

# PROJECT PROFILE

## COST DATA ANALYSIS



### PROJECT BACKGROUND

This project analyzed and compared volumetric modular and conventional construction methods, with a focus on cost trends across key project features. The dataset included 14 residential construction projects, 11 of which are volumetric modular projects and 3 of which use conventional construction methods. Project features collected include unit type, number of units, square footage, and project duration.

The objective of this analysis was to provide insight into construction cost patterns, with a focus on comparing volumetric modular and conventional construction methods across the 14 residential projects.

### METHODOLOGY

1. Data Collection:
  - Collected data from contract documents, supplier records, project schedules, and architectural drawings.
  - Captured key metrics including:
    - Overall cost (including cost-plus and change order amounts)
    - Construction timelines
    - Unit details
    - Project size
2. Cost Analysis by Construction Method
  - Due to limitations in the data, the analysis relied primarily on exploratory data techniques.
  - Visual comparisons were used to highlight trends without making strong statistical assumptions.
3. Volumetric Modular-Specific Comparisons:
  - Evaluated additional variables unique to modular construction projects such as:
    - Cost comparisons by distance between factory and site.
    - Cost comparisons by supplier.

### 4. Future Data Collection:

- Developed a structured spreadsheet tool to support ongoing data collection and enable future updates to the analysis.

### RESULTS

- Preliminary findings show similar patterns between volumetric modular and conventional construction projects in metrics such as:
  - Cost per square foot
  - Cost per unit
  - Project duration
  - Cost by unit types
- Large variability was observed, suggesting individual project metrics vary widely.
- Analysis of modular-specific metrics revealed interesting patterns with potential cost implications, suggesting areas for further investigation.
- A data collection framework and analysis methodology were also developed to support future project analysis and facilitate ongoing comparisons as more data becomes available.

### RECOMMENDATIONS

- Continue data collection across a broader set of projects to improve sample size and enable more rigorous comparisons.
- Apply the developed analysis framework consistently in future projects to ensure up to date data.
- Investigate environmental and performance factors such as greenhouse gas emissions reductions, noise pollution impacts, and cost certainty.
- Consider collecting qualitative data through interviews with manufacturers and suppliers to understand discrepancies in cost, material availability challenges, and subcontractor issues.