---------|---------------------------------|----------------------|---------|---------------------------------|----------------------|---------|
| | 21.00 h to 23.30 h | | | 00.00 h to 07.00 h | | | 07.30 h to 20.30 h | | |
| | Unadjusted mean RH (%) (95% CI) | Coefficient (95% CI) | P value | Unadjusted mean RH (%) (95% CI) | Coefficient (95% CI) | P value | Unadjusted mean RH (%) (95% CI) | Coefficient (95% CI) | P value |
| Outdoors | | - | - | | - | - | | - | - |
| Control | 75.1 (72.6 – 77.5) | - | - | 77.1 (75.1 – 79.0) | - | - | 71.0 (68.7 – 73.4) | - | - |
| Chimney | 74.9 (72.5 – 77.3) | -0.18 (-0.63 – 0.28) | 0.44 | 77.3 (75.4 – 79.2) | 0.22 (-0.19 – 0.64) | 0.29 | 70.7 (68.3 – 73.0) | -0.39 (-0.88 – 0.11) | 0.12 |

Table S2. Mosquito collection for all experimental nights in both experiments.

| | Solar chimneys | | Fans | |
|------------------------------|----------------|--------------|---------|--------------|
| | Control | Intervention | Control | Intervention |
| <i>An. gambiae</i> female | 132 | 114 | 101 | 37 |
| <i>An. gambiae</i> male | 2 | 8 | 2 | 0 |
| <i>An. pharoensis</i> female | 4 | 4 | 0 | 0 |
| <i>An. pharoensis</i> male | 1 | 2 | 0 | 0 |

| | | | | |
|------------------------------|------|------|------|-----|
| <i>An. ziemani</i> female | 1 | 2 | 1 | 3 |
| <i>An. ziemani</i> male | 1 | 0 | 0 | 0 |
| <i>An. rufipes</i> female | 0 | 1 | 10 | 4 |
| <i>An. rufipes</i> male | 0 | 0 | 0 | 0 |
| <i>An. funestus</i> female | 0 | 1 | 1 | 1 |
| <i>An. funestus</i> male | 0 | 0 | 0 | 0 |
| <i>An. squamosus</i> female | 1 | 3 | 1 | 0 |
| <i>An. squamosus</i> male | 1 | 1 | 0 | 0 |
| <i>Culex</i> spp. female | 10 | 15 | 14 | 5 |
| <i>Culex</i> spp. male | 2 | 6 | 2 | 1 |
| <i>Cx. thalassius</i> female | 12 | 10 | 19 | 4 |
| <i>Cx. thalassius</i> male | 0 | 1 | 0 | 0 |
| <i>Mansonia</i> spp female | 1008 | 1231 | 2491 | 978 |
| <i>Mansonia</i> spp male | 0 | 5 | 2 | 1 |
| <i>Aedes aegypti</i> female | 3 | 6 | 0 | 0 |
| <i>Aedes aegypti</i> male | 0 | 1 | 0 | 0 |

Table S3. Relative humidity during experiment 2.

RH = relative humidity. Linear regression results, adjusted for house position, sleeper pair and night

| House typology | Time period | | | | | |
|-------------------|---------------------------------|----------------------|---------|---------------------------------|----------------------|---------|
| | 21.00 h to 23.30 h | | | 00.00 h to 07.00 h | | |
| | Unadjusted mean RH (%) (95% CI) | Coefficient (95% CI) | P value | Unadjusted mean RH (%) (95% CI) | Coefficient (95% CI) | P value |
| Outdoors | 98.8 (97.9 – 99.6) | - | - | 99.3 (98.9 – 99.7) | - | - |
| Control (fan off) | 79.1 (77.9 – 80.3) | - | - | 80.0 (78.9 – 81.2) | - | - |
| Fan on | 78.2 (77.4 – 79.0) | -0.20 (-0.78 – 0.37) | 0.49 | 79.4 (78.7 – 80.0) | -0.21 (-0.70 – 0.29) | 0.42 |