

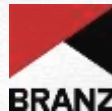
PHPP and LCAQuick

an integrated energy / Life Cycle Assessment toolset



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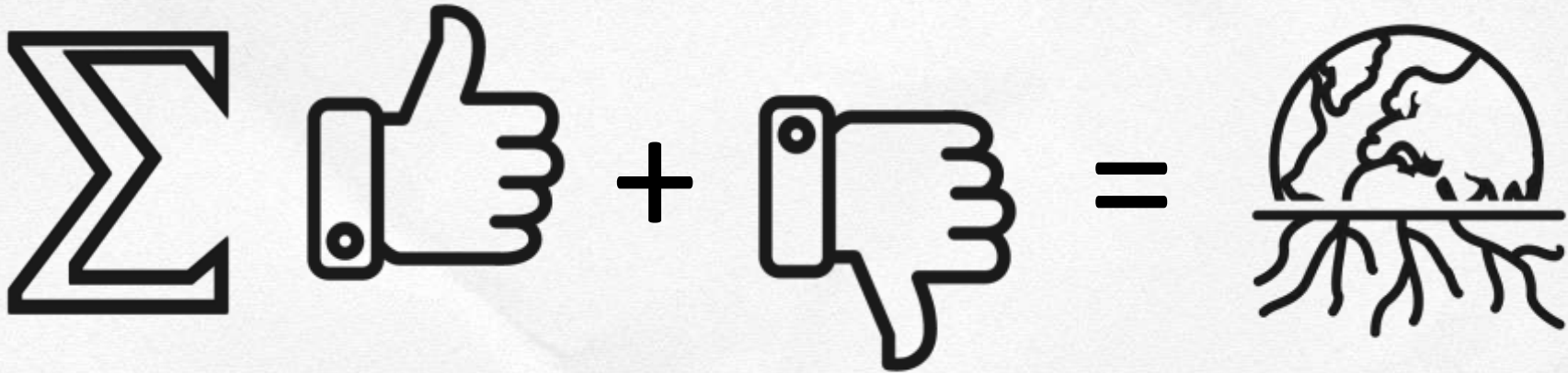


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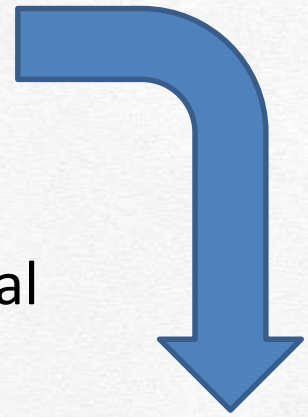


What is LCAQuick



**Guide to environmental impacts at concept design stage
--Design out greenhouse gases--**

PHPP linkage to LCAQuick

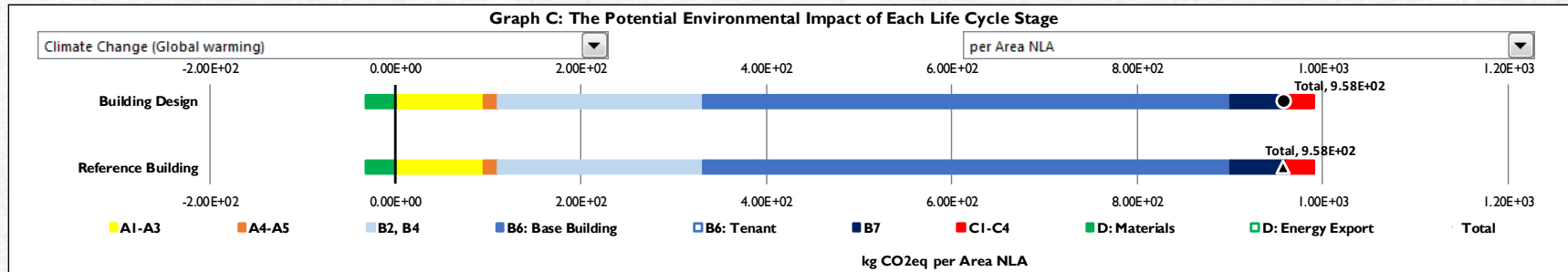


Variants Excel

- Energy
- Material Quantities

Excel links

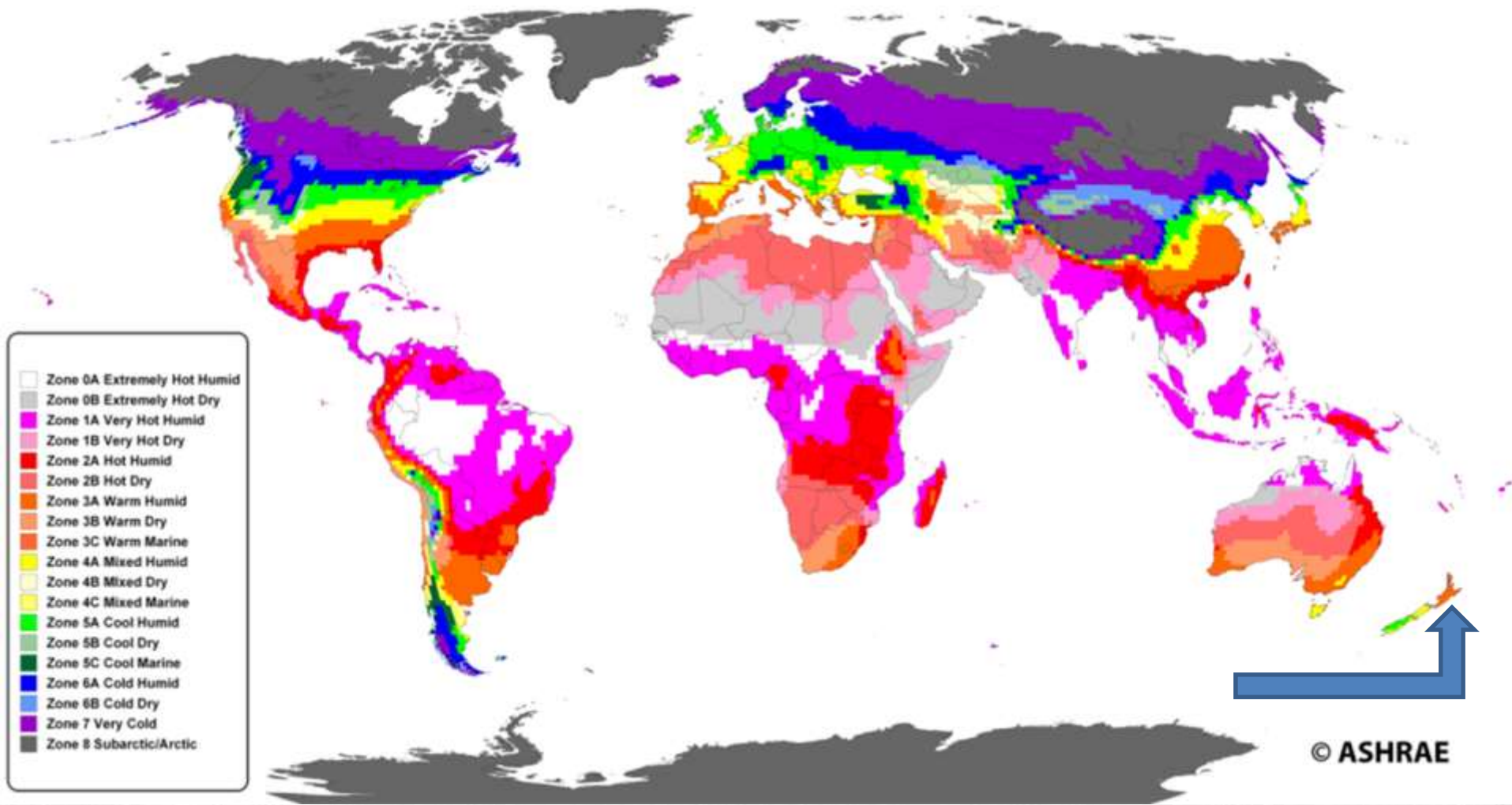
- Environmental impacts

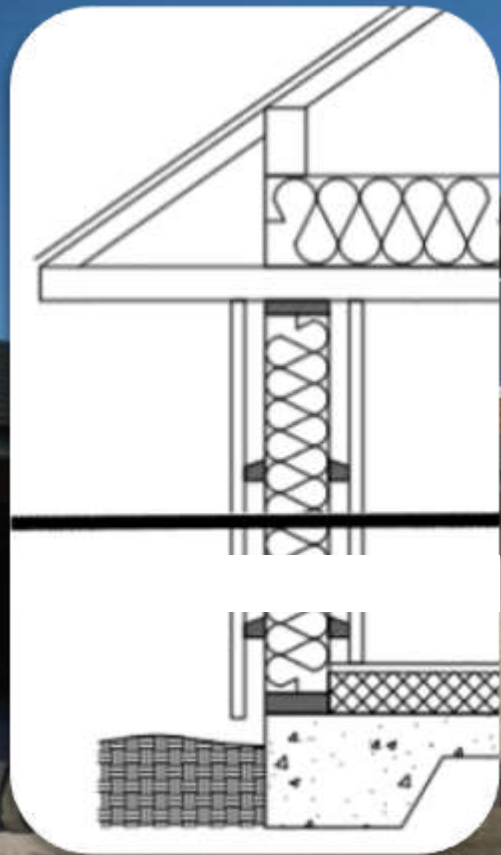


LCA for this study is thermal envelope focused



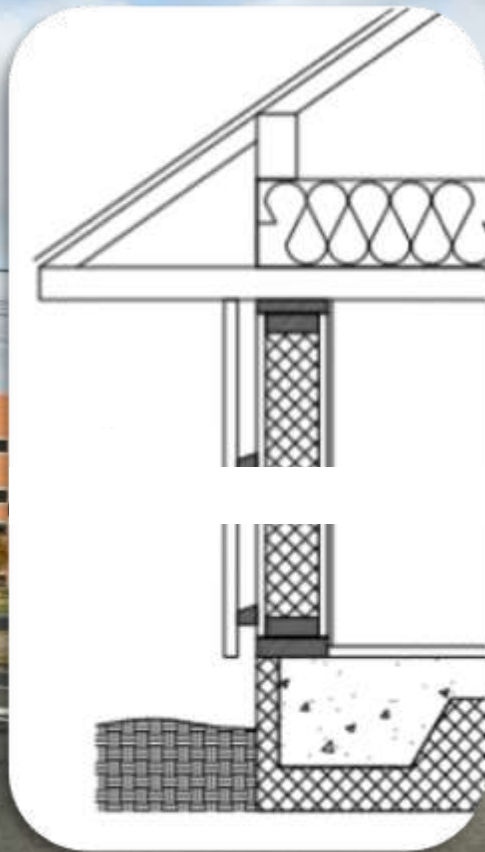
Walls, Roof, Floor and Windows





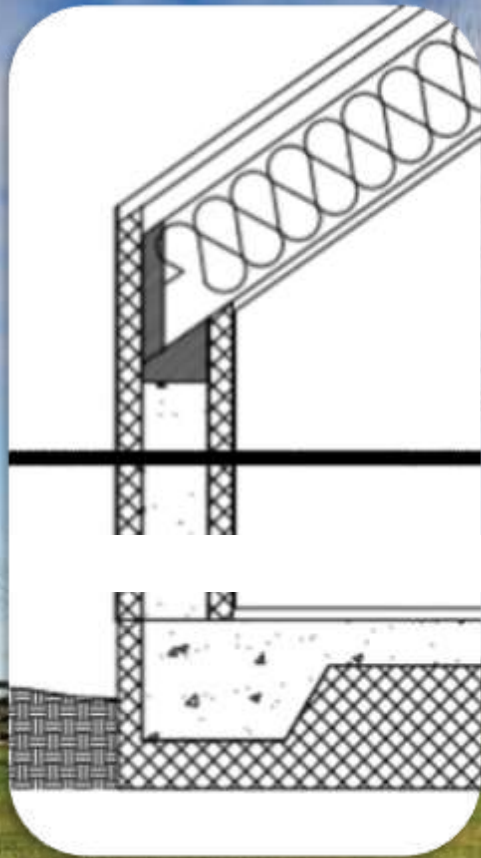
TFA = 257

Heat Loss Form Factor = 2.6



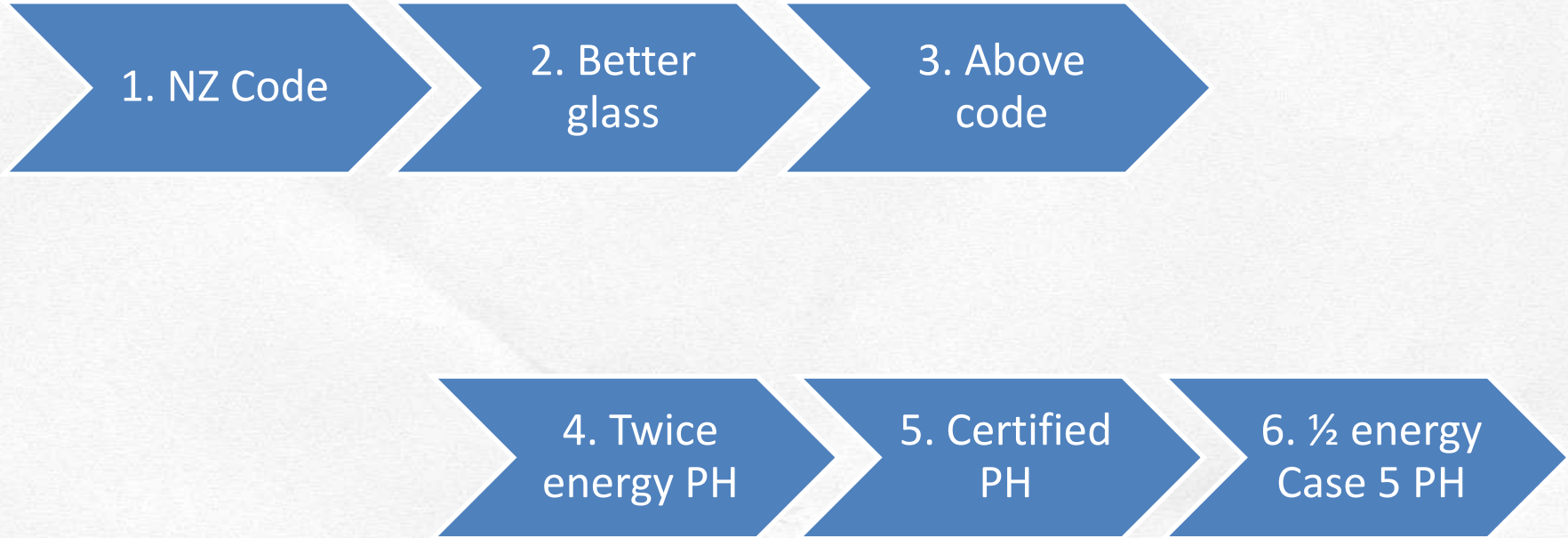
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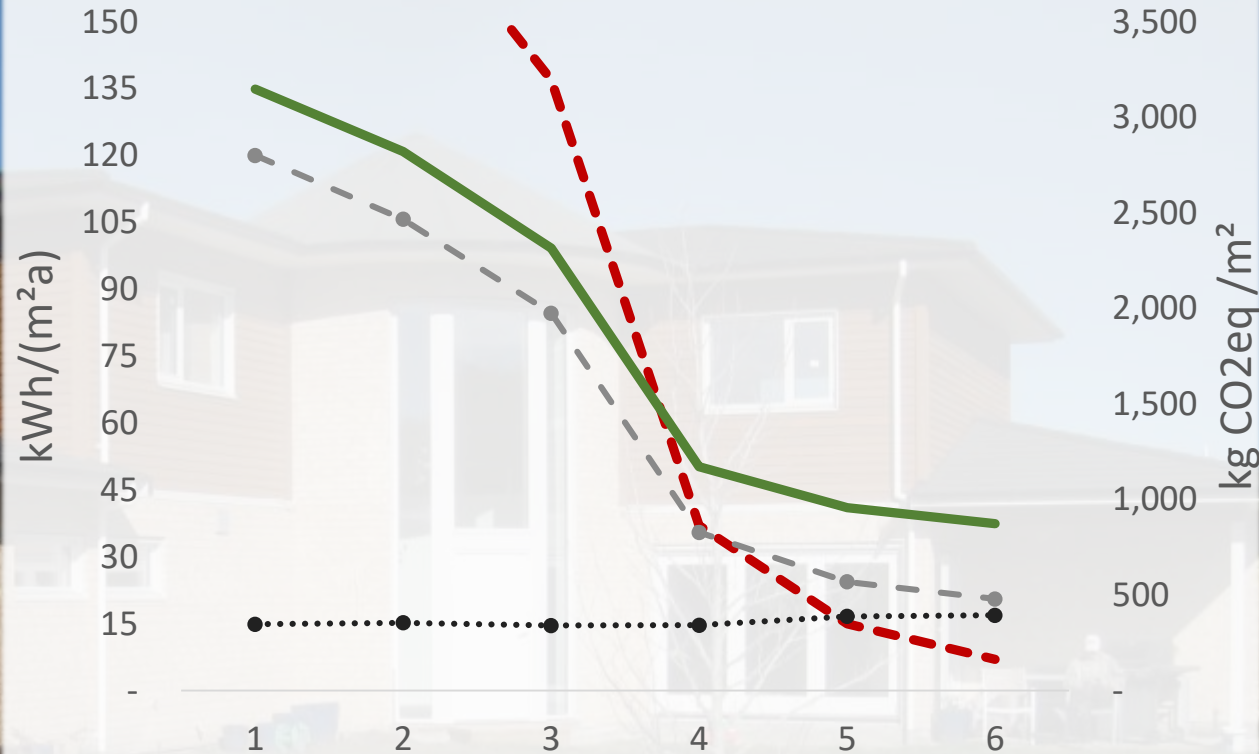
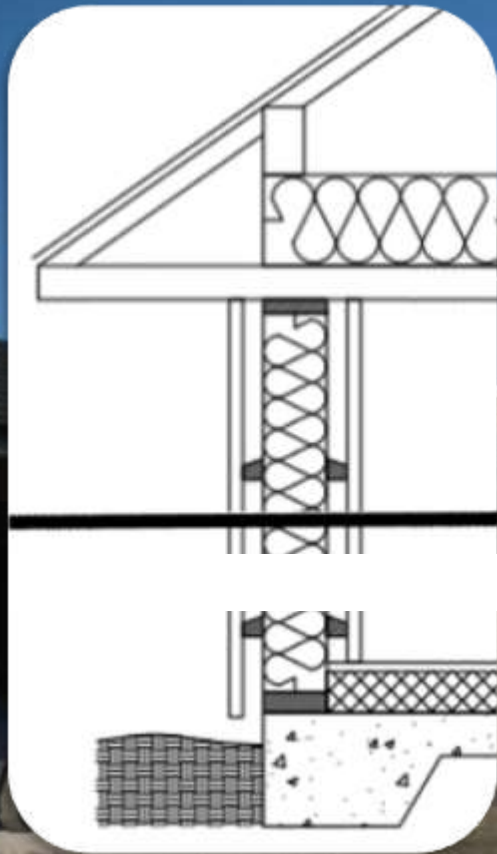
Heat Loss Form Factor = 3.1



TFA = 135
Heat Loss Form Factor = 2.9

Heating Demand





--- PHPP kWh

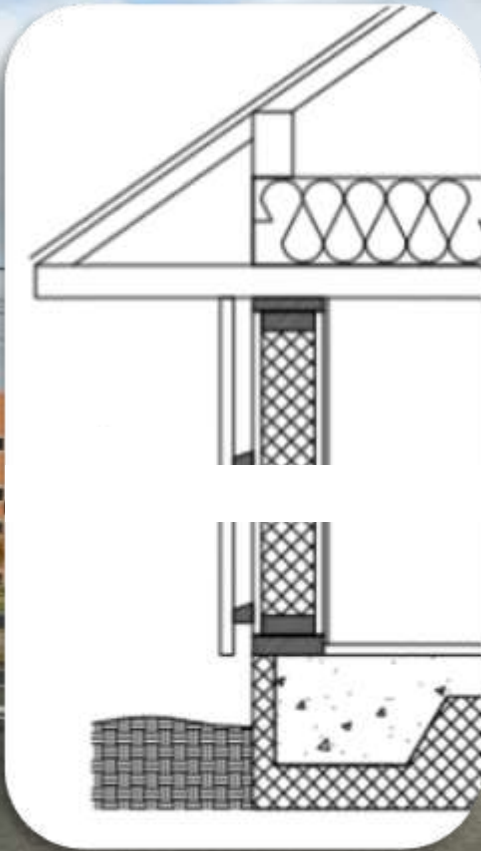
— Total CO2eq

... Total CO2eq - operational

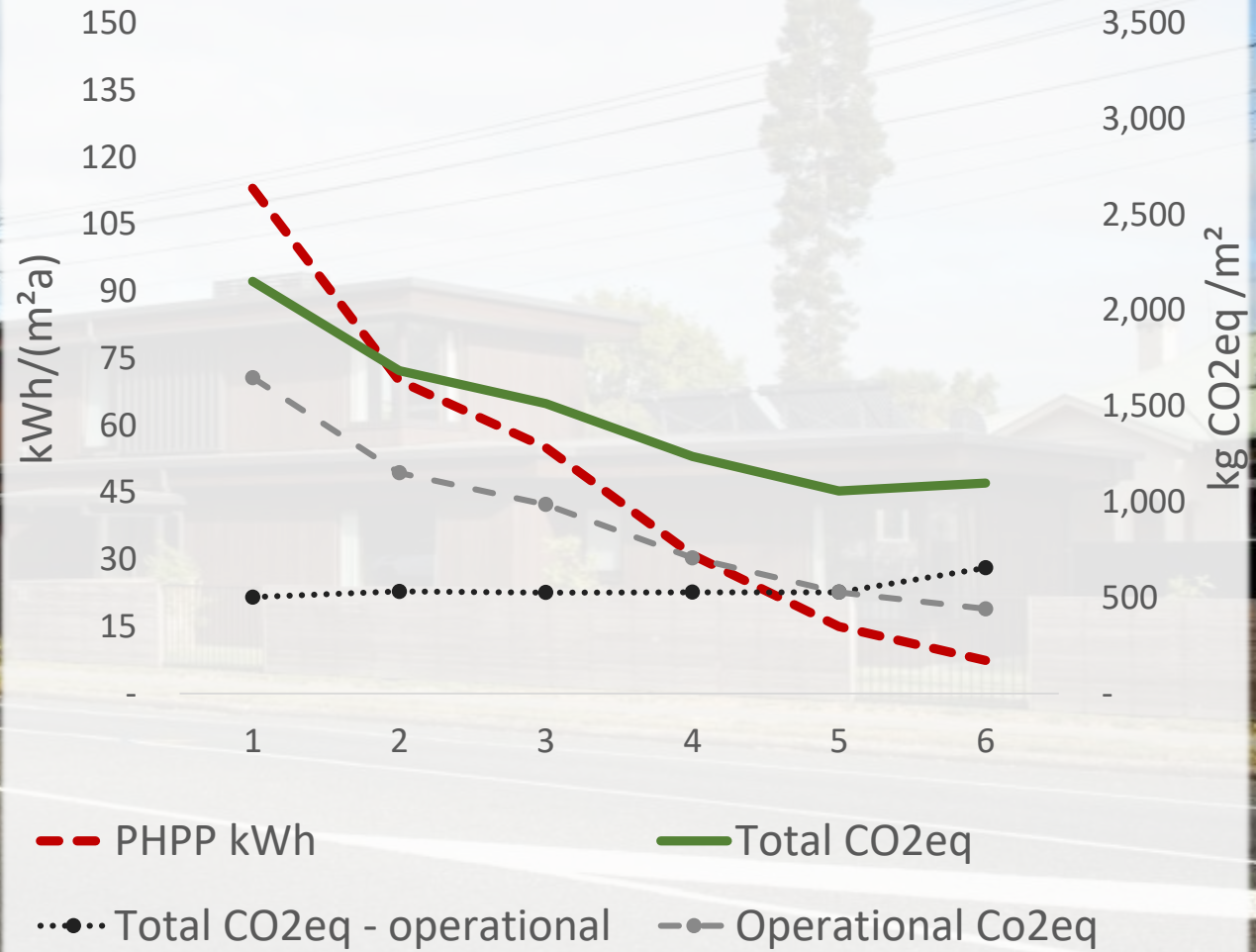
-•- Operational Co2eq

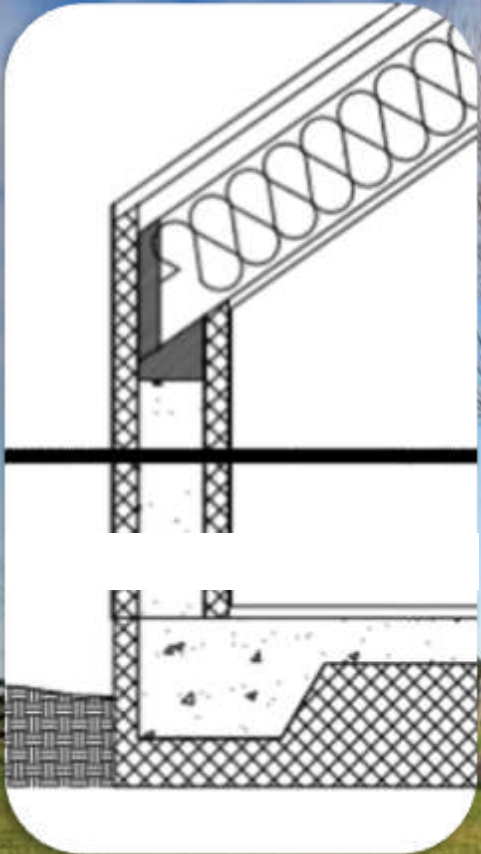
TFA = 257

Heat Loss Form Factor = 2.6

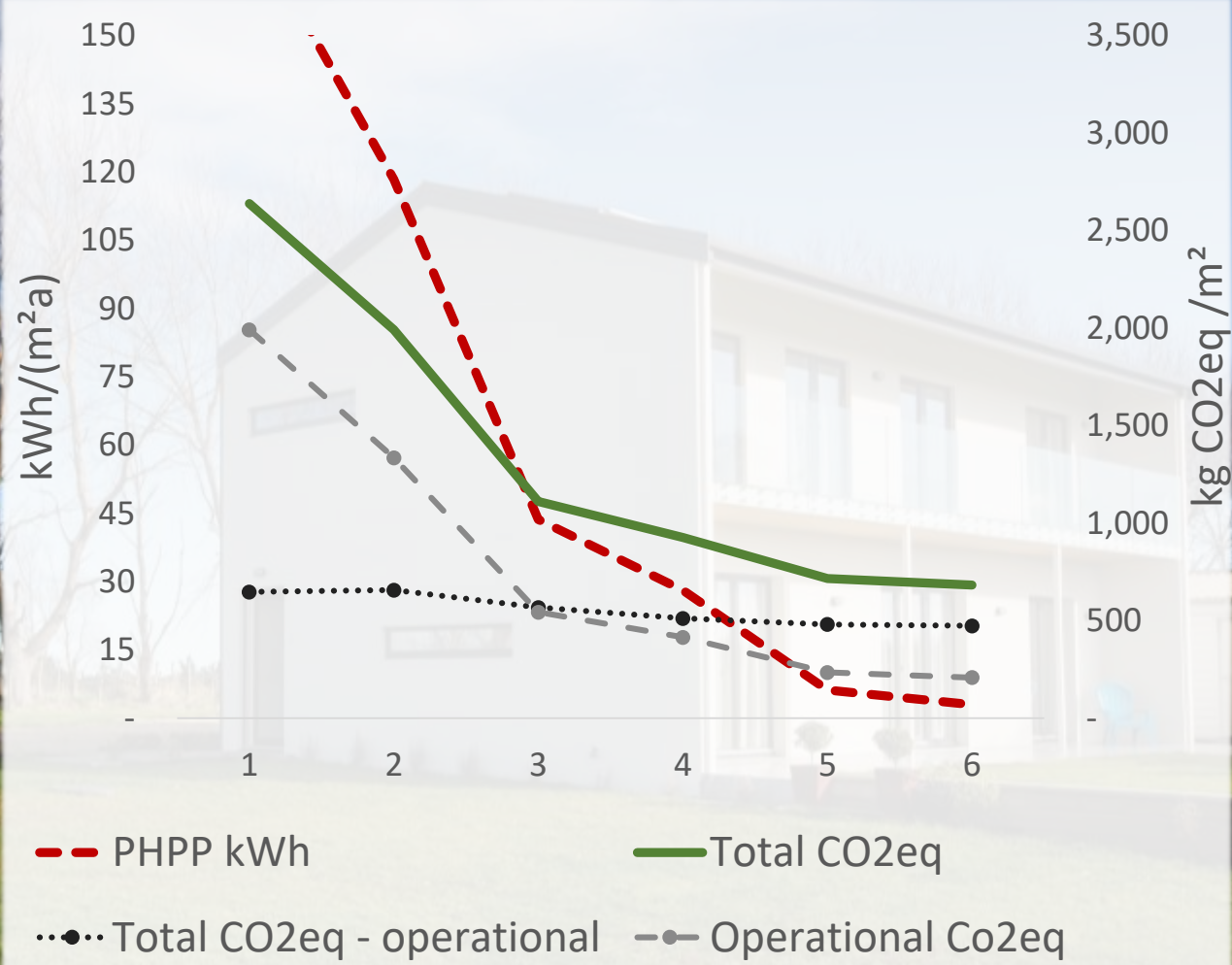


TFA = 207
Heat Loss Form Factor = 3.1





TFA = 135
Heat Loss Form Factor = 2.9



Conclusion

- Ecological optimum ($\text{kgCO}_{2\text{eq}}$) is Passive House heating demand or less
- NZ embodied energy (high $\text{CO}_{2\text{eq}}$) and 'green' grid (low $\text{CO}_{2\text{eq}}$)
- Climates – warm temperate/cool temperate