# SIX SIGMA POSSIBILITIES IN PREFABRICATED STRUCTURES

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**Abstract -** Our project is basically about the applications of six sigma concept in the industry of prefabricated structures. This project also describes the innovative idea of implementation of six sigma concepts in the design of prefabricated structures.

Six Sigma can be applied on the basis of 2 methodologies:

DMAIC: Define, measure, Analyze, Improve, Control

DMADV: Define, Measure, Analyze, Design, Verify

We planned to apply the 2nd method DMADV (Define, Analyze, Measure, Design, Verify) in manufacturing process of prefabricated structures of a residential building. The design is carried out as per as IS456:2000, M20 grade of Concrete and Fe415 HYSD steel bars are used.

***Key Words***: Six sigma, Design of prefabricated structures, Residential building, DMAIC, DMADV

## 1. INTRODUCTION

The concept of six sigma was developed by an American Engineer, Bill Smith in 1986, while

Working in Motorola. Six Sigma is a quality improvement technique processed through statistical approach. Six sigma is a Greek letter which denotes standard deviation. Its objectives are to analyze six sigma construction content, to prepare report for project, to establish benefits of application of six sigma in prefabricated structures.

## 2. ANALYSIS

The widest quality perception belongs to CE while DPM defined quality totally as a technical issue. DPM's quality definition includes only method statement laboratory tests and controlling supplied materials. The difference might be because of generation differences between them. In all interviews, they mentioned that they use often their mathematical background and statistical calculations in their daily tasks. It means that the trainings of Six Sigma methods which are based on statistical theory will not be so difficult for them. In all interviews, they mentioned that, they emphasized importance of collaboration and communication between different department's &disciplines for success of process improvement. CE thinks that an ideal process/performance improvement method should have different outputs based on financial, technical and quality aspects. Mostly social science made contribution to management theory; Six Sigma based on statistic and statisticians & Six Sigma are improved by companies such as **MOTOROLA, GE & IBM.**

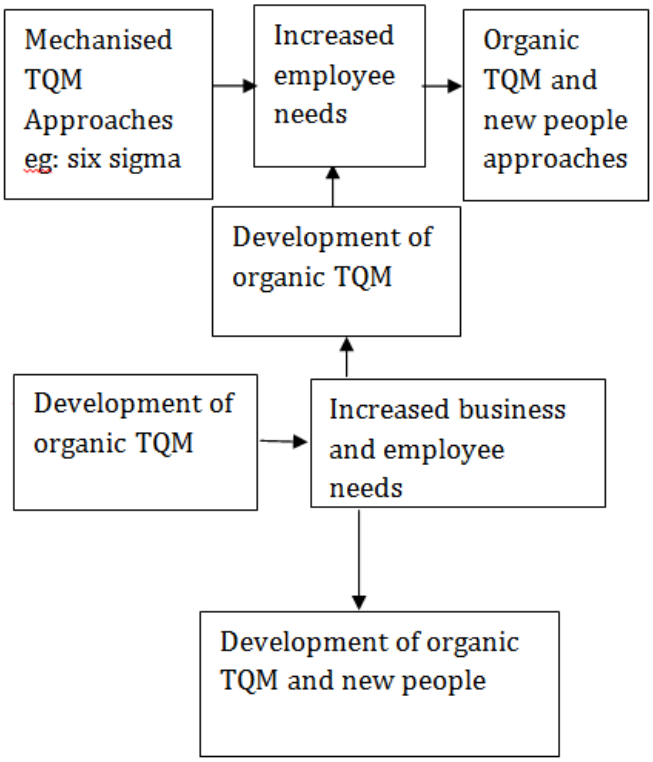
| TEAM MEMBERS | NUMBER |
|---|---|
| Project Manager | 1 |
| Project Control Department | 2 |
| Support Department (Equipment, Project Control, Prime Contract.) | 4 |
| Quality Control Department | 5 |
| The Previous/Next responsible department of the process | 6 |
| Construction Manager / Site Engineer | 3 |

**Table: 2.1. Collaboration Prioritization during Performance Measurement**

**Table: 2.2. The concept of quality according to the interviews**

| CONSTRUCTION INDUSTRY REQUIREMENTS | DPM | CE | FE |
|---|---|---|---|
| Method Statement based on technical specifications | X | X | X |
| Laboratory Tests | X | | X |
| Controlling of supplied materials by Subcontractors | X | X | X |
| Financial aspects of Quality(cost of poor quality (COPQ)) | | X | X |
| Statistical production records | | X | |
| Profit rates of completed tasks | | | |
| Effects of bad quality on the project timing and plans | | X | |

### 3. SIX SIGMA MANAGEMENT STRATEGY




### 4. CONCLUSION

**DMADV** has properly adapted and successfully implemented to the construction of prefabricated structure as a process improvement tool. Thus Six Sigma as a quality initiative, that aims to reduce defects & variation in process using statistical measurements, process design & quality control analysis in order to increase the customer satisfaction.

### 5. LITERATURE REVIEW

**Author:** S. Sriram

**Journal:** Implementation of six sigma concept in construction projects

**Benefit:** Quality improvement

**Content**

This paper describes the implementation of six sigma concepts in construction project to meet the quality standards and customer satisfaction.

**Author:** Dr. Rajesh kumar

**Journal:** Six Sigma in automobile industry

**Benefits:** Developed project

**Content**

This paper focused on mid-sized auto ancillary unit consisting of 350-400 employee and the implementation of six sigma methodologies

### 6. REFERENCES

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