INTRODUCTION OF 9 KNOWLEDGE AREAS

Project Quality Management

CONTENT

- Definition of Quality
- Project Quality Management
- Project Quality Management Processes
- Quality Planning
- Quality Assurance
- Quality Control
- Summary

Definition of Quality

What is quality?

"Quality is fitness for use" - *J.M. Juran*

"[Quality is] meeting or exceeding customer expectations at a cost that represents a value to them." - *H. James Harrington*

"Quality should be defined as surpassing customer needs and expectations throughout the life of the product." - *Howard Gitlow and Shelley Gitlow*

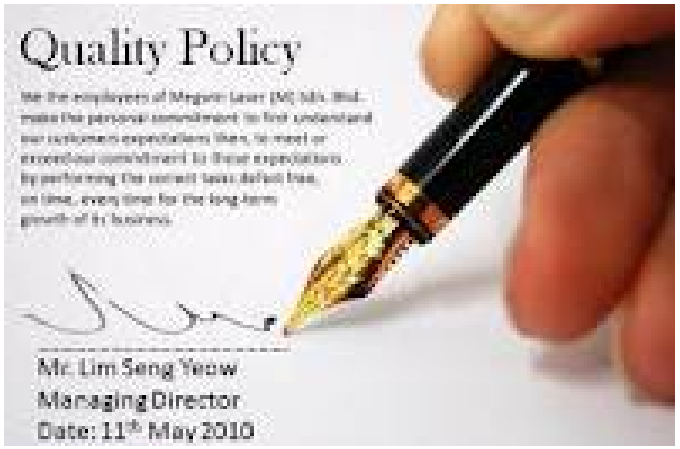
In other words, *quality* is…

- To make sure whatever is delivered is within the expectations of the organisation or customer.

Project Quality Management

Project Quality Management is …

managing all the activities of the performing organization that determines quality policies, objectives and responsibilities, so that the project will satisfy the needs for which it was undertaken.



Project Quality Management

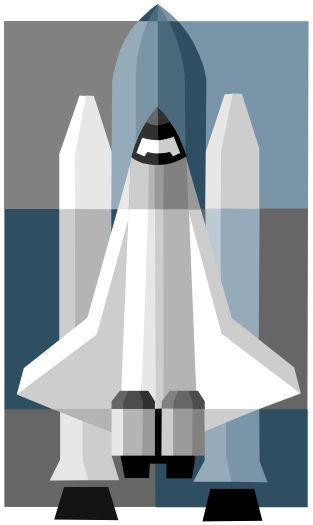
- implements the quality management system through the policy, procedures and processes of:
  - i. Quality Planning
  - ii. Quality Assurance
  - iii. Quality Control
  - iv. Continuous process improvement (when appropriate)

Is quality management system different from project quality management?

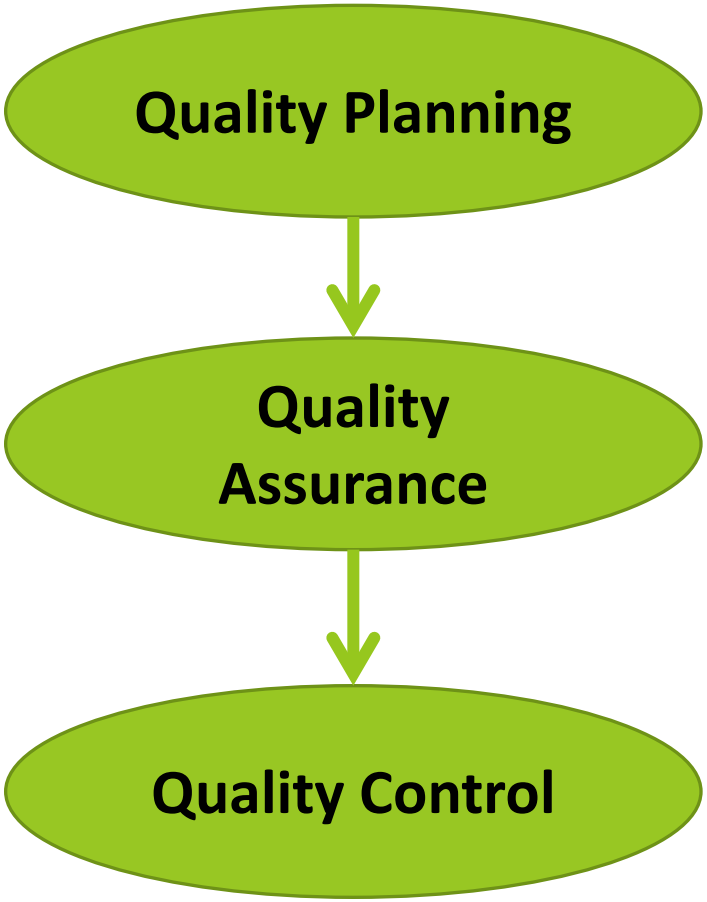
- Modern Quality Management Systems complements project quality management in 4 main areas :-
  - a) Customer satisfaction
  - b) Prevention over inspection
  - c) Management responsibility
  - d) Continuous Improvement

Quality and Grade

- Quality is not Grade.
- Grade is category of a product or services with the same functional use but different technical characteristics.
- Low product quality is a problem, low product grade is not.



Project Quality Management Processes



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Quality Planning

Definition:

Identifying quality standards relevant to the project and determining how to satisfy them.

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Quality Planning

Inputs required for quality planning:

- Governmental laws and regulations, i.e. local authority, environmental regulation, wildlife protection, social impact.
- Quality policy, e.g. ISO 9001 and EMS 14001.
- Project scope statement, i.e. project brief, stakeholder's needs, wants and expectations.

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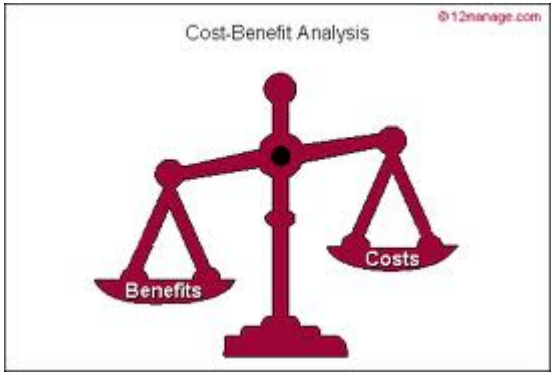
Quality Planning

Tools and techniques:

i. **Cost-Benefit Analysis** for meeting quality requirements:

- Benefit -> less rework = higher productivity, lower overall cost, increased stakeholder satisfaction.
- Cost -> the higher expense associated with implementing quality management activities.



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Quality Planning

Tools and techniques:

ii. **Benchmarking** by comparing project practices to other projects to generate ideas for improvement and measure performance.

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Quality Planning

Output acquired from quality planning:

i. **Quality Management Plan**
- describes how the project management team will implement the quality policy.

ii. **Quality Metrics**
- describes an activity in specific terms and how the quality control process measures it in actual value, i.e. failure rate, reliability, test coverage.

cont…

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Quality Planning

iii. **Process Improvement Plan**

- details out the steps for analysing processes that will facilitate the identification of waste and non-value added activity.

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Quality Assurance

Definition:

Applying the planned, systematic quality activities to ensure that the project employs all processes needed to meet requirements.

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Quality Assurance

Inputs required:

1. Quality Management Plan (from Quality Planning process).
2. Quality Metrics (from Quality Planning process).
3. Process Improvement Plan (from Quality Planning process).
4. Work Performance Information, i.e. technical performance measures, project deliverables status, required corrective action and performance report.
5. Feedback from Quality Control activities.

Quality Assurance

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Tools and techniques used:

i. **Quality audits**

- a structured, independent review to determine whether project activities comply with project policies, processes and procedures.
- confirms the implementation of approved change request, corrective actions, defects repairs and preventive actions.

Cont…

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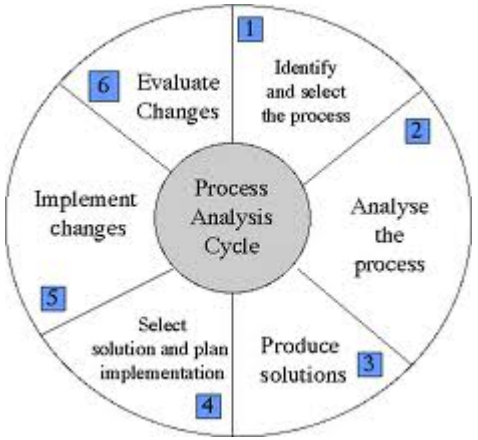
Quality Assurance

ii. Process analysis

- identifies needed improvements using root cause analysis techniques to analyze a problem, its causes and create preventive actions.

iii. Quality Planning tools and techniques, i.e. cost-benefit analysis, benchmarking.



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Quality Assurance

Outputs acquired:

1. Requested changes for quality improvements to increase effectiveness and efficiency of policies, processes and procedures.

2. Recommend corrective action to effectiveness and efficiency after conducting quality assurance activities.

3. Updates to the project management plan.

Quality Control

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Definition:

Monitoring specific project results to determine whether they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory performance.

Quality Control

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Input needed to perform quality control:

1. Quality Management Plan
2. Quality Metrics
3. Work performance information
4. Quality system (e.g. ISO 9001 & EMS 14001)
5. Deliverables or end-products

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Quality Control

Tools and techniques to be used:

- Technical Instruction
- Cause and Effect Diagram (Ishikawa/fishbone diagram)
- Control charts
- Flowcharting
- Pareto chart
- Physical Inspection – to examine a product to ensure whether it conforms to standards

Quality Control

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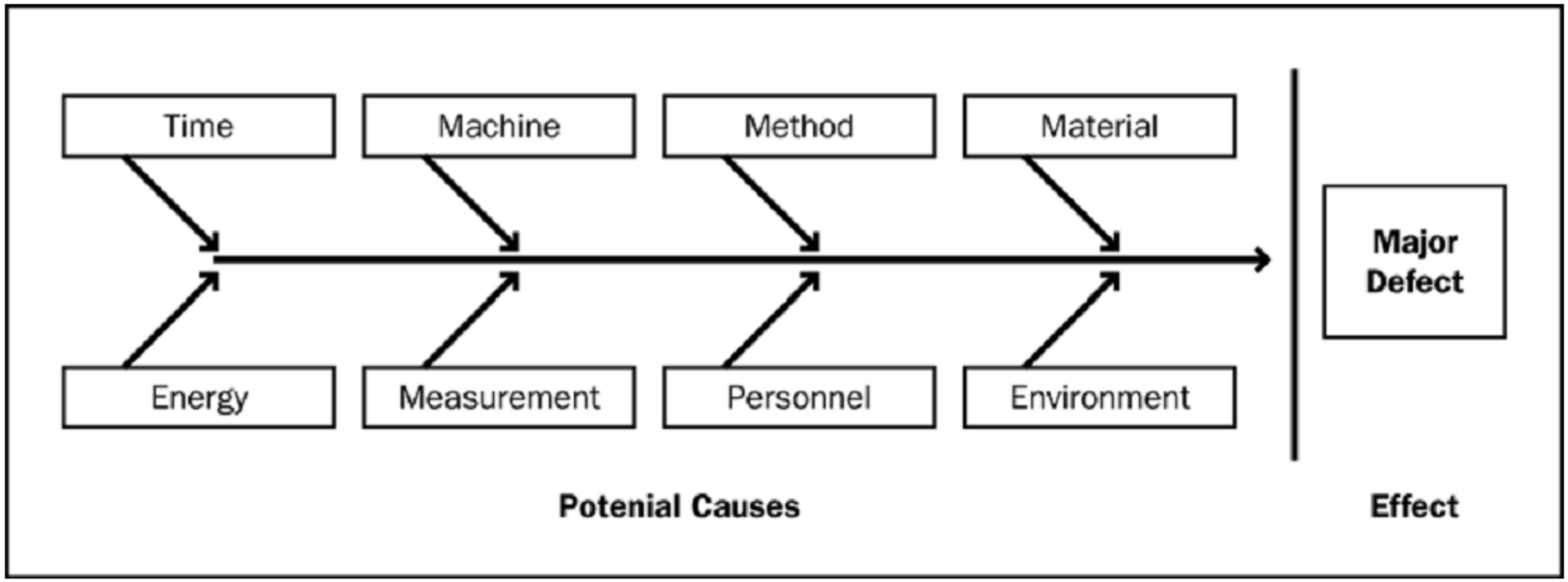

Figure 8-6. Cause and Effect Diagram

- illustrates how various factors might be linked to potential problems or effects.

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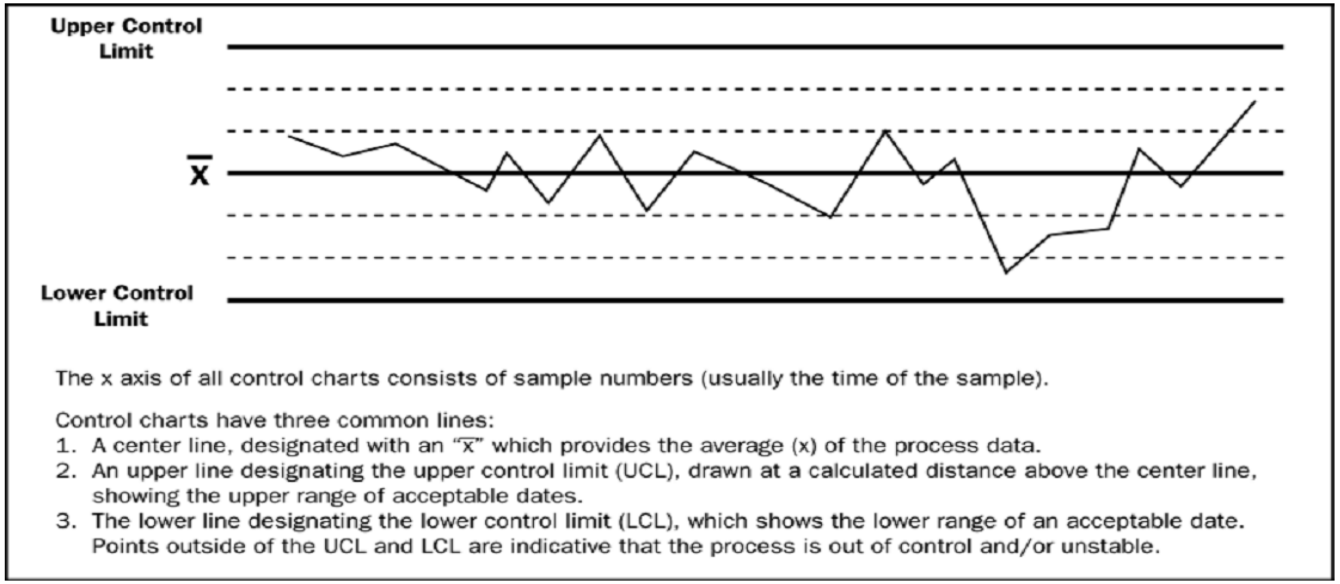

Figure 8-7. Example of a Control Chart of Project Schedule Performance

- To determine if a process is stable or has predictable performance.
- To assess whether implemented process changes resulted in the desired improvements.

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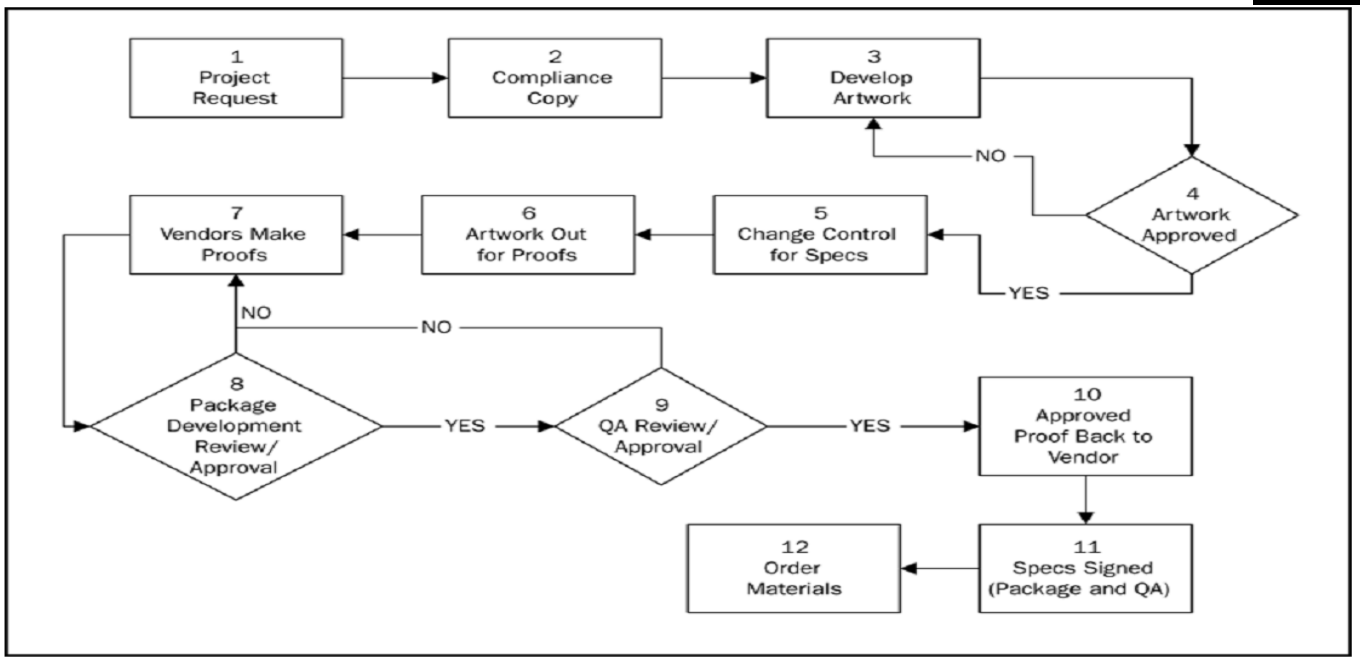

Figure 8-8. Sample Process Flowchart

- Is a graphical representation of a process showing activities, decision points and sequences.
- Shows how various elements of a system interrelates.
- Helps anticipate what and where quality problems might occur.

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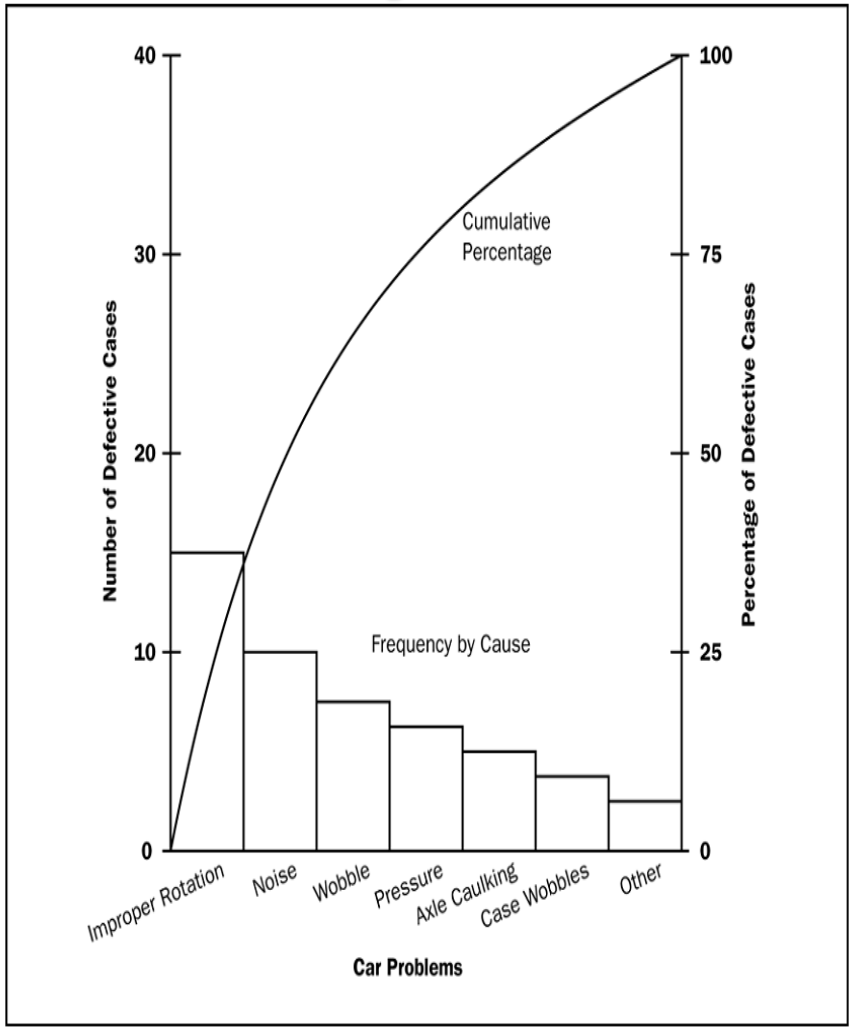

Figure 8-9. Pareto Diagram (Chart)

- A histogram ordered by frequency of defects occurring by type or category of identified causes.
- Problems that are causing greatest defects are tackled first.

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Quality Control

Outputs from the quality control process:

i. Results/measurements from Quality Control activities.

ii. Recommended corrective actions.

iii. Recommended preventive actions.

iv. Request for changes.

v. Updates to Project Management Plan.

vi. Lessons learned documentation.

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QUALITY TRACKING SCHEDULE

PROJECT: CADANGAN TAMBAHAN UNIVERSITI PERTAHANAN NASIONAL MALAYSIA (UPNM)	PREPARED BY: Zaizul Hisham Zainol
	REVIEWED: Mas Abdul Rahman
PROJECT MANAGER: Mas Abdul Rahman	DATE OF PREPARATION: 02 Mei 2008

Identifier WBS	Deliverable / System / Item	Applicable Standard	Detailed Reference	Action Required	Responsibility
1	**Procurement**	SPK JKR, SMM (Stand. Method Measurement), Buku Panduan Kos Purata Semeter Persegi Kerja-Kerja Pembinaan Bangunan	-	All procurement works shall comply with requirement and guidelines.	Ali
2	**Tender**	SPK JKR, SMM (Stand. Method Measurement)	-	All tender works shall comply with requirement and guidelines.	Ali
3	**Design**				
	i) Civil	Malaysian, British or International Codes of Practice or Standard & Standard Specification (Water, Road, Sewer, Drainage, UBBL)	-	All design works shall comply with requirement, guidelines and design standard.	HODT Zaizul
	ii) Structure	Malaysian, British or International Codes of Practice or Standard & Standard Specification (JKR, UBBL, Roof)	-	All design works shall comply with requirement, guidelines and design standard.	HODT Zaizul

Quality System

In JKR, there are quality system that need to be included in Project Quality Management processes:

a. JKR SPK (Quality Management System)
b. JKR EMS (Environmental Management System)
c. OSHAS (Occupational Safety and Health Assessment Series)

Summary

- Project quality management must address management of the project and the final product or deliverable of the project..
- A critical element of project quality management is to turn stakeholder needs, wants and expectation into requirements.
- Project quality management does not conflict with modern quality management concepts.

Terima Kasih

Thank You