TREES TIME

Design in Constant Transformation

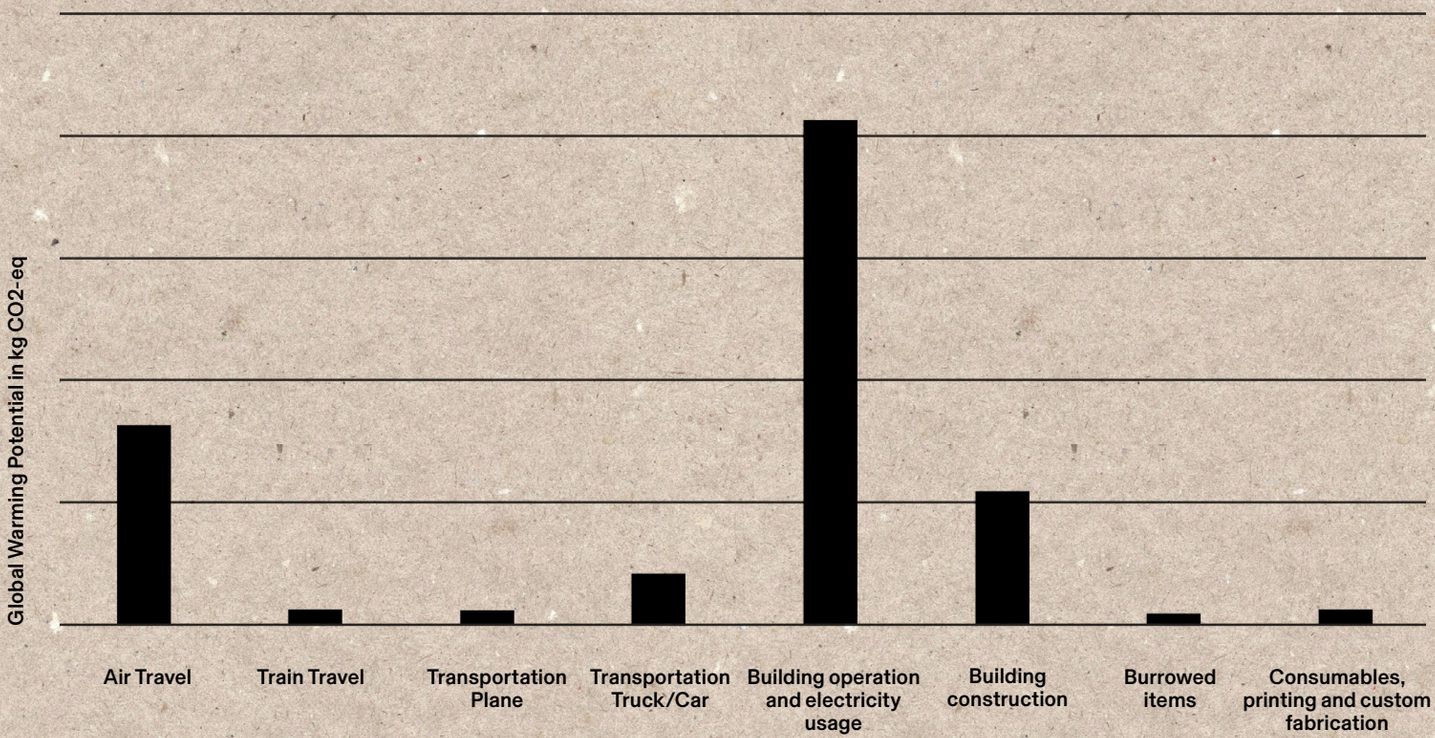
Life Cycle Based
Carbon Footprint

ARCHITECTURE

A.M.

Understanding the Life Cycle Based Carbon Footprint of the Exhibition “Trees, Time, Architecture! Design in Constant Transformation”

Life Cycle Assessment of the Exhibition “Trees, Time, Architecture! Design in Constant Transformation” regarding Global Warming Potential in kg CO_2-eq.



Over its six-month duration (plus assembly and dismantling times), the exhibition “Trees, Time, Architecture! Design in Constant Transformation” generated a total of approximately 43 tonnes of CO_2-equivalent (CO_2-eq) emissions.

This value is estimated with an accuracy of ±10%. A detailed breakdown of the life cycle-based emissions highlights the primary sources contributing to the exhibition’s carbon footprint.

Major Emission Contributors

The majority of emissions stem from building operations and construction, which together account for 71% of the total emissions. Personal travel contributes 20.5%, while transportation of exhibition materials and the exhibition architecture itself contribute 6.1% and 2.4%, respectively.

Breakdown of Emissions by Category

A closer look at the specific emission sources provides insight into the key contributors:
Building Operation & Electricity Usage: 25.0 t CO_2-eq
Building Construction: 5.4 t CO_2-eq
Air Travel for Personal Transport: 8.2 t CO_2-eq
Train Travel for Personal Transport: 0.6 t CO_2-eq
Air Transport of Exhibition Materials: 0.6 t CO_2-eq
Land Transport (Trucks/Cars) of Exhibition Materials: 2.1 t CO_2-eq
Borrowed Items: 0.5 t CO_2-eq
Consumables, Printing, and Custom Fabrication: 0.6 t CO_2-eq

Interpretation and Implications

This breakdown highlights the significant impact of building operations and travel-related emissions. The high energy consumption for air conditioning and electricity, along with air travel, play a major role in the overall carbon footprint. In contrast, the exhibition architecture itself accounts for a relatively small fraction of emissions.

To reduce the environmental impact of future exhibitions, potential strategies could include optimizing energy efficiency, using sustainable building materials, reducing reliance on air travel, and enhancing local sourcing for exhibition materials. Awareness of these factors is crucial in designing more sustaina-ble cultural and artistic events.

By understanding and addressing these emissions, the exhibition “Trees, Time, Architecture! Design in Constant Transformation” provides an important case study for improving sustainability in temporary architectural installations.

For more detailed insights into the calculations and for all topics relating to sustainable construction, please contact Dr.-Ing. Michael Vollmer and Dr.-Ing. Hannes Harter from vesta sustainability consulting directly.

vesta sustainability consulting

vesta sustainability consulting UG
c/o Impact Hub
Gotzinger Str. 8
81371 Munich
www.vesta-consult.de

Dr.-Ing. Hannes Harter
+49 172 5847714
hannes.harter@vesta-consult.de
Dr.-Ing. Michael Vollmer
+49 160 96977983
michael.vollmer@vesta-consult.de