"Evaluation of the Construction Delays of the 12-Storey Commercial Building of RFM Corporation in Panay Avenue, Diliman, Quezon City"

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ABSTRACT

The objective of this study is to evaluate the construction delays of the 12 - Storey commercial building of RFM Corporation in Panay Avenue, Diliman, Quezon City during its construction phase. This research utilized a quantitative, descriptive-evaluative design. An expert-validated questionnaire served as the main tool for this project study's data collection. Numerical values were used to evaluate the significance of various delay factors for further analysis. The RFM project's primary factor for delay is the "Frequent design changes as requested/instructed by the client" and regarded as "All the Time". On the contrary, the resulting mitigation strategy of the RFM Project's workforce is the implementation of "Stricter pre-qualification criteria for subcontractors and suppliers", recording 30.00% of total survey results.

This underscores that the RFM Project delays are driven by internal variables rather than external or environmental conditions. This project study made the following recommendations: Encouraged implementation of strict pre-construction planning to finalize architectural and engineering designs before site mobilization, refine the procurement system, and to include a larger sample size across multiple construction projects to improve the generalizability and robustness of findings.

Keywords: Construction Delays, Cost Overruns, Performance of Projects, Schedule Extensions, Delay Mitigations, and client and administration related factors.

INTRODUCTION

The construction industry is the backbone of global infrastructure development, contributing significantly to economic growth and societal progress (Mbachu et al., 2016). However, despite these advances in engineering and project management, schedule delays still remain a common problem in the construction industry.

In our country, the Philippines, our construction sector has experienced remarkable growth, but local industry is sensitive to disruptions. It often faces severe weather challenges, and as well as specific logistical issues. These are intensified by complex technical processes. High-density urban zones like, Quezon City present further constraints, including limited staging areas for heavy equipment and strict zoning regulations. Despite there are already advancements in scheduling softwares or lean construction methods, there still remains a gap in the root causes of construction project delays.

This study aims to evaluate the primary causes and impacts of construction delays of the 12-Storey Commercial Building of RFM Corporation in Panay Avenue, Quezon City. This research will be used to identify and categorize delay factors, spanning to client administration, contractor execution, resource allocation, and environmental constraints, and to propose targeted mitigation frameworks that optimize timelines for future high-density vertical projects.

METHODOLOGY

The purpose of this study is to evaluate the construction delays of the RFM Project. A quantitative, descriptive, and evaluative design was employed in the study. An expert-validated questionnaire served as the primary data-gathering tool for the researchers. A complete enumeration was applied to select a total of forty (40) respondents, which included the sites' project managers, site engineers, construction managers, supervisors, and skilled laborers.

The results of the study were rated and interpreted using and as follows: 1 = Never/No Impact, 2 = Rarely/Minor Impact, 3 = Sometimes/Moderate Impact, 4 = Frequently/Significant Impact, and 5 = Always/ Severe Impact.

Table III - Limit and its Interpretation

Limit	Interpretation
1.00 - 1.80	Never/ No Impact
1.81 - 2.60	Rarely/ Minor Impact
2.61 - 3.40	Sometimes/ Moderate Impact
3.41 - 4.20	Frequent/ Significant Impact
4.21 - 5. 00	All the Time/ Severe Impact

Table III shows the limit of the average responses and its resulting equivalent interpretation. The researchers organized and analyzed the data using Microsoft Excel, and then applied frequency distribution, percentage calculations, and weighted means to rank the most disruptive factors.

CONCLUSIONS/RECOMMENDATIONS

Demographic Profile of Respondents

Table I - Professional Designation of Respondents

Professional Designation	Frequency (f)	Percentage (%)
Project Manager	1	2.50%
Structural/Civil Engineer	3	7.50%
Site Supervisor / Superintendent	2	5.00%
Labor/Skilled	28	70.00%
Quantity Surveyor / Cost Estimator	2	5.00%
Other (Construction & Mechanical Engr)	4	10.00%
Total	**40**	**100.00%**

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Table II - Respondent Experience on the RFM Project

Experience on RFM Project	Frequency (f)	Percentage (%)
0–6 months	2	5.00%
6–12 months (1 year)	12	30.00%
Within 1 to 2 years	14	35.00%
2 to 3 years	10	25.00%
3 years and above	2	5.00%
Total	**40**	**100.00%**

A sample of forty respondents who were directly involved in the RFM Project were included in the evaluation. The data showed that laborers and skilled workers makes up the majority of the workforce at 70.00%. This matches the usual employee distribution in local civil engineering and vertical constructions. Moreover, the largest group of respondents were (35.00%) and had between one to two years of experience working on the RFM Project. This tenure ensures that the sample being surveyed has a solid understanding of the project's timeline and challenges. This can be seen in Tables I and II.

Primary Factors Contributing to Construction D

Table IV - Frequency of Delay Factors

The resulting survey categorized the delay factors into four which are, client administration, contractor execution, resource allocation, and external conditions. "Frequent design changes as requested or instructed by the client" is the biggest issue which the result showed, with it ranking first overall with a weighted mean of 4.25, which is equivalent to "All the Time."

Now in terms of resource allocation, "Shortages of skilled or unskilled labor" ranked second in the survey with a weighted mean of 4.20 - Frequent. Contractor execution errors which require structural reworks ranked third, with a weighted mean of 3.90 - Frequent. These findings show that internal operational issues and requested changes by the client delays project progress much more than external factors which are changes in government regulations, which ranked the lowest overall.

Impact on Schedule Extensions and Cost Overruns

Table V - Level of Impact of Schedule Extensions

Delay Factor Group	Weighted Mean	Verbal Interpretation	Rank
Contractor/Execution factors on schedule	3.90	Significant Impact	1
Resource constraints on schedule	3.85	Significant Impact	2
Client/Admin factors on schedule	3.40	Significant Impact	3
External/Environmental factors on schedule	2.25	Minor Impact	4

Table VI - Level of Impact of Cost Overrun

Delay Factor Group	Weighted Mean	Verbal Interpretation	Rank
Contractor/Execution factors on budget	4.15	Significant Impact	1
Resource constraints on budget	3.75	Significant Impact	2
Client/Admin factors on budget	3.6	Significant Impact	3
External/Environmental factors on budget	2.15	Minor Impact	4

Referring to the impact on performance of the project, internal operations are at the biggest risk. Contractor and execution factors ranked highest, causing both schedule delays with weighted mean of 3.90, and cost overruns with weighted mean of 4.15. Both were classified as having a "Significant Impact" on project performance. Meanwhile, resource constraints and client administrative issues followed it close in severity.

External factors including severe weather conditions often faced in the Philippine construction, were seen having only a "Minor Impact" on time and the budget. This indicates that most delays come from process management and stakeholder issues, not environmental factors. This is shown in Tables V and VI.

Proposed Mitigation Strategies

Table VII - Mitigation Strategies and Interventions

Project Management Intervention Strategy	Frequency (f)	Percentage (%)	Rank
Stricter pre-qualification criteria for subcontractors and suppliers	36	30.00%	1
Utilization of Lean Construction methodologies to minimize waste and optimize flow	32	26.67%	2
Increasing contingency allowances in both budget and schedule	23	19.17%	3
Implementation of Building Information Modeling (BIM) for clash detection and coordination.	13	10.83%	4
Use of advanced project scheduling software (e.g., Primavera P6)	10	8.33%	5
Adoption of integrated project delivery (IPD) / collaborative contracting models	4	3.33%	6
Others: Adapting new methodology & proper timeline for pre-planning	2	1.67%	7
Total	120	100.00%	

To address operational weaknesses, project managers are encouraged to shift from reactive fixes to proactive measures meaning preventing the problem before it materializes. The most popular mitigation strategy among the surveyed is implementing "Stricter pre-qualification criteria for subcontractors and suppliers", which accounted for 30.00% of the total responses. The "Use of Lean Construction methods to minimize waste and improve flow" came in second at 26.67%.

This shows a favorable preference in ensuring stakeholder capability and making the physical workflow improve in efficiency rather than relying heavily on technologies like Building Information Modeling (BIM), or advanced scheduling software, which were rated much lower in the responses' preference.

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