BAB V
KESIMPULAN DAN SARAN

5.1. Kesimpulan

Dilakukan studi untuk menganalisis performa termal atap hidroponik. Analisis tersebut dibuat berdasarkan model matematis persamaan panas yang diformulasikan dalam program Python. Simulasi panas menghasilkan data pembanding bangunan rumah hunian dengan dan tanpa atap hidroponik. Model simulasi diuji dengan teknik iterative refining untuk mendapatkan hasil simulasi dengan nilai error sekecil mungkin. Hasil simulasi berupa data harian fluktuasi termal permukaan dan ruangan yang terdapat dalam bangunan. Berdasarkan hasil simulasi yang didapat, tanaman hidroponik memiliki kemampuan untuk menurunkan temperatur ruangan hingga mencapai 7ºC. Atap hidroponik, layaknya atap hijau pada umumnya, dapat menurunkan paparan fluks panas radiasi matahari yang diterima pada atap dan menurunkan temperatur ruangan terutama saat siang hari sehingga model atap ini dapat menjadi solusi strategi pasif di daerah tropis.

5.2. Saran

Kelebihan atap hidroponik dari model atap hijau lainnya adalah fleksibilitas dalam medan pemasangan dan perawatannya. Selain dapat ditempatkan di medan miring, model ini juga dapat dipasangkan secara vertikal sehingga dapat menjadi bahan penutup dinding. Kemampuan atap hidroponik yang mampu mengurangi paparan fluks panas matahari dapat dimaksimalkan bila model tersebut dipasangkan sebagai penutup dinding. Perlu adanya penelitian lebih mengenai simulasi mengenai topik ini sekaligus studi eksperimennya.

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