Effect of Quality Control in Building Construction Processes amidst the Pandemic on Region III

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Abstract: - Building construction is widely used in a different country, which serves as a growth in the construction industry. Building processes have different approaches in every project horizontal or vertical projects. This study will be discussing on quality control in the building construction process use of unspecified materials and components during the construction process, how communication is important, unqualified manpower or workers, and building a quality building. This study tends to make good quality control in building construction to help government, private contractors, students, and others who need knowledge in the effect of having a good quality control vs having no/bad quality control. The objective of this project work is to produce a reliable technique for identifying adequate quality control systems for clients of building construction projects.

Key Words: — ***Quality, Control, Construction, Building.***

I. INTRODUCTION

There are required levels of quality in building construction to maintain its high standard even during the pandemic. Quality control is critical and essential in these times and should be applied in various processes of construction. [1]

The construction industry has been the center of progress for years in different countries all around the world particularly the Philippines. Highways, bridges, railway tracks, airports, real estate, and other different constructions encompass progress in the modern era.

Quality improvement should be the focus of the construction process preserving the safety and functionality of constructed establishments. However, errors and lapses still happen aggravated by a pandemic that may cause accidents and worst, death. [2]

Manuscript revised November 24, 2021; accepted November 25, 2021. Date of publication November 26, 2021.

This paper available online at www.ijprse.com

ISSN (Online): 2582-7898; SJIF: 5.494

With these, this paper aimed to determine the quality control systems for clients of building construction projects particularly practical construction situations, and its corresponding appropriate quality control techniques to produce the cost-conscious systems.

II. LITERATURE REVIEW

In managing quality control, studies showed that the goal should still be on the assessment of the final quality of the constructed product. [1]

Processes involved in upgrading quality standards include (1) clarity of project scope and requirements, (2) drawings and specifications, (3) preparation and construction proper. As the Covid-19 pandemic overwhelms the country's economic growth, the construction industry still plays a significant role in implementing government projects, and delay causes significant affecting different business sectors. Identifying underlying problems and applying appropriate strategies in quality control can considerably help reduce the adverse impact of the Covid-19 pandemic. [2]

Different approaches in quality control involve a traditional approach that is now replaced with a total quality control concept being the basis of other control principles.

Implementation of this concept will result in higher quality, lower costs, and increased productivity in the construction industry [3].

Quality practices have been introduced in various industries however, attainment of reasonable levels of quality in construction projects continues to be an ongoing problem and limited data from research are available even up to the present.

Construction projects are always expected to create a balance between cost, time, and quality. It is possible to have high quality and low cost, but at the expense of time, and conversely to have high quality and a fast project, but at a cost. High quality is not always the primary objective for the client; however, it is extremely important to a successful project. An appropriate level of quality could be determined during all phases of the construction project. Especially, construction and commissioning are two critical phases where the project could impact by its operability, availability, reliability, and maintainability of a facility. [4]

Successful concepts derived from manufacturing, such as Total Quality Management (TQM), Lean (or Just-in-Time) Production, and Reengineering, are being adopted and integrated into the construction industry. Implicitly, the successful implementation of these concepts is heavily dependent on a culture of teamwork and cooperation at both intra- and inter-organizational levels [5].

2.1 Quality Control in the Building Construction Industry

Quality control and safety represent increasingly important concerns for project managers. Defects or failures in constructed facilities can result in very large costs. Even with minor defects, re-construction may be required and facility operations impaired. Increased costs and delays are the results. In the worst case, failures may cause personal injuries or fatalities. Accidents during the construction process can similarly result in personal injuries and large costs. Indirect costs of insurance, inspection, and regulation are increasing rapidly due to these increased direct costs. Good project managers try to ensure that the job is done right the first time and that no major accidents occur on the project [6].

Factors of good quality control: cost-efficient, quantity management, materials management, good decision making, good attention to measurement, and safety are considered. Although some unforeseen circumstances are unavoidable but having good quality control can lessen its effect.

The achievement of acceptable quality in a building is a combination of quality of design and quality of construction. The quality is determined by the engineer or architect in terms of their skills in what they are prepared to pay. And it asserts that quality concepts, principles, methods, and processes, along with quality systems are integrated to create a new quality concept known as the integrated quality management systems [7]. It observed that there is little usage of total quality management (TQM) [8].

The one major problem with quality control is non-conformance to quality control handled by authorized agencies [9]. And when employees are not provided with better and more intensive training, the result is a decrease in self-worth and smaller job performance proficiency on quality [10].

III. RESEARCH METHODOLOGY

This is a cross-sectional descriptive research study. Data collected were categorized as quantitative and qualitative data. Data was gathered using a semi-structured questionnaire and interviews of respondents were done with the stakeholders of selected building construction firms in Region III, the Philippines on how quality control was adopted in their organization and its effects on construction processes. Purposive sampling was employed and SPSS version 20 was used for data analysis. Percentile analyses were used for data interpretation.

IV. RESULT AND DISCUSSION

Results of this study showed that 30% of employees have a working experience of 16-20 years. Forty percent (40%) of respondents are engineers outnumbering other professions followed by designers (30%) and 20% construct buildings, while 10% were a project building supervisor.

It was observed that all the building construction industry visited are conscious of quality control and management.

Table.1. Respondents perception of strategies to overcome poor quality control

S/No	Strategies	Frequency		Percent
1	Quality control and other restrictions handled by authorized agencies	Yes	70	70
		No	30	30

2	Contractors and designers should be reproofed for defects and violations of building rules and regulations	Yes No	62 38	62 38
3	Taking out of licenses of professionals for any defects in construction	Yes No	56 44	56 44
4	Carrying out the Total Quality Management (TQM), Lean (or Just-in-Time) Production and Reengineering in the construction industry	Yes No	54 46	54 46
5	Complete awareness, training, and change in the attitude of workers	Yes No	52 48	52 48

Table.1. shows the perception of stakeholders in the building construction industry on the strategies to overcome the blocks of adhering to quality. These solutions as perceived by professionals in the building construction industry was noted to be in decreasing order.

Table.2. Presence of quality control on the construction firm

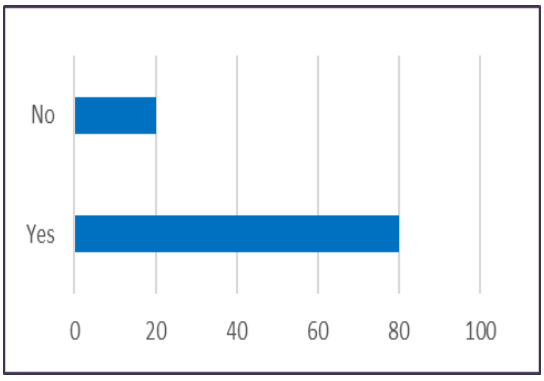

Table.2. shows in Region III, 80% have functional quality control that is attributed to increased awareness of the importance of quality in construction processes from different learning avenues such as training, evaluation, and other activities. However, there are still 20% without functional quality control.

Table.3. Quality Control Techniques

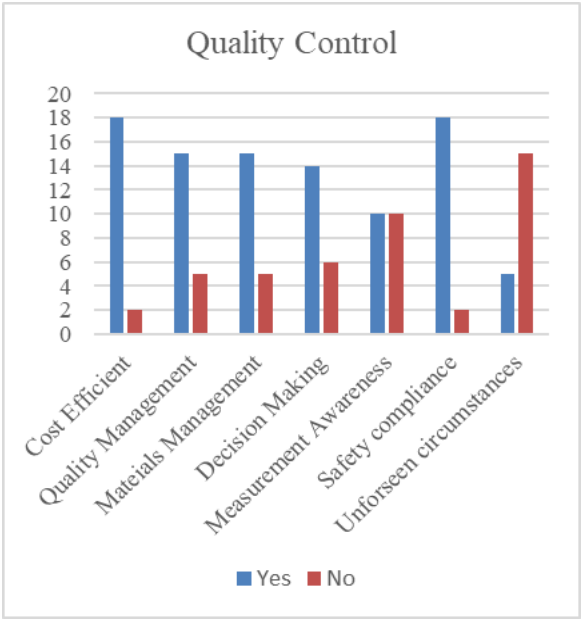

Table.3. shows that most of the techniques for good quality control are implemented by the contractor/ project managers on their site but lacks in the unforeseen circumstances factor.

V. CONCLUSION

This study has shown that there is high compliance in quality control and management of building construction companies in Region III.

Although awareness of quality control on controlled factors still unforeseen factors or uncontrollable factors are neglected although aware of this factor but improving on this factor will be a good upgrade on designing or planning a quality control management.

This study displayed the selected strategies affecting the adherence to construction quality standards in Region III. This has shown that the significant strategies are:

- The quality control and other restriction must be handled by authorized agencies.
- The contractors and designers must be reproofed for defects and violations of building rules and regulations.

Also, it shows that quality control is really needed on building construction which makes fewer worries on both side contractors and ends users managing the factors on good quality control on a building process must be extended to the point that

unforeseen circumstances must be added to the design or planning to avoid or lessen its effect on the building.

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