Investigation the Application State of ISO 9001:2000 for Quality Management System of Al-Rasheed State Contracting Construction Company

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الخلاصة

الصناعة الإنشائية واحدة من الأعمال التي اكتسبت أهمية على المستوى العالمي نتيجة اشتداد المنافسة وكبر وتعقيد المشاريع الإنشائية. لقد حدث ازدياد في رغبات الزبائن وميل للحصول على خدمات إنشائية متكاملة. بيئة بهذه التحديات تحتاج إلى علاقة منظمة بين المجهزين ومدراء المشاريع والزبائن لتحقيق النجاح. الزبائن يبحثون عن شركات إنشائية قادرة على إداء أعمالها بكفاءة، ولكي تحقق الشركات الإنشائية ذلك عليها أن تطور خططها واتصالاتها وان تنفذ هذه الخطط لانجاز المشروع بنجاح.

تطوير نظام إدارة جودة بالاعتماد على "ISO 9001:2000" يؤدي بالشركة أن تكون كنظام يتكون من مجموعة من العمليات المترابطة فيما بينها، الشركة هي من تخطط هذه العمليات وتحدد كيفية ارتباط الواحدة بالأخرى وتضع الأهداف ومن ثم تقيس هذه العمليات لتحقيق التحسين.

هدف البحث عرض مفهوم، تعريف، عناصر، وفوائد مواصفة "ISO 9001:2000"، وتطوير تطبيق نظام إدارة الجودة في شركة الرشيد للمقاولات الإنشائية.

ABSTRACT

Construction industry is becoming an increasingly global business. Competition in the industry is intensifying, and projects are becoming larger and more complex. Customers are becoming more demanding, and increasingly they are looking for complete packages of construction services. In this environment, the relationships between suppliers, project managers and customers are the key to success. Customers will need to be confident that companies can get the job done. Companies will need to develop plans, communicate and effectively fulfill these plans, in order to successfully complete projects.

Building quality management system (QMS) based on ISO 9001:2000, require managing company as a system of interrelated processes, management should plan these processes, identify how they relate to each other, set goals, measure processes and make improvements.

The objective of this research is to review the concept, definition, principles, and benefits of ISO 9001:2000 standard and developing the application of the quality management system for Al-Rasheed State Contracting Construction Company.

KEYWORDS: ISO 9001:2000 standard, quality, quality management system, customer satisfaction, continuous improvement.

1- Introduction

The construction industry is well known for its time/cost overruns and poor performance, and this can be traced back to the errors/mistakes made during the delivery of goods and services. One response to this has been for construction companies to move away from the traditional 'fire fighting' approach to more formal quality management systems to plan, monitor and control their production process. This is in line with the latest ISO 9001:2000 standard, which also emphasizes customer satisfaction and continual improvement, ISO 9001:2000 is a quality management system that outlines some basic good business practices that required having in place. By implementing a quality management system that complies with ISO 9001:2000 in order to be able to make company run more efficiently, increase customers' satisfaction and communicate to potential customers that have good quality processes in place.

2- Research Justification

The reasons behind carrying out this research work are:

a. There is lack in adopting standard quality management system in most of Iraqi construction companies.
b. There is a big gap between existing operation and application of quality measures and developed quality system.

3- Research Objective

The objective of the research is to develop quality management system that comply with ISO 9001:2000 for construction companies in Iraq.

4- Standard Concept

ISO 9001:2000 does not tell what standards to adopt, but rather helps to organize work and produce to a standard, so that to say what to do and to do what to say [1].
With the revision in 1994 and 2000, the ISO 9001 becomes the basis for the development of quality management systems and assuring quality in the manufacturing and services sectors on an international scale [2].
After reviewing ISO 9001 in 2000, this standard correspond more with construction industry, and its use in this industry has increased. The main motivator for certification should be the achievement of quality in a company's internal procedures in order to optimize resource and satisfy customers' requirements better [3].

5- Standard Defention

"ISO 9001:2000" is a set of universal quality system standards provides a uniform framework for quality assurance that can be used worldwide [4].
ISO 9001:2000 specifies requirements for a quality management system that can be used for internal application by companies, or for certification, or for contractual purposes [5].
The basic principles of ISO 9001:2000 to achieve quality management system are [6]:

a. Customer focus.

b. Leadership.
c. Involvement of people.
d. Process approach.
e. System approach to management.
f. Continual improvement.
g. Factual approach to decision making.
h. Mutually beneficial supplier relationships.

Many companies decided to implement ISO 9001 and obtain registration because it assures customers that the company has a good quality management system in place. A company with an effective QMS will typically meet customer expectations better than a company that doesn't have.

6- Benefits for the Company

A well designed and implemented quality management system, based on ISO 9001:2000 has been shown to provide companies with the following benefits [7]:

6.1- Internal benefits include:

a. Increased productivity.
b. Less scrap and rework.
c. Increased employee satisfaction.
d. Continual improvement.
e. Increased profits.

6.2- Marketing benefits include:

f. An internationally recognized QMS.
g. Increased opportunities in specific markets.
h. Increased customer satisfaction.
i. Some markets favor companies with ISO 9001 registration.

7- Documentation of Quality Management

Quality management system (QMS) is documented in [8]:

a. Quality policy

Quality policy is statement describing commitment to provide customers quality products and service.

b. Procedures

Procedures are describing how a process is done.

c. Work instructions

Work instructions are describing how to do a task or process.

7- Research Methodology

8- The research work, undertaken to achieve the research objective, has adopted the following methodology:

a. Literature survey includes reviewing of pertinent literature, covering; scientific references including textbooks, conferences, journals, and magazines that outlined and discussed the ISO 9001:2000 subject.
b. Field survey includes developing checklist to investigate and record the facts of the existing quality management system of Al-Rasheed state contracting construction company (Appendix-A).
c. Analyzing the collected data to study and evaluate the existing system according to the required ISO 9001:2000 and indicate the major weakness, lacks and proposing the proper solution of deficiency.
d. Introducing the developed system with the required recommendations to apply and adopt it.

9- Checklist Design and Application

The design of the checklist is based on the literature survey of the research especially in the field of ISO 9001:2000. Interviews were made with a selected number of well-experienced engineers in the field of quality working in the central organization for standardization and quality control. Interviews were made with, deputy director general, factories, planning, and piles department managers of Al-Rasheed state contracting construction company to answer the required information of the checklist.

Seven weight scale were selected according checklist design to evaluate the application and documentation degree of the related ISO 9001:2000 requirements, table (1) describe the details of weight scale.

Table (1) :Description of weight

X_I	description
6	Fully applied fully documented
5	Fully applied partially documented
4	Fully applied not documented
3	partially applied fully documented
2	partially applied partially documented
1	partially applied not documented
0	not applied not documented

9- Checklist Data Analysis

The data of the checklist will be analyzed and discussed, according to the sequence of ISO 9001:2000 standard clauses, and based on measuring the average weight and percentage of application and documentation according to formula (1) and (2).

Average weight for applied and documented= $(\sum X_I F_I / \sum F_I)$ ……..(1)

Percentage for applied and documented = $(\sum X_I F_I / \sum F_I) \times 6 \times 100\%$ ……....(2)

Where:

$\mathbf{X_I}$ is weight.

$\mathbf{F_I}$ is frequency.

The checklist summary of analysis and evaluation of the quality management system requirement is shown by table (2).

Table (2):Summary of analysis results

Quality Management System (clause 4)	**6**	**5**	**4**	**3**	**2**	**1**	**0**	**No. of questions**	**Average weight**	**%**
General Requirements (4:1)	0	0	0	0	0	0	7	7	0	0
Documentation Requirements (4:2)	0	0	0	0	4	0	9	13	0.6	10.2
$\sum F_I$	0	0	0	0	4	0	16	20		
$X_I F_I$	0	0	0	0	8	0	0			
Average weight	0.4									
Percentage	6.7%									
Management Responsibility (clause 5)	**6**	**5**	**4**	**3**	**2**	**1**	**0**	**No. of questions**	**Average weight**	**%**
Management Commitment (5:1)	0	0	0	0	0	0	3	3	0	0
Customer Focus (5:2)	1	0	0	0	0	0	3	4	1.5	25
Quality Policy (5:3)	0	0	0	0	0	0	6	6	0	0
Planning (5:4)	1	0	0	0	4	0	5	10	1.4	23.3
Responsibility, Authority, and Communication (5:5)	0	0	0	0	1	0	3	4	0.5	8.3
Management Review (5:6)	0	0	0	0	0	0	4	4	0	0
$\sum F_I$	2	0	0	0	5	0	24	31		
$X_I F_I$	12	0	0	0	10	0	0			
Average weight	0.7									
Percentage	11.8%									
Resource Management (clause 6)	**6**	**5**	**4**	**3**	**2**	**1**	**0**	**No. of questions**	**Average weight**	**%**
Provision of Resources (6:1)	0	0	0	1	1	0	1	3	1.7	27.8
Human Resources (6:2)	1	0	2	1	0	0	3	7	2.4	40.5
Infrastructure (6:3)	0	1	0	1	3	1	2	8	1.9	31.2
Work Environment (6:4)	0	0	1	0	4	0	6	11	1.1	18.2
$\sum F_I$	1	1	3	3	8	1	12	29		
$X_I F_I$	6	5	12	9	16	1	0			
Average weight	1.7									

Percentage	28.2%									
Product Realization (clause 7)	**6**	**5**	**4**	**3**	**2**	**1**	**0**	**No. of questions**	**Average weight**	**%**
Planning for Product Realization (7:1)	1	0	0	0	4	0	0	5	2.8	46.7
Customer Related Processes (7:2)	1	1	0	0	1	0	1	4	3.3	54.2
Design and Development (7:3)	1	0	0	0	0	0	5	6	1	16.7
Purchasing (7:4)	4	0	0	0	3	0	0	7	4.3	71.4
Production and Service Provision (7:5)	5	0	0	0	4	0	1	10	3.8	63.3
Control of Monitoring and Measuring Devices (7:6)	5	0	0	0	3	0	1	9	4	66.7
$\sum F_I$	17	1	0	0	15	0	8	41		
$X_I F_I$	102	5	0	0	30	0	0			
Average weight	3.3									
Percentage	55.7%									
Measurement, analysis and improvement ((clause 8)	**6**	**5**	**4**	**3**	**2**	**1**	**0**	**No. of questions**	**Average weight**	**%**
General (8:1)	0	0	0	0	1	0	2	3	0.7	11.1
Monitoring and Measurement (8:2)	0	1	1	0	1	0	10	13	0.8	14.1
Control of Nonconforming Products (8:3)	5	0	0	0	0	0	0	5	6	100
Analysis of Data (8:4)	1	0	0	0	0	0	4	5	1.2	20
Improvement (8:5)	3	0	0	0	0	0	9	12	1.5	25
$\sum F_I$	9	1	1	0	2	0	25	38		
$X_I F_I$	54	5	4	0	4	0	0			
Average weight	1.8									
Percentage	29.4%									

Figure (1) shows the average weight and percentage of application and documentation of ISO 9001:2000 requirement.

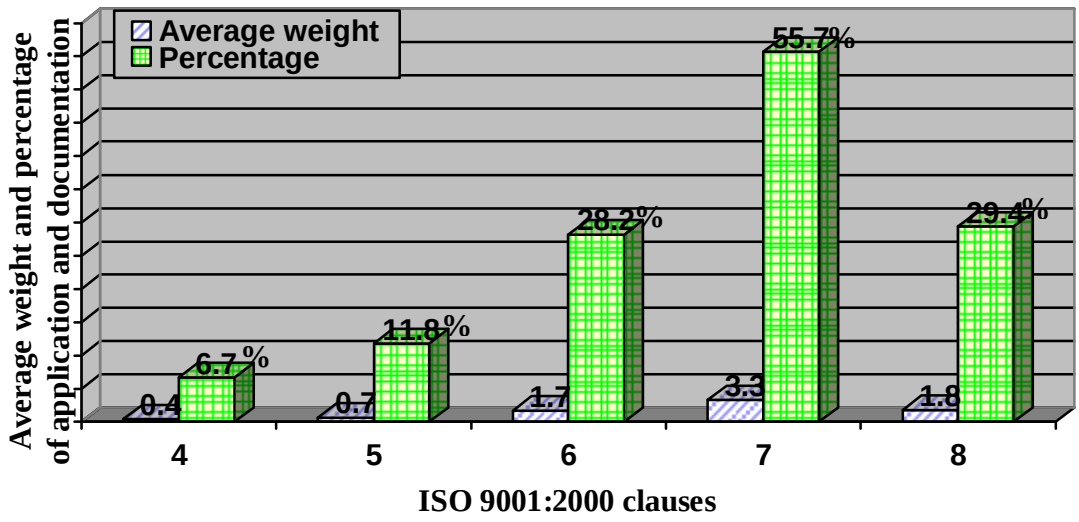

Figure (1) Average weight and percentage of application and documentation of ISO 9001:2000 requirements

11- Discussion of Analysis Results

The discussion of results will focus on and point out the weak and strong areas of the system following the related clauses of ISO 9001:2000.

11.1- Quality Management System (CLAUSE 4)

The analysis indicated very low status level in the general requirement of quality management system except nominating employees to document test results of raw materials and concrete cubes.

11.2- Management Responsibility (CLAUSE 5)

Results showed low level of management responsibility except defining customer requirements and identifying the acceptance criteria of products quality.

11.3- Resource Management (CLAUSE 6)

The analysis indicated low to moderate application level of quality requirements such as using suitable tools, adopting trial and experimental runs to inspect production programs, focusing on the importance of employees' qualification, skill and training. The company has affirm actions towards keeping human resource records, identifying production processes that have direct impact on quality.

11.4- Production Realization (CLAUSE 7)

The research results showed that the company has the required level for some of the required customer related process. The company achieved excellent level in some of the purchasing requirement. The analysis indicated high level of interest in considerable fields related to production and service provision and control of monitoring and measuring devices.

11.5- Measurement, Analysis and Improvement (CLAUSE 8)

The analysis of clause (8) indicated low level of application in most of the general, monitoring and measurement, analysis of data, and improvement requirements but the company exercise very good actions regarding control of nonconforming products.

11.6- Over View of the Existing System

Figure (1) indicated in general that there is a big lack in the existing system and in both the application and documentation of quality management system requirements except 55.7% of application and documentation in product realization (clause 7).

12- Conclusions

The deficiencies disclosed through investigation and analysis can be considered that are related to the following reasons:

a. The deficiencies in application and documentation of clauses (4, 5, 6, 7, and 8) can be considered that are related to lack of knowledge or interest in quality management requirements.
b. The main problem in application and documentation of the resources management requirements clause (6) is the lack of the required resources to adopt and implement standard quality management system.
c. Factors and conditions affecting the requirement of clauses (5, 7, and 8) can be considered as lack of will due to imposed impacts by managerial resistance to change, local political, economical and security conditions that are out of the management control.

13- Recommendations

According to the aforementioned conclusions, the following recommendations have been given to enhance the QMS:

a. Educating the company employees in the various levels about the importance and benefits of ISO 9001:2000 standard through seminars, conferences, and training.
b. Providing adequate and suitable resources to implement and permanently improve QMS.
c. Improving local conditions and help management to upgrade and control its performance in the field of QMS.

Refernces

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APPENDIX A

CHECKLIST

Quality Management System (clause 4)								
no.	**General Requirements (4:1)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Does company have quality management system compliance with ISO 9001:2000?							*
2	Does company continually develop QMS?							*
3	Are there activities excluded from quality management system?							*
4	Is there defining to relationship between departments to achieve quality management system?							*
5	Does company define and provide necessary resources to implement quality management system?							*
6	Does company identify acceptance levels to control quality management system effectiveness?							*
7	Does company measure and analyze results of implementing quality management system?							*
no.	**Documentation Requirements (4:2)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Does company have quality manual according to ISO 9001:2000 requirements?							*
2	Does company have work instructions manual?							*
3	Does company nominate employees whom responsible to document quality activities?					*		
4	Does company identify responsibilities and authorities that concerning quality records?							*
5	Does quality records traceable?							*
6	Does quality records periodical updated?							*
7	Does company unify all QMS forms?							*

Appendix A (continued)

8	Are there records to document results of QMS implementation?							*
9	Does company identify time period to keep records?							*
10	Is there method to dispose old records?							*
11	Does company have records for corrective actions?					*		
12	Are records storing is in suitable conditions?					*		
13	Does company nominate employees whom responsible to keep quality records?					*		
Management Responsibility (clause 5)								
no.	**Management Commitment (5:1)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Does top-management have policy towards continual improvement of QMS?							*
2	Does top-management provide necessary resources to QMS?							*
3	Does top-management make periodical management reviews to develop QMS?							*
no.	**Customer Focus (5:2)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Does top-management have policy towards customer satisfaction?							*
2	Does company define customer requirements and after-sales service?	*						
3	Does top-management, treat the employees as customers?							*
4	Does company have methods to communicate with customers to know their opinions about the product and service?							

	Appendix A (continued)							
no.	**Quality Policy (5:3)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Does quality policy convenient to company objectives?							*
2	Does quality policy depend on top-management?							*
3	Does quality policy support quality objectives?							*
4	Does language of quality policy simple?							*
5	Do the employees understand quality policy?							*
6	Does top-management periodically review quality policy?							*
no.	**Planning (5:4)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Are quality objectives suitable to quality policy and capable to be measured?							*
2	Are quality objectives convenient to company abilities?							*
3	Are quality objectives supporting top-management efforts for continual improvement of quality?							*
4	Are work procedures and instructions achieving quality?					*		
5	Are work procedures and instructions documented?					*		
6	Is company provided operating procedures concerning activities that effecting quality?							*
7	Are inspection and testing activities convenient to production processes?					*		
8	Does the company identify and provide equipment, instruments, and testing methods concerning quality?					*		
9	Are the acceptance criteria for products quality identified?	*						
10	Do customers approve the quality plan?							*
no.	**Responsibility, Authority, and Communication (5:5)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Are responsibilities and authorities concerning quality identify for employees?					*		
2	Does company have internal communication system coupled with periodical conferences to discuss QMS?							*

	Appendix A (continued)							
3	Does top-management nominate employee to supervise ISO 9001:2000 implementation?							*
4	Does supervisor submit periodical reports concerning QMS effectiveness?							*
no.	**Management Review (5:6)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Does top-management periodically conduct management reviews to QMS?							*
2	Are management reviews leads to improve QMS?							*
3	Are input of management reviews include internal auditing results, customers' complaints, and waste percentage?							*
4	Are outputs of management reviews lead to make decisions that develop products and satisfy customers?							*
Resource Management (clause 6)								
no.	**Provision of Resources (6:1)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Does company identify and provide necessary resources to implement QMS?							*
2	Are there suitable tools to achieve quality requirements?					*		
3	Are there experimental run to inspect production factories at preparation of production programs?				*			
no.	**Human Resources (6:2)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Are employees have experience, skill, and education to achieve quality?			*				
2	Does company identify necessary qualification of employees whom perform jobs concerning quality?			*				
3	Does company have training programs concerning QMS?							*
4	Does company prepare training programs to face quality requirement and problems?				*			

	Appendix A (continued)							
5	Do employees know the effect of their jobs on quality policy and objectives?							*
6	Does company have records including every thing about education and training results?	*						
7	Does company train employees on management reviews and internal quality audit?							*
no.	**Infrastructure (6:3)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Are buildings and work sites having suitable work conditions?						*	
2	Does company identify production processes that have direct impact on quality?		*					
3	Does production processes under control?					*		
4	Does communication and transportation suitable to support QMS?							*
5	Does company depend methods to secure computers and programs?							*
6	Is there maintenance to equipment?					*		
7	Are there procedures identifying production and service methods?					*		
8	Does quality department have standards and work instruction to control production processes?				*			
no.	**Work Environment (6:4)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Does company identify the requirement of work environment to achieve quality?					*		
2	Does company have system to test work environment requirements (physical, chemical, biological).							*
3	Does company work towards providing safe work environment with continual inspection for risk?					*		

	Appendix A (continued)							
4	Does company use checklist to inspect the requirements of safe work environment?							*
5	Does company encourage their employees to work as teams having same aim?							*
6	Does company watch safety instructions and test extinguishers?					*		
7	Does company have annual safety program?							*
8	Are employees having health insurance?							*
9	Does company have ways to activate employees and eliminate fatigue?							*
10	Does company have interest in cleanness of buildings, and work site?			*				
11	Does company take care of gardens and buildings facade?					*		
Product Realization (clause 7)								
no.	**Planning for Product Realization (7:1)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Is there comprehensive planning for quality processes before starting and during production?					*		
2	Are inspection and test activities documented?	*						
3	Does company have records to prove quality of processes and products?					*		
4	Are responsibilities and authorities of inspection and test activities documented?					*		
5	Does company confirm that planning output compatible with equipment, and working methods?					*		
no.	**Customer Related Processes (7:2)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Does company define the necessary requirements for use, which are not defined by customer?	*						

	Appendix A (continued)							
2	Are the customer demands displayed to the related departments to know their opinions before contract?		*					
3	Does company have method to know the opinions of its employees about the quality of product and service?							*
4	Does company adopt customer satisfaction as a measure for quality?					*		
no.	**Design and Development (7:3)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Is there verification from the results of design?							*
2	Does company review the designs that provided by customer?							*
3	Does company have methods to develop the designs?							*
4	Does company evaluate the effectiveness of the developed designs?							*
5	Does company certain that production processes can achieve the designs?	*						
6	Is there coordinated between structural, mechanical, and electrical designers before executing?							*
no.	**Purchasing (7:4)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Does company evaluate suppliers?					*		
2	Are evaluation results documented?					*		
3	Are the purchasing documents obvious and comprehensive?	*						
4	Are the purchasing documents included standards, and inspection and testing instructions?	*						
5	Does company review the purchasing documents?	*						
6	Does company identify and implement necessary testing to prove quality of the purchasing products?	*						
7	Does company identify acceptance clauses for the purchasing products?					*		

	Appendix A (continued)							
no.	**Production and Service Provision (7:5)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Are the production processes done under controlled conditions?					*		
2	Does company have clear information's to identify quality characteristics of products?	*						
3	Are employees have an obvious work instructions?					*		
4	Are production equipment accurate enough to achieve quality?	*						
5	Are measuring tools accurate?	*						
6	Are products traceable?	*						
7	Are products (concrete supply) traceable after using?	*						
8	Does company have suitable places to store raw materials and spare parts?							*
9	Does company have storage system to control and monitor the storage?					*		
10	Does company have procedures to protect or secure products during the transportation process?					*		
no.	**Control of Monitoring and Measuring Devices (7:6)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Does company identify the required monitoring and measurements and responsibilities of achieving them?					*		
2	Does company identify the required monitoring and measuring devices?	*						
3	Does company make sure that monitoring and measurements executed properly?	*						
4	Are monitoring and measuring devices calibrated?					*		
5	Are monitoring and measuring devices which calibrated recognized by label?	*						

	Appendix A (continued)							
6	Are the monitoring and measuring devices used under controlled conditions?					*		
7	If the company discovered that, calibration of monitoring and measuring devices not good, have procedure to review the past results?							*
8	Are the calibration results documented?	*						
9	Is the calibration system depended by central organization for standardization and quality control?	*						
Measurement, analysis and improvement (clause 8)								
no.	**General (8:1)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Does company plan, and execute activities of controlling, measuring, analyzing and use results for developing?					*		
2	Does company control and measure, execution results of QMS?							*
3	Does company use execution results to develop QMS?							*
no.	**Monitoring and Measurement (8:2)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Does company execute periodical internal quality audit?							*
2	Does company use the results of internal quality audit to develop QMS?							*
3	Does company identify criteria for the internal quality audit?							*
4	Does company choose neutral and fair auditors?							*
5	Does company have annual program for internal quality audit?							*
6	Does company identify, plan, responsibility and requirements of audit?							*
7	Does company execute corrective action?							*

Appendix A (continued)

8	Does company monitor the executions of corrective action?							*
9	Does company measure and monitor QMS?							*
10	Does company continually develop QMS?							*
11	Does company measure and monitor products during production process?		*					
12	Does company nominate who release the product?			*				
13	Does company make sure that releasing products happen as requirement of standard?					*		
no.	**Control of Nonconforming Products (8:3)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Does company, diagnosis and control nonconforming product?	*						
2	Does company benefit from nonconforming product?	*						
3	Does company document the reasons of nonconforming?	*						
4	Does company correct status of nonconforming?	*						
5	Does company test nonconforming products after correcting?	*						
no.	**Analysis of Data (8:4)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Does company, identify, collect, and analyze data concern QMS?							*
2	Does company use the collected data to improve QMS?							*
3	Does company analyze data to make sure that products are conforming to standard?	*						
4	Does company use data analysis to make preventive actions?							*
5	Does company analyze data that concern suppliers?							*
no.	**Improvement (8:5)**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
1	Does company continually improve QMS?							*
2	Does company use, quality policy and objectives, internal quality audit, data analysis, corrective and preventive procedures, and management review to improve QMS?							*
3	Does company make necessary procedures to remove the reasons of nonconforming QMS?							*

Appendix A contained

4	Does company have documented method for corrective procedures?							*
5	Do corrective procedures identify the reasons of nonconforming?	*						
6	Do corrective procedures include prevent repeatedly the reasons of nonconforming?	*						
7	Do corrective procedures documented?	*						
8	Does company identify preventive procedures to remove nonconforming?							*
9	Do preventive procedures match with volume and importance, status of nonconforming?							*
10	Does company have documented way for preventive procedures?							*
11	Do preventive procedures include prevent repeatedly the reasons of nonconforming?							*
12	Does company review the effectiveness of preventive procedures?							*