

Quality Management System Implementation at Construction Projects

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ABSTRACT:

ISO 9001:2015 certification sets the criteria for Quality Management System implementation in all types of organizations, small or large, regardless of its activity in the field. This standard is designed on a number of principles leading to customer focus, top management participation, process-based approach & continual improvement in product & services, which in turn brings business benefits.

Construction industry in India is expected to grow steadily over the next few years after going through the recession in FY'2020-21 due to the "Covid lockdowns". Indian Government is pushing the projects for mining, infra, railways & commercial buildings leading to continuous flow of contracts & emergence of new players in the construction market.

Construction Companies in India are in an emerging trend for implementation of Quality Management System through ISO 9001:2015 certifications. This requires a proper framework for a realistic approach towards the implementation of the Quality Management System to get the desired output consistently. For ensuring consistently high product quality, credibility & recognition, ISO 9001:2015 certification in construction industry is also getting popular. The current research project focus in the implementation of Quality Management System in the construction industries to ensure the benefits of ISO 9001:2015.

For easy understanding of the QMS framework suitable for the Construction Industry and to successfully implement Quality Management System Principles in line with ISO 9001 across all the functions in an organization the project study will be useful.

1. Why Quality Management System?

In today's market scenario due to globalization, quality product & services has now become an integral part of our business processes. So, for maintaining the quality standards, organizations are adapting innovative & better methods. One of the such method is Quality Management System, which is defined to formalize the business procedures, processes & responsibilities which eventually help the organization in formulating & achieving its targeted objectives.

Quality Management System coordinates an organization's activities to meet customer requirements & also continuously improve its effectiveness. Also, achieving Quality Management System ISO 9001 certification distinguishes one organization from its competitor. Even many large corporate houses & public sectors organizations require vendors to be ISO 9001 certified organizations.



Successful implementation of a QMS ensures the following important benefits:

- Ensuring the organization complies with service regulations & statutory requirements in the most cost-effective way,
- Providing services to meet specific customer requirements within stipulated time, which in turn help the organization to build trust & more business profits,
- Other advantages include substantial reduction in cost of poor quality, improved communications, consistent output and ensure the process to be in control.

In India many consulting houses provide services to organizations for training, assessment & certification. But for continuous improvement of the organization processes & to extract the actual benefits from the certification, organizations fail to do so due to lack of understanding, knowledge & for the gaps in the training imparted. So, for improving the understanding of the management system the project study on the framework will be helpful.



SOURCE: <https://www.indiamart.com/proddetail/iso-9001-2005-certification-21800750055.html>

2. Basic Framework of Quality Management System

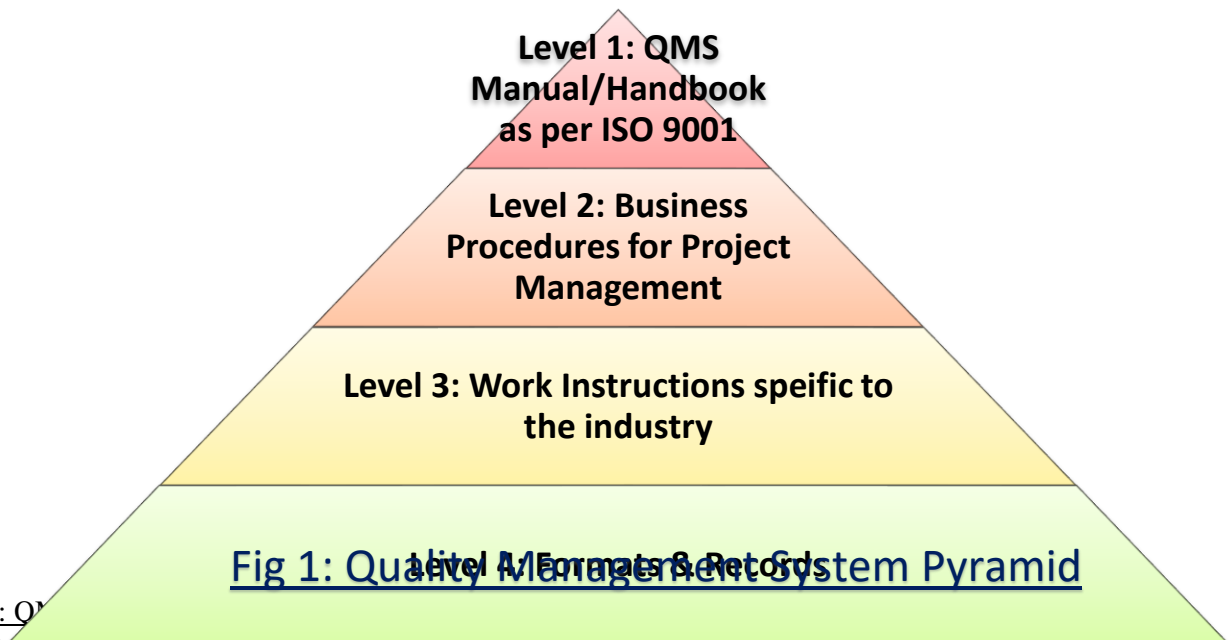
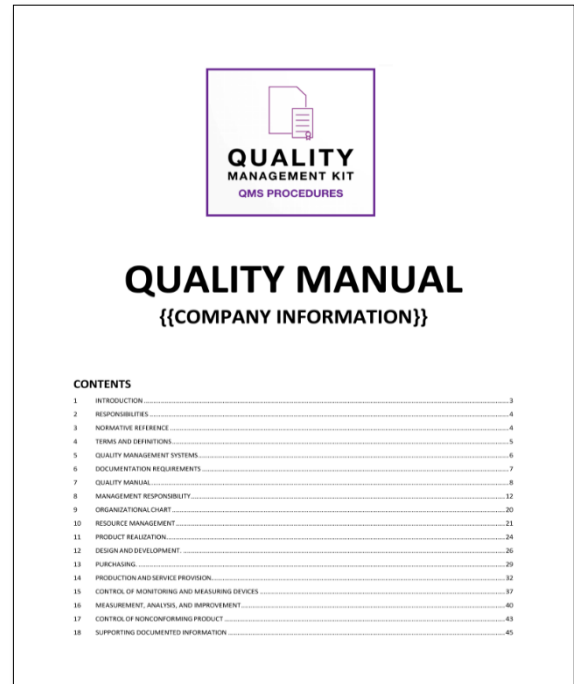


Fig 1: Quality Management System Pyramid

Level 1: QMS Manual/Handbook as per ISO 9001
Basically, it describes the Management System according to ISO 9001. Consists of the manual/handbook prepared from the ISO principles & clauses for achieving & sustain best in class business excellence through a value driven approach towards customer satisfaction.



SOURCE: <https://advisera.com/9001academy/knowledgebase/writing-a-short-quality-manual/>

Level 2: Business Procedures/Standard Operating Procedures

Describes the activities of individual functional departments & maintains the process needs & interaction in accordance to ISO 9001. It comprises of the Scope, Roles & Responsibilities, Objectives, Interactions with other procedures & fulfilment of Customer requirements.

Level 3: Work Instructions

Work instructions are the detailed step wise procedures that is used to achieve the desired outcome.

1. **Purpose:**
The purpose of this Standard Operating Procedure (SOP) is to establish protocol for identification, notification and resolution of Non-Conformity Report Raised at Site for addressing deviation in construction works from the required standards, specifications & drawings. This document aims for means of addressing same and punitive action in case of non-compliance. NCRs raised are the part of quality control process.
2. **Scope:**
The document helps to distinguish daily observations and NCR, defines the format of the NCR document, methodology for closing the NCR, application of 5Why to NCR, Root Cause Analysis, Correction & Corrective Action Taken for non-conformances at Site.
3. **Reference Standards:**
ISO 9001:2015 Quality Management System.
4. **Responsibility:**
Primary: Site Engineers/Construction Managers/Quality Engineers
Secondary: Project Manager/All Section Head
5. **Definition**
 - 5.1 **Daily Observation Report:** An Observation Report is a document that records observations made during inspections, audits, or walkthroughs. Observation Reports serve as a basis for further investigation, corrective actions, or improvement initiatives, but they typically do not involve formal procedures for resolution. If repeated observations are received, then NCR would be raised for corrective action & correction to formally address & close the observations and if applicable, to change the SOP/Methodology of work performed.
 - 5.2 **Non-Conformance Report (NCR):** A Non-Conformance Report (NCR) is a formal document issued when a deviation from established standards, specifications, or requirements is identified or continuous daily observations of a similar type are issued. NCRs are typically issued when there is a significant issue or non-compliance that requires corrective action to rectify the quality issue. They are often used to document and track deviations from quality standards and ensure that corrective actions are implemented to prevent recurrence.

Sample Method Statement

Level 4: Formats & Records

The last level of the Quality Management System serves as the record purpose for the compliances done as per the QMS Manual, Business Procedures & Work Instructions. Level 4 formats & records are objective evidence for assessment during internal & external audit. These are generally the proof whether an organization is properly following Quality management System requirements or not.

3. Understanding PDCA Cycle in ISO 9001

Plan-Do-Check-Act is a cycle that was originally developed by Walter Shewhart and made very popular by Edward Deming – two of the fathers of Modern Era Quality Control. This concept is a cycle for implementing change in process output which, when followed continually lead to improvements in the process it was applied to.

An example that might relate to PDCA cycle would be while choosing a new vendor for Wi-Fi network:

This is a model approach for continual improvement that is sustained rather than just a quick fix & for this reason it is applied in ISO 9001 standard.

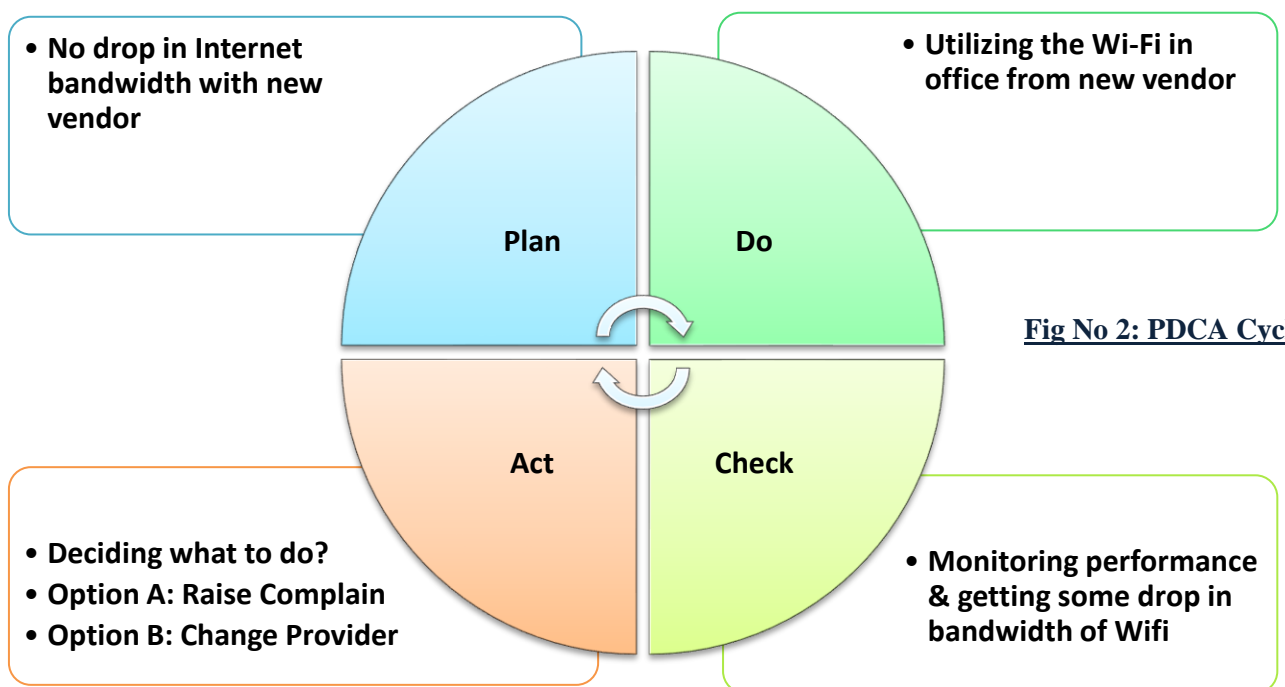
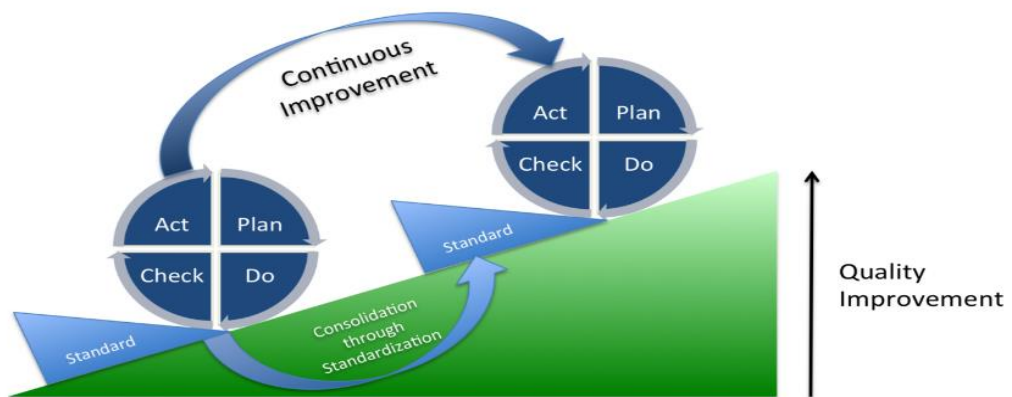
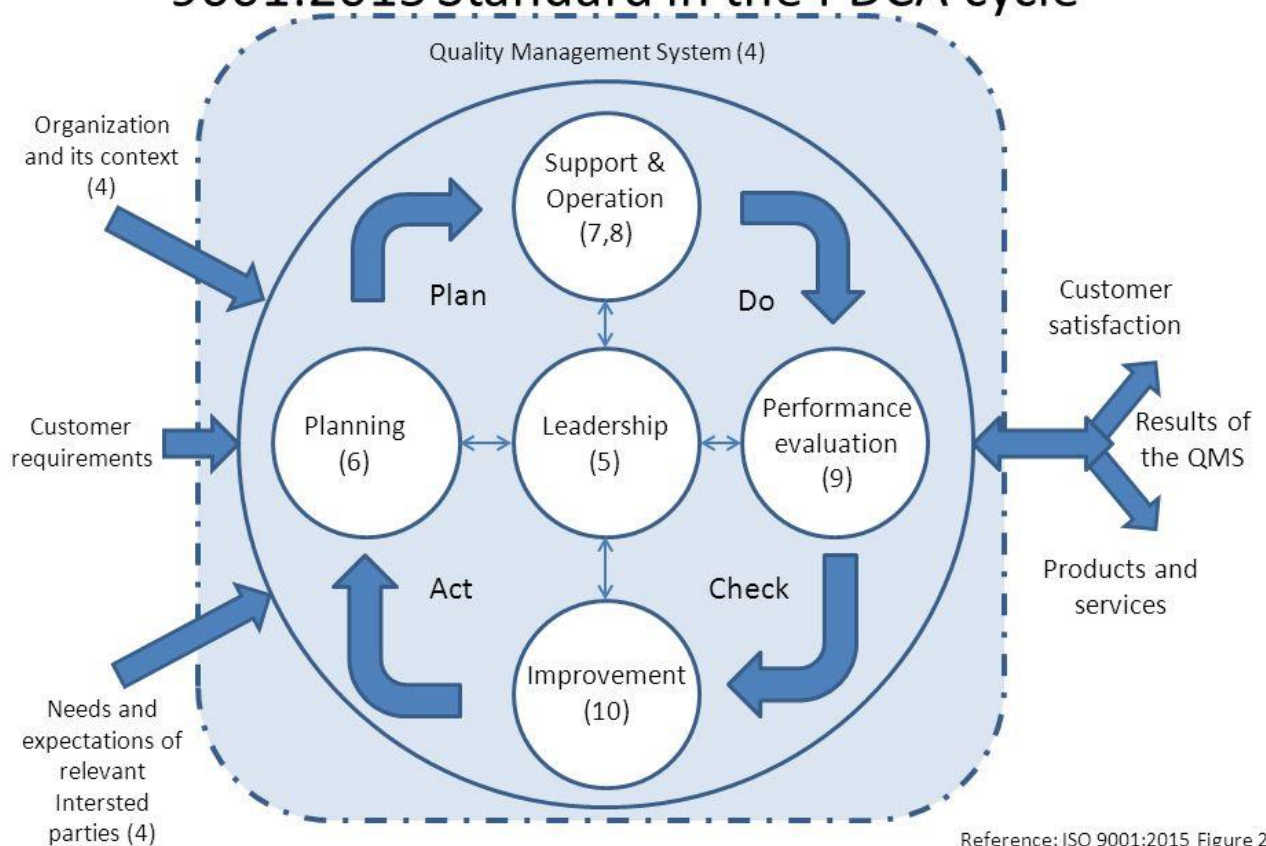


Fig No 2: PDCA Cycle



SOURCE: Wikipedia PDCA

Representation of the structure of ISO 9001:2015 Standard in the PDCA cycle



Reference: ISO 9001:2015 Figure 2

SOURCE: Reference BIS ISO 9001:2015

Step 1: Plan

- ✓ Planning is one of the important steps of the QMS and it starts with understanding the context of the organization and need analysis of parties interested in the QMS, which in turn used to define the scope of the Quality Management System.
- ✓ This is followed by leadership commitment in the company to drive the organization's customer focus by defining roles and responsibilities and establishing a quality policy for the overall organization.

✓ The next level of planning phase is to identify and address risks and opportunities of the Quality Management System in every departments/function within the organization including setting quality objectives and changes required to support continual improvement.

✓ The final level of planning is to implement the support structure to allow organizations to carry out resource mobilization plan, identifying competence, awareness, communication and to set the processes for creation of controlled documented information.

Step 2: Do

✓ All steps involved Planning phase is useless until the plan is executed. Also, Controls need to be identified for the QMS operations as per product or service requirements need.

✓ The process of producing the product or service required need to be carried out with control of product and service release, any non-conforming products or services also need to be addressed.

Step 3: Check

✓ There are several requirements in the standard/customer needs to be checked in the processes of the Quality Management system to ensure proper system functioning.

✓ Also, there is a need to monitor, measure, analyze and evaluate the products or service provision to ensure they meet requirements & to check the processes used are adequate and effective in meeting customer satisfaction.

✓ Internal Auditing of the processes is the key way for assessment of the effectiveness of the system.

✓ Further the Management Review process reviews and assesses all of the monitored data to make changes and to address the issues.

Step 4: Act

✓ Taking proactive actions involves the steps needed to address any issues found in the check step.

✓ Improvement is the overall heading for these action points with the activities of addressing nonconformity occurred and Corrective Actions to eliminate the causes of potential nonconformities as the first step in acting to improve the system.

4. Defining Scope

Quality Management System can include an organization wholly or specifically identified departments of the organization or any specifically identified functions of the organization. To start, there are three main considerations that must be included while determining the scope:

✓ External and internal issues that are relevant to the strategic direction & purpose of the organization,

✓ Requirements of interested parties relevant to the organizations business,

✓ The product and service provided by the organization.

Considerations for determining the scope of the QMS in ISO 9001



Scope of the Quality Management System is only informational and does not in fact have any requirement that needs to be met. In all, the manual covers ten sections, the first three are purely informational for the users. The requirements an organization needs to achieve for certification are contained within clauses starting from 4-10.



Fig No 3: ISO 9001 Clauses

5. Understanding the Context of the Organization

As discussed earlier implementing a Quality Management System is the strategic decision influenced by the Context of the Organization. This is a new clause of ISO 9001, requiring organizations to consider both the internal and external issues that can impact on their strategic target objectives and how they plan their Quality Management System implementation.

Any organization should focus particularly on the factors and conditions that can affect its products, services, investments made and interested parties including the stakeholders. Context becomes a vital consideration and helps to ensure that Management System is designed and adapted to serve the organization.

Internal factors refer to everything that is within the organization, including the following:

- ✓ Employees
- ✓ The office building & infrastructure
- ✓ The product or service the organization produces

- ✓ The performance of the organization
- ✓ Operation & processes involved within the organization
- ✓ Anything the organization having direct control over

External factors include essentials within the market that are rather out of the organization's control. This means that the organization cannot take decisions to impact the future outcomes of these elements. External issues include the following:

- ✓ economic factors such as foreign reserves & inflation
- ✓ social factors like the unemployment rate & literacy
- ✓ political factors such as political instability
- ✓ new technologies & innovations entering the markets
- ✓ market factors like competition in the market share & similar products & services including customer trends
- ✓ Regulatory, legal & statutory factors

There are multiple tools & systems that can be used to evaluate internal & external issues relating to an organization. These tools include:

- ✓ SWOT analysis for Internal issues
- ✓ STEEP analysis for External issues

Example of SWOT Analysis of an Organization

<u>Strength</u> <ul style="list-style-type: none"> Strong Brand Recognition International Delivery Model Significant focus is placed on innovation World-class Infrastructure 	<u>Weaknesses</u> <ul style="list-style-type: none"> Premium Price is a disadvantage Heavily Dependent on Sub-Contractors Issues in Management & Leadership Corporate governance issues
<u>Opportunities</u> <ul style="list-style-type: none"> Business integration through JV's Expansion of business in African market 	<u>Threats</u> <ul style="list-style-type: none"> Large dependency on Asian Market Regulatory Requirements

Fig No 4: SWOT Analysis

Example of STEEP Analysis of an Organization

Economy	Technological	Political	Legal	Sociocultural
<ul style="list-style-type: none"> High Currency exchange rate, High wage pressure, Unexpected increase in tax, Cost incurred in 	<ul style="list-style-type: none"> Excellent Technological Infrastructure Establishing New Tech Centers Foreign Technology Experts 	<ul style="list-style-type: none"> Formation of New Union in African Nations Change of VISA policies 	<ul style="list-style-type: none"> New Regulatory laws in Asian Market 	<ul style="list-style-type: none"> Cutting edge solutions for Health & Safety Strong Cooperation with Environmental Consultants

Promoting Activities	CSR				
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Fig No 5: STEEP Analysis

At this stage of Understanding the Organization & its Context, thriving organizations would be wise to invest in a Strategic Business Plan. The business plan is basically a document that includes the strategies & tactics that the organization will employ to achieve its business goals. Obviously, this plan will highlight everything that is needed for attending the internal & external issues.

6. Top Management Leadership Focus

There are many Construction Companies in the market who want to improve their system, process & to continually get benefitted through the implementation of ISO 9001 & also, those who want only to get ISO 9001 certified in the fastest, easiest way possible for participating in tendering or bidding processes.

So, if an organization is looking for the easiest way to get certified, then simply an ISO 9001 auditor will be needed for assessment & certification can be done by signing a couple of documents which would make it look like the organization is involved in the Quality Management System. But, if an organization is willing to improve & sustain in market, then this section of the ISO 9001 Clauses requires the leaders of organizations to actively take control in budding their business. This is done through improving business strategies & proper communication during annual reports & management review meetings. Also, setting up the goals & objectives are the signs of an active leader within a company.

The Quality Management System calls these as quality objectives; however, they are not necessarily relating to quality of the product or the services. Anything that has been discussed in the context of the organization & that actually needs to be measured for improvement, must have a goal. And actively working towards achieving these goals means that they are following the standard, because the whole & sole purpose is to ensure continuous feedback for ideas of improvement, innovation and the execution of the activities behind those ideas.

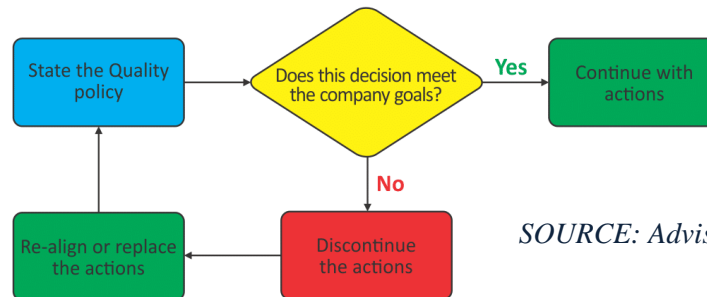
Now to sum up, Leadership & Commitment outlines the requirements concerning top management focus, which are:

- ✓ Promoting Customer focus,
- ✓ Developing & Standing by a Quality Policy that sets direction and alignment,
- ✓ Determining responsibilities all over the organization to get the expected output from every function working in the system.

Steps for Developing the Quality Policy

- ✓ The most important step is to define what quality means for your organization,
- ✓ The next step is to identify all stakeholders who will be affected by the policies,
- ✓ Next, considering the purpose of the policy & what the organization want to accomplish,
- ✓ Finally, how the policy can help the organization to achieve its goals.

Decision-making using the Quality Policy



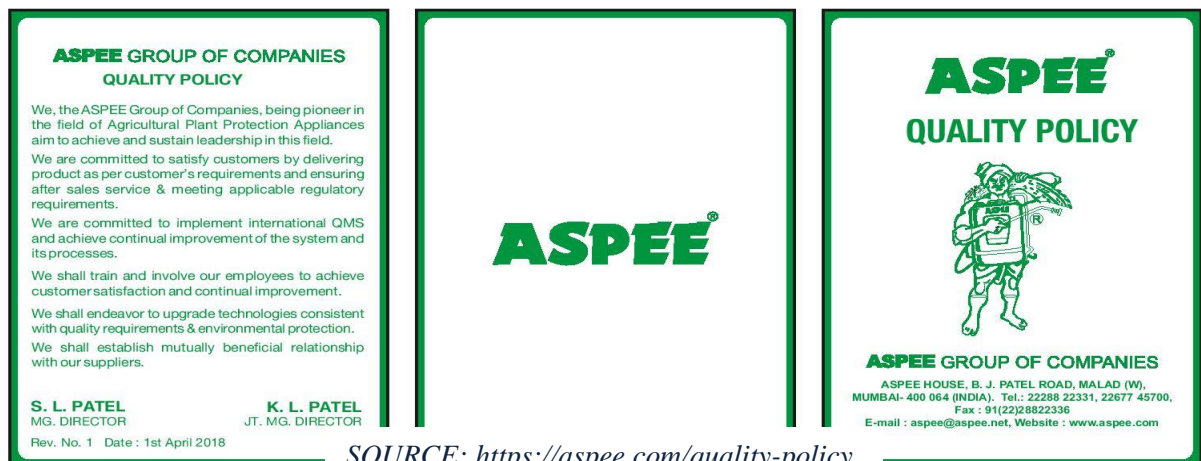
SOURCE: Advisera, ISO 9001:2015

Communicating the Quality Policy

Once the policy has been prepared, it must be clearly communicated to all the stakeholders of the organization. Also, the key to communicating effectively is ensuring everyone understands the message.

Quality Policy may take many forms:

- 1) Written Newsletters, Memos, Letters,
- 2) Oral Communication in Meetings, Presentation,
- 3) Visual Communication through Posters, Charts.



SOURCE: <https://aspee.com/quality-policy>

7. Planning to Address Risk & Opportunities

The necessities for addressing risks & opportunities are spread all over the ISO 9001 standard, starting from the beginning where the organization is required to determine the processes needed to address risks & opportunities that are determined. This is again strengthened in top management needs to ensure that risks & opportunities that affect product & service conformity are determined & addressed.

The real essence of the requirements is this section to address risks & opportunities. This section elaborates on the need to plan the actions needed to address the risks & opportunities, integrate these actions into the Quality Management System, and evaluate the activities for effectiveness. These activities need to be in proportion to the

possible impact on product & service conformity. There are many ways to address risk, from avoiding & mitigating it to accepting it.



SOURCE: <https://blueoceands.com>

ISO 9001:2015 clauses	Explanations
4.4 Quality management system and its processes	The overall quality management system must consider both risks & opportunities as part of its fundamental planning process.
5.1 Leadership and commitment	Those who lead the organization essentially should encourage risk-based thinking.
5.1.2 Customer focus	Ensure risks & opportunities that affect customers are determined and addressed.
6.1 Actions to address risks and opportunities	When planning for the Quality Management System, determine and address risks & opportunities.
9.1.3 Analysis and evaluation	Evaluate the efficiency of actions taken to address risks & opportunities.
10.2 Nonconformity and corrective action	Update risks & opportunities determined through planning, if needed.

The ISO 9001:2015 standard for risks & opportunities management system. Though, it does require to determine what they are and how they will be addressed. when assessing risk, it is helpful to use two metrics or parameters:

1. Severity (If the risk occurs, how grave is it?)
2. Probability (What is the likelihood of the risk occurring?)



SOURCE: <https://methodstatementhq.com>

Common methods for detecting and addressing risk include maintaining a risk register, carrying out Failure Mode Effects Analysis, using a Probability & Impact Matrix, or other risk management exercises.

When addressing risks & opportunities, these are the key steps:

1. Define the risk & opportunity category: i.e. whether it originates from context, process or products/ services,
2. Define the source from where the risk or opportunity derives from,
3. Determine what class the risk falls under,
4. Carefully describe the risk,
5. Define the impact and the likelihood of occurrence,
6. Establish how the organization will treat the risk & create a predefined list of actions,
7. Define the acceptable action to treat the risk,
8. The organization should identify opportunities & define in ways on which it will exploit on them via an action plan.
9. Regularly assess & review risks & opportunities.
10. Procedures and methods related to risk & opportunity should be documented.

FAILURE MODE & EFFECTS ANALYSIS (FMEA)				
Process Name: Left Front Seat Belt Install			Date: 5/3/2020	
			Rev: 1.5	
Failure Mode	Severity 1 to 10	Probability of Occurrence 1 to 10	Probability of Detection 1 to 10	Risk Priority Number (RPN)
1 Select wrong color seat belt	5	4	3	60
2 Seat belt bolt not fully tightened	9	2	8	144
3 Trim color clip misaligned	2	3	5	30

slidemodel.com

Source: <https://slidemodel.com/jma/failure-mode-and-effects-analysis>

5x5 Risk Matrix Sample

		Impact How severe would the outcomes be if the risk occurred?				
		Insignificant 1	Minor 2	Significant 3	Major 4	Severe 5
Probability What is the probability the risk will happen?	5 Almost Certain	Medium 5	High 10	Very high 15	Extreme 20	Extreme 25
	4 Likely	Medium 4	Medium 8	High 12	Very high 16	Extreme 20
	3 Moderate	Low 3	Medium 6	Medium 9	High 12	Very high 15
	2 Unlikely	Very low 2	Low 4	Medium 6	Medium 8	High 10
	1 Rare	Very low 1	Very low 2	Low 3	Medium 4	Medium 5

OPPORTUNITY - PROBABILITY & BENEFITS MATRIX

Probability	Almost Certain	More	High	High	High
	Likely	More	More	High	High
	Moderate	Less	More	More	High
	Rare	Less	Less	More	High
	Unlikely	Less	Less	More	More
		Insignificant	Minor	Moderate	Major
		Benefits			

8. Planning to Achieve Quality Objectives

Quality objectives are necessities of the ISO 9001 standard & setting good quality objectives are also beneficial to the organization. In short, the quality objectives can be the finest way to focus the key elements of the Quality Policy & find a pivotal point for the efforts of the people within the organization to work toward continual improvement.

Improvement, after all, is a main reason for a company to instrument a Quality Management System.

The quality objectives in ISO 9001 must be designed to be S.M.A.R.T.:



Specific

Quality objectives need to be clear and specific. For Example, instead of saying “to improve non-conforming product,” a specific Quality Objective should be “to reduce non-conformances in Batching Plant 1 production line within the next quarter,” if the production line is showing data as the most troublesome area for non-conforming product.

Measurable

If a quality objective can’t be measured, how the organization will know if it has been obtained? So, in order to make a Quality Objective effective, it needs to be measurable, Example, “to reduce non-conformances on the Batching Plant 1 production line from 15% to 5%” is much more effective than saying “to improve quality of production in Batching Plant 1.” Henceforth, measuring the defects being made, and therefore make plans to reduce the number of defects, but a vague measure of “quality” is more transient and very hard to plan improvements for.

Achievable

For an objective to be achievable, it first needs to be approved by top level management. Once management agrees on the objective it needs to be communicated to each level of the organization that will be required to implement the plans to achieve the objective, and the individuals at these levels of the organization need to decide that the plan is achievable. Without this buy-in they may not entirely work towards the goal and the plan may be destined to failure.

Realistic

Being realistic with an objective will make vending it within the organization easier. If the employees within the organization see that to reduce defects from 50% to 2%, they will not be able to understand how this is possible, particularly if the plans around the entity do not support the improvement. So, it is better to set realistic goals & overachieve than it is to set unrealistic goals & always fall short of the anticipation.

Time-Based

To be truly operative, an objective need to have a time related with it. To say “reduce non-conformances on the Batching Plant 1 line from 15% to 5% in the next quarter” allows for better planning, since a plan needs to have target dates in order to be properly tracked. Again, having the time related will allow the organization to monitor how close they expect to be in achieving the goals.

Objective of the QMS	Macro process	Process	Indicator
Meet customer needs by ensuring the quality of services with reliability	Product realization	Review of requests, tenders and contracts	Percentage compliance with the requirements agreed with the customer (price, deadline, method)
	Effectiveness of QMS and its improvement	Customer service	Degree of customer satisfaction through surveys
	Effectiveness of QMS and its improvement	Complaints	Number of customer complaints
	Quality assurance of tests	Intercomparisons	Number of participations in interlaboratory comparisons or proficiency-testing programs and laboratory performance
Assure human and technical improvement of the staff	Resource management	Personnel	Hours of internal and external training
	Quality assurance of tests	Intercomparisons	Percentage of satisfactory results in intra- and interlaboratory comparisons
Assure adherence of the QMS to ISO/IEC 17025	Effectiveness of QMS and its improvement	Audits	Number of audits, number of nonconformities
	Effectiveness of QMS and its improvement	Nonconformities, corrective and preventive actions	Number of recurrent nonconformities, number of preventive actions
Assure the sustainability of the laboratory	Product realization	Review of requests, tenders and contracts	Number of new customers, laboratory income, number of tests per client, income per type of test
	Effectiveness of OMS	Customer service	Percentage of customers who recommend the laboratory to others in the customer-satisfaction survey

SOURCE: Researchgate.com

9. Management Support for Resources & Work Environment

No business can thrive without some form of support. This clause is directly involving to the resources & support which business requires to achieve their goals. The adequate managing of human resources, infrastructure & work environment is crucial to achieve not only high product & service quality, but also continual improvement of product & processes.

Resources

During resource scheduling, existing Internal resource capabilities will be considered if required external resources will be sourced. This includes:

- ✓ People (e.g., employees)

- ✓ Infrastructure (e.g., office, warehouse)
- ✓ Environment for the operation
- ✓ Tools to measure resources
- ✓ Organizational knowledge (i.e., staff requiring training to get the job done)

Competence

Organization needs to review all employees & determine whether they have the knowledge & skills to get the job done correctly in accordance with new policies & procedures.

If the employees aren't competent enough, the organization needs to take necessary steps to train the individual or team. Also, the organization need to record any training undertaken as evidence.

Awareness

Awareness is a new necessity, as it requires the organization to ensure employees are aware of:

- ✓ The Quality Policy
- ✓ The reason behind the policy
- ✓ The benefits of everyone following to the new policy
- ✓ The consequences for not ensuing the policy

As the new ISO 9001 standard focuses on leadership, leaders & managers are accountable to supervise this awareness necessity & document evidence of the communication with the employees.

Communication

This clause relates directly to the process of communication with internal & external stakeholders in the business. Someone should be the chosen as internal communicator – this could be a manager, HR manager or similar.

Internal communications include briefings on:

- ✓ Policies
- ✓ Any organizational changes
- ✓ Software or hardware upgrades
- ✓ Any changes regarding suppliers & vendors
- ✓ Anything which could have an impact on the employees
- ✓ External stakeholders should also be communicated by a designated spokesperson

Documented information

This clause relates to all documented information like:

- ✓ Document information required by the Standard & Client's requirement/agreement
- ✓ Documented information that's considered necessary for the quality management system to be effective

Basically, the organization no longer require an overwhelming amount of documented information. It is up to the organization to determine how much documented information they need to maintain an effective Quality Management System.



10. Operational Requirement for Planning & Control for Products & Services

ISO 9001:2015 clause for operations relates to the hands-on elements required for getting the job done, from planning, procurement to the execution of the project & commissioning.

An organization needs to validate their control over the process to ensure it justifies the quality management standards.

Requirements for Products & Services

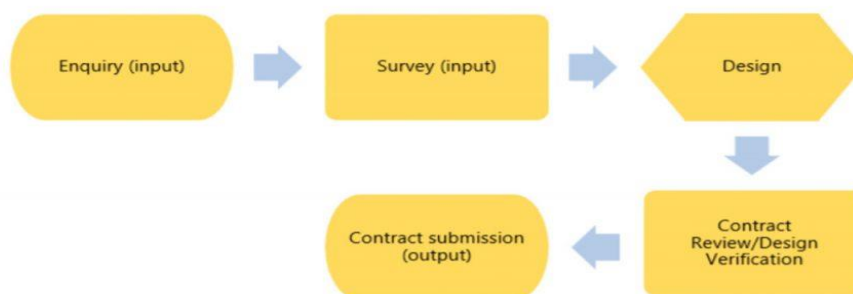
This clause relates to the subsequent areas of operation:

- ✓ Customer communication including enquiries & feedback
- ✓ Ensuring the organizations can meet the privileges for the products & services it offers, including reviewing the requirements of these products & services
- ✓ Documenting information regarding the review & any new necessities for products & services

Design & Development of Products & Services

This relates directly to generating processes for the design & development of products & services to ensure the quality. This clause also requires a business to review design & development procedures in order to improve upcoming designs.

SOURCE: QMS.com



Control of Externally Provided Processes, Products & Services

ISO 9001 2015 clause for externally providers, ensures organizations reflection on the influence external providers, vendors & suppliers have on the business. All organization need to communicate efficiently with external providers to ensure a high level of quality. Suppliers/Vendors need to be aware of the standards expected by the parent organization & regular reviewing needs to be conducted to ensure quality.

Production & Service Provision

Organizations are required under this clause to have measured conditions under which goods and services are produced. Such precise conditions include: ensuring the infrastructure & environment is appropriate for the operation, the existence of processes to prevent human error and injury, and the existence and implementation of appropriate monitoring and measuring resources.

Release of products and services

This new clause relates to the systems & process around releasing products & services. A product or service must have a measured procedure around quality management, to ensure it complies with the quality standard.

This process includes documenting all the below info:

- ✓ Evidence of Conformity
- ✓ Traceability to the worker level who has authorized the release

Control of Nonconforming Outputs

If a product or service doesn't follow to the necessary requirements, this clause is in place to ensure the correct steps are taken to identify, control & prevent the nonconforming products.

This clause applies to all steps of the production to delivery of products & services. The organization must take the following steps after identifying the nonconformance in products/standards:

- ✓ Correcting the problem
- ✓ Containing the issue or suspending the delivery of products/services
- ✓ Informing the Customer
- ✓ Obtaining Authorization for acceptance under concession

11. Performance Evaluation through Monitoring, Measuring & Analysis

The organization shall establish various procedures for measurement, analysis & evaluation of activities needed to ensure conformity & continual improvement.

Following are the steps required for performance evaluation:

- ✓ What needs to be monitored & measured?
- ✓ The method for monitoring & measurement required to validate results,
- ✓ When the monitoring & measuring will occur?

Ways of calculating the performance are through the following:

- ✓ Customer feedback reports, complaints & surveys
- ✓ Analysis & evaluation of the relevant data
- ✓ Internal auditing of the Quality Management System

Internal Audit

Performance evaluations are a vital part of understanding the efficiency of the quality management system as well as finding areas for improvement.

So, while creating an internal audit the organization should deploy the following steps:

- ✓ Define audit norms
- ✓ Select auditors to ensure the fairness of the audit
- ✓ Ensure the results are shared with all relevant personnel
- ✓ Take corrective action to alter any issues arising from the audit
- ✓ Retain the relevant info as evidence of implementation of the audit.



SOURCE: <https://www.iso-9001-checklist.co.uk/internal-audit-checklist.htm>

Management Review

This clause relates to the management review of the present quality management system & ensuring there is a repeated review to ensure the suitability & effectiveness of the system. If at any point the QMS doesn't line up with the strategic direction of the organization, steps must be taken to review & improve the Quality Management System.

12. Continual Improvement

The clause purely relates to continually improving the Quality Management System & identifying any areas for improvement. This includes implementing any new changes to meet customer requirements & to improve customer satisfaction.

This clause includes creation of relevant changes to improve products & services and taking corrective action to stop & further reduce undesired effects.

Nonconformity & Corrective Action

This clause orders the requirement for an organization to react to any nonconforming actions, including taking the following steps:

- ✓ Act to control the nonconformity & correct it
- ✓ Dealing with the consequences
- ✓ Review & analyze the nonconformity
- ✓ Determining the cause of the nonconformity
- ✓ Determine if any comparable nonconformities could occur
- ✓ Implement any action if required
- ✓ Review the efficacy of the corrective action
- ✓ Update the system process with the revised process

Improvement

Quality Management System must efficiently evolve with the business of the organization as it nurtures & changes. This clause directs a business must continually improve the quality management system to match the strategic direction of the business.

Continual amendment of the system & auditing will ensure the quality management system is updated with any new necessities and address any new opportunities.

At QMS Certification Services, the evaluators can complete an in-depth gap analysis of the existing quality management system & flag areas of non-compliance so the organization can improve the business, commence the process of certification and become properly certified.

13. Steps for a Construction Company to get ISO 9001 certified

For the organization's Quality Management System to be certified, the organization need to first finish the implementation. After finishing all your documentation & implementing the processes, the organization also needs to perform these steps to ensure a successful certification:

- a) **Internal audit** – The internal audit is in place for assessing QMS processes. The goal is to ensure that all records are in place to confirm compliance of the processes & to find problems & weaknesses that would otherwise stay buried.
- b) **Management review** – A formal review by organization's top management to evaluate the applicable facts about the management system processes in order to make suitable decisions & assign resources.
- c) **Corrective actions** – Following the internal audit & management review, the organization need to correct the root cause of any identified problems & document how they are resolved.



SOURCE: Google.com

The ISO 9001 certification process is divided into two stages:

Stage One (documentation review) – The auditors from the chosen Third-Party certification body will check to ensure the organization's documentation meeting the requirements of ISO 9001.

Stage Two (main audit) – Here, the Third-Party certification body auditors will check whether the organization's actual activities are compliant with both ISO 9001 & its own documentation process by reviewing documents, records & company practices.



SOURCE:
<https://www.pqsmitra.com/iso-9001-certification/>

14. Summary

The benefits of ISO 9001:2015 cannot be exaggerated, but many construction companies in India, be it large or small have used this standard to great effect, securing cost savings & additional revenue.

Here are just a few of these benefits which organizations can cherish through the Quality Management System

Implementation:

- ✓ *Improve your image and credibility* – When customers see that the organization is certified by a recognized certification body, they will understand that it had implemented a system that is focused on meeting customer requirements & continuous improvement. This also improves customer's trust that the organization will deliver what they have promised & it will get more new clients.
- ✓ *Improve customer satisfaction* – One of the key principles of the ISO 9001 QMS is the focus on improving & delighting customer satisfaction by identifying & meeting requirements. By improving satisfaction, the organization improve repeat customer business.
- ✓ *Fully integrated processes* – By using the process-based approach of ISO 9001, the organization not only look at the business processes within the organization, but also at the interactions of those processes. By doing so, it can more easily find areas for improvement & resource savings within the organization.
- ✓ *Use evidence-based decision making* – Ensuring that the decision making is based on good evidence is a key to the success of an ISO 9001 QMS. By ensuring organization decisions are based on good evidence, it can better target resources to the best effect to correct problems & improve its organizational efficiency & effectiveness.
- ✓ *Create a culture of continual improvement* – With recurrent improvement as the main focus of the QMS, organizations can attain ever-increasing returns in savings of time, money & resources. By making this the culture of the organization, it can focus on its workforce for improving the processes that they are directly responsible for.
- ✓ *Engage your workforce* – By focusing the organization's workforce on not only management, but also on improving the processes, they will be more engaged in the outcome of the organization.

15. Conclusion

In conclusion, ISO 9001:2015 is a transformative framework that benefits construction companies of all sizes. For small companies, it provides a structured approach to improve processes, enhance credibility, and attract new clients, enabling them to compete effectively in the market. For large companies, it strengthens operational efficiency, fosters continuous improvement, and enhances customer satisfaction, ensuring sustained growth and profitability. Regardless of size, the standard drives a culture of quality, resource optimization, and workforce engagement, positioning organizations to achieve long-term success in a competitive industry

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