Energy Savings Report

Locatee's technology provides workplace leaders with the data clarity and insights they need to manage their office strategy, portfolio, and experience.

Adapting building operations to actual occupancy and space demand offers an important opportunity to rapidly decommission entire floors and, as a consequence, reduce energy usage as much as possible for these areas.

Locatee forecasts the maximum space demand on a weekly or daily basis, allowing for a safe closure of floors, guaranteeing a positive experience for employees and visitors, while enabling energy savings.



General Overview

Data source: Locatee Analytics (Wi-Fi corporate devices)

Period of analysis: July 4 (Mon) - September 9 (Fri), 2022

Data collection: Data is collected every 5 minutes. If there is a connected device detected at the time of measurement, the space where the device is located is counted as occupied.

Scope:

- The data included in this report is related to utilization of a 14-story building ("the Building").
- The main floor was excluded from analysis from the perspective of employee re-allocation due to lack of desks located at this floor.

Building Overview

Building utilization vs market

●Average utilization (%) ● Absolute peak (%) ● Average: benchmark ● Peak: benchmark



*Market benchmarks are based on August 2022 data for 28 office buildings located in the region (Switzerland and Germany). The above graph presents utilization metrics of the Building for August 2022 as compared to market benchmarks collected in the same period. The Building was selected for this case study due to the fact that it is representative of the current office occupancy observed for the buildings located in the region. Therefore, findings included in this case study could potentially be applied to other buildings of similar characteristics located in the region.

Analysis of per week savings

This section details the available energy savings when optimizing the building on a weekly basis, taking the weekly maximum free at peak forecast as a basis for optimization.



Building utilization forecast

Building capacity optimization scenario



Weekly: 8 floors operating

The above charts include actual and forecasted maximum occupancy, as well as spaces that will remain available (free at peak) at each floor. The view also presents possible re-allocations of employees between floors in order to minimize the number of floors utilized during a specific time period. Optimizing the operations of the building according to such occupancy patterns could lead to significant reductions in building operations and energy expenditure.

Analysis of space savings

Energy reference area (EBF): **15,138 m²** 14 identical floors, area per floor: **1,081 m²**

Based on the forecasted peak floor utilization: a maximum of 5 out of 14 floors may be closed on a weekly basis. This would result in 5,405 m² of space being excluded from operations.

This translates to: 36% of space savings

Analysis of heating energy savings

On average, reducing room temperature by 1 °C saves 6% of heating energy. Assuming an average temperature of 21 °C for operating rooms and 18 °C for non-operating rooms, the heating energy savings = (3 °C * 6%)*(number of nonoperational floors)/(total number of floors).

This translates to: 6.43% in heating energy savings

Analysis of per day of week savings

This section details the available energy savings when optimizing the building on a day of week basis, taking the day of week maximum free at peak forecast as a basis for optimization.

Building utilization forecast: day of week



Max #people Free desks Forecast: max #people Forecast: free desks

*Monday, the 1st of August was excluded from forecast as it was a public holiday

The above graph shows the forecasted utilization for the week of the 12th of September 2022 broken down by day. Monday and Friday are characterized by significantly lower office attendance than other days of the week.



Building capacity and energy savings optimization scenario per day of week

Analysis of space savings

This represents a medium approach to space-saving according to space utilization and forecasts. A more conservative approach is also possible, as well as a more aggressive approach (for example, shutting down the whole building on Fridays considering the extremely low usage).

This translates to: Average space savings of **58%**

Analysis of heating energy savings

On average, reducing room temperature by 1 °C saves 6% of heating energy. Assuming an average temperature of 21 °C for operating rooms and 18 °C for non-operating rooms, the heating energy savings = (3 °C * 6%)*(number of nonoperational floors)/(total number of floors).

Monday	Tuesday	Wednesday	Thursday	Friday
4 floors	7 floors	7 floors	7 floors	2 floors
12.86%	9.00%	9.00%	9.00%	15.43%

This translates to: 11.05% in weekly heating energy savings