

# Appendix 1: Research Questions and Methodology

Because of the many different questions this analysis aimed to address, the methodology included several different approaches, all of which were conducted using SPSS.

## **Question 1.** What trends can be seen across QuadReal's benchmarked projects?

For this section of the analysis we used a simple descriptive analysis to establish the makeup of the portfolio. This stage enabled us to understand the score breakdown by project type and location, most frequently and least frequently implemented strategies, and to what extent certain health impacts are being achieved.

Health impacts were based on Fitwel's seven health impact categories, which include the following:

- Increases Physical Activity
- Promotes Occupant Safety
- Reduces Morbidity and Absenteeism
- Promotes Social Equity for Vulnerable Populations
- Instills Feelings of Well-Being
- Impacts Surrounding Community Health
- Enhances Access to Healthy Foods.

Each Fitwel strategy is associated with one or more of these seven health impacts, and assigned a unique point value based on the strength of the evidence and magnitude of the association between the intervention and the unique outcome. Project-level health impacts were calculated using a formula that sums scores of the individual strategies for each project. This approach allowed us to examine trends across projects and examine the relationship between Health Impact Categories and other outcomes.

## **Question 2.** What is the relationship between Fitwel score and tenant satisfaction and between Fitwel score and financial outcomes?

Given the size of the portfolio and the segmentation within the portfolio, a correlational research design was used to determine patterns in the data. Tenant satisfaction data was pulled from a question asked as a part of QuadReal's 2021 Tenant Satisfaction Survey. The question asked "How likely would you be to recommend a QuadReal-managed building to friends or colleagues as a place to visit or work?" for commercial buildings and then for multifamily residential buildings asked "How likely would you be to recommend a QuadReal-managed building to friends or family as a place to live?" Based on these responses, a median score was calculated for each project based on individual responses from tenants. This score is referenced as the "project recommendation score" throughout this report.

Meanwhile, financial data was provided to CfAD by the QuadReal team. For commercial buildings, the financial metrics used were **median tenancy** and **average vacancy**. Average vacancy was re-coded into 4 categories (1: 0 - 24%; 2: 25 - 49%; 3: 50 - 74%; 4: 75 - 100%). For residential buildings, metrics leveraged were **average tenure** and **rent per square foot**.

These analyses were run across three different groups to see what trends and associations emerged: 1) the whole sample, 2) separately for all residential projects and all office building projects, and 3) separately for each of the scorecards. Each of these analyses used a Pearson Correlation approach, which is used to measure the strength of a linear relationship between two variables.

**Question 3.** What is the relationship between Fitwel strategy application and tenant satisfaction and the relationship between strategy application and financial outcomes?

For this analysis, strategies were coded into four main categories: Location, Amenities, and Operations or Not Applicable based on the main goal of the specific strategy (see appendix 2). This breakdown allowed us to explore whether there was a relationship between how many strategies within a certain category a project achieved and specific outcomes. The outcomes explored through a correlational research design included tenant satisfaction, and financial return. A similar approach to that described above was used, but instead of using a Pearson Correlation, these analyses applied a Spearman Rho's correlation, which is a non-parametric test used to measure the strength of association between two variables.

**Question 4.** What is the relationship between health impact scores and tenant satisfaction?

To review this association, we ran a Pearson Correlation using the Health Impact Category scores described above and the project recommendation scores pulled from the tenant satisfaction survey. This approach allowed us to explore potential associations between certain health impact categories and project recommendation scores.

Data sets held by CfAD and QuadReal. Building level info not for sharing/ disclosure without written permission of authorized agent at QuadReal.