

Architectural Plan Edge Cases

This document outlines scenarios where the system may encounter limitations during architectural plan processing, leading to incomplete or partially generated cost estimations within the VIAB Platform.

1. Missing Dimension or Area Data

- **Scenario:** The system fails to extract room sizes (e.g., missing labels or scale) from architectural plans.
- **Scenario:** User provides only a partial floor plan (e.g., one floor out of three).
- **Impact:** Cost estimation is incomplete or only partially generated, as the BOQAgent relies on accurate dimensional data for material and cost calculations.

2. Mention of Uncommon Building Materials

- **Scenario:** Architectural plans or user input mention custom or uncommon building materials (e.g., rammed earth, aerated concrete) that are not present in the Knowledge Base.
- **Impact:** The BOQAgent may not be able to provide accurate cost estimations for these specific materials, leading to gaps in the overall Bill of Quantities.

3. Incomplete or Corrupted Input

- **Scenario:** The input PDF or image is missing crucial information such as rooms, dimensions, or text labels.
- **Scenario:** The provided scans are blurry or low-resolution images, making it difficult for the system to accurately parse details.
- **Scenario:** The layout within PDFs is misaligned, leading to incorrect interpretation of spatial relationships and object identification.
- **Impact:** The processing module may produce inaccurate or incomplete structured data, directly affecting the downstream processes of the InterviewAgent and BOQAgent, resulting in flawed Q&A or unreliable cost estimations.

4. Inconsistent BOQ Responses

- **Scenario:** Due to variations in input interpretation or knowledge base updates, the BOQAgent might produce slightly different cost estimations for the same architectural plan over time or across different sessions.
- **Scenario:** Ambiguities in the architectural plan (e.g., unclear material specifications, non-standard construction methods) lead to subjective interpretations by the system, resulting in varied BOQ outputs.
- **Impact:** Users may experience confusion or lack confidence in the platform's reliability if the cost estimations are not consistently reproducible, requiring manual verification or adjustments.