

Integrated Construction Quality Assurance (ICQA) Scheme

The ICQA provides a framework for builders to develop a system that helps them deliver high standard of workmanship quality and improve productivity for building works. The framework encourages firms to leverage the use of technology for construction work and focus on defect prevention.

There are eight categories within the ICQA framework. The total score of the scheme is 1500 and the score weightages of categories are listed as follows:

| Category | Maximum Score | Weightage |
|--------------------|----------------------|------------------|
| 1. Leadership | 120 | 8% |
| 2. Customer | 120 | 8% |
| 3. Planning | 100 | 7% |
| 4. Human Capital | 180 | 12% |
| 5. Knowledge | 80 | 5% |
| 6. Process | 200 | 13% |
| 7. Innovation | 250 | 17% |
| 8. Results | 450 | 30% |
| Total Score | 1500 | 100% |

Minimum Score for Certification

ICQA is a performance based evaluation tool for ranking of firms' capabilities and competencies. Firms which achieved an overall score of at least 50%, 70% and 85% will be awarded 'Certified', 'Merit' and 'Excellent' rating respectively.

To help firms develop their performance holistically, firms need to achieve minimally 50% of the total marks in each ICQA category.

| Ranking | Score |
|----------------|--------------|
| Excellent | 85% |
| Merit | 70% |
| Certified | 50% |

ICQA Detail Assessment Criteria

| 1.0 Leadership | | Max Score |
|--|--|-----------|
| Assessment Criteria | | Max Score |
| 1.1 Senior Leadership - <i>Top management leads the organisation to achieve and sustain outstanding performance</i> | | 60 |
| 1.1.1 Sets vision, mission and formulate policy | a) Management <u>develops</u> the mission, vision and values and <u>sets corporate goals and targets</u> for overall performance | |
| | b) Management <u>reviews</u> the mission, vision and values at planned interval to enable improvement and drive the organisation's performance | |
| | c) Management <u>monitors and reviews</u> the achievement of corporate goals and targets | |
| 1.1.2 Engages and communicates to key stakeholders of its vision, mission and core values | a) Management <u>engages and communicates with stakeholders (internal and external) regularly</u> | |
| 1.2 Organisation Culture - <i>Organisation culture is aligned with its values to encourage improvement and innovation</i> | | 60 |
| 1.2.1 Focus on achieving high quality products and services | a) <u>Key process areas are aligned</u> to achieve high quality product services to customers | |
| | b) Organisation <u>reviews key processes</u> and make changes for improvements | |
| | c) Organisation <u>encourages collaboration</u> to improve quality standards e.g. cross functional team, partnership with supplier/subcontractor, etc. | |
| 1.2.2 Grooms future leaders for organisation sustainability | a) Management <u>provides guidance and coaching to impart knowledge</u> to employee | |
| | b) Management <u>facilitates or personally involves</u> in projects to show commitment to operational excellence | |

| 2.0 Customer | | |
|---|--|------------------|
| Assessment Criteria | | Max Score |
| 2.1 Customers' Needs - <i>Organisation incorporates customers' requirements to develop their products and services</i> | | 60 |
| 2.1.1 Determines customer requirements | a) Organisation <u>segments</u> their customers and <u>set suitable performance standards</u> requirements to enhance customer satisfaction | |
| | b) Organisation <u>involves</u> their customers to develop their product and services and <u>incorporates their requirements</u> to deliver products and services that meet applicable legal and regulatory requirements | |
| 2.1.2 Identifies opportunities | a) Organisation <u>identifies ways</u> to satisfy customer's requirement | |
| 2.2 Customer Satisfaction - <i>Organisation analyses customers' feedback for improvement</i> | | 60 |
| 2.2.1 Collates customer feedback | a) Organisation <u>determines methods</u> to obtain customer feedback to enhance customer satisfaction | |
| | b) Organisation <u>addresses customer feedback</u> to ensure customer satisfaction | |
| 2.2.2 Analyses customer feedback | a) Organisation <u>analyses customer feedback for improvement</u> and <u>reviews performance standards</u> where appropriate | |

| 3.0 Planning | | Max Score |
|---|---|------------------|
| Assessment Criteria | | |
| 3.1 Corporate and Department Planning - <i>Organisation develops corporate and department plans to meet current and future challenges and for overall performance excellence</i> | | 60 |
| 3.1.1 Development of corporate plans | a) Organisation <u>identifies the key challenges</u> to meet products and services requirements | |
| | b) Organisation <u>reviews corporate plans</u> at planned intervals for its continual suitability, adequacy and effectiveness. | |
| 3.1.2 Development of department work plans | a) Organisation <u>formulates work plans with objectives and targets</u> at key process areas to address the issues that may affects the ability to meet products and services requirements | |
| | b) Organisation <u>reviews work plans</u> at planned intervals for its continual suitability, adequacy and effectiveness | |
| | c) Organisation <u>communicates its work plan</u> to key stakeholders regularly through variety of platforms | |
| 3.2 Implementing Changes - <i>Organisation implements action plan to overcome challenges in order to achieve its objectives and targets</i> | | 40 |
| 3.2.1 Monitor and review of achievement | a) Organisation <u>allocates resources</u> in support of the work plans e.g. New equipment, new technologies, acquire new skills, etc. | |
| | b) Organisation <u>monitors the progress</u> of corporate and department work plans at planned intervals to keep track of the progress of achieving its objectives and targets | |
| | c) Organisation <u>identifies actions and makes changes</u> to corporate and department work plans when objectives and targets are not achieved | |

| 4.0 Human Capital | | |
|--|---|------------------|
| Assessment Criteria | | Max Score |
| 4.1 Human Capital Management - Organisation builds an effective workforce to support organisation goals | | 60 |
| 4.1.1 Anticipates human resources requirements | a) Organisation <u>determines the resources needed</u> to meet products and services requirements | |
| | b) Organisation <u>reviews</u> the human resources plan regularly | |
| 4.1.2 Establishes employee engagement program | a) Management <u>engages employees regularly</u> to motivate and <u>retain staffs</u> | |
| | b) Management <u>measures</u> employees' satisfaction level to improve HR performance | |
| 4.2 Employee Learning and Development - Organisation identifies and addresses employee capability needs to support organisation goals | | 60 |
| 4.2.1 Training and development | a) Management <u>engages employees</u> to identify new skills and competencies, in line with organisational goals as well as personal growth | |
| | b) Management <u>provides opportunities</u> for employees to develop their skills and knowledge to meet products and services requirements | |
| 4.3 Employee Performance Management - Organisation supports and motivates employees through benefits and policies | | 60 |
| 4.3.1 Establishes performance measurement system | a) Management has an effective performance measurement system that measures and recognises employee contribution i.e. high performance and innovative behaviours e.g. appraisal, performance review, etc. | |
| | b) Management <u>encourages employees</u> to propose improvement in the work processes e.g. suggestion schemes, innovation challenge | |

| 5.0 Knowledge Management | | |
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| Assessment Criteria | | Max Score |
| 5.1 Information Management - <i>Organisation collects and manages information to support planning and implementation for improvement</i> | | 20 |
| 5.1.1 Identifying relevant information to determine performance of process and product | a) Organisation <u>identifies and collates information</u> to assess product and process performance, including compliance to requirements where relevant b) Organisation <u>safeguards information loss</u> e.g. business continuity plan | |
| 5.2 Integrated Digital Delivery (IDD) - <i>Organisation uses ICT and technologies to integrate processes throughout project stages</i> | | 40 |
| 5.2.1 Use of info communications technology (ICT) and smart technology | a) Organisation <u>acquires new knowledge</u> on ICT and smart technology to address changing market needs and trends e.g. new digitisation technologies for information and project management to enhance productivity, minimise abortive works and reworks, as well as unnecessary wastages e.g. Building Information Modelling (BIM) and Virtual Design & Construction (VDC) b) Organisation <u>adopts and use of digital solutions</u> to enable better collaboration amongst all stakeholders and team members throughout the project stages e.g. digital design, digital fabrication, digital construction, digital delivery, etc. | |
| 5.3 Analysis of Knowledge - <i>Organisation leverages on information from projects to facilitate innovation and improvement</i> | | 20 |
| 5.3.1 Benchmark for improvement | a) Organisation <u>analyses the information</u> collected and determines the process and product performance | |

| 6.0 Process | | |
|---|--|-----------|
| Assessment Criteria | | Max Score |
| 6.1 Project Management - <i>Organisation manages the schedule, costing, resources and processes flow to meet project and customer requirements</i> | | 40 |
| 6.1.1 Project planning | a) Organisation <u>develops project plan</u> to meet requirements. | |
| | b) Organisation <u>determines the resources needed</u> to achieve conformity to the product and service requirements. | |
| | c) Construction methods, processes and technologies are identified. <u>Optimisation of processes are considered to improve productivity and ensure high quality products</u> | |
| | d) Process flow and its <u>acceptance criteria are established and approved</u> to meet the project requirements. | |
| | e) Organisation <u>identifies project risks and manages them</u> to achieve project objectives | |
| 6.1.2 Project implementation and monitoring | a) Project team <u>monitors and review the progress at planned interval</u> to ensure intended purpose are met. | |
| | b) Project team <u>communicates to various stakeholders</u> regularly to update progress status and handle any other specific requests, when applicable. | |
| | c) Project outstanding issues <u>are tracked to closure</u> . Information <u>are shared</u> to team members to prevent reoccurrences. | |
| | d) Project team <u>identifies actions and makes changes</u> to projects when targets and objectives are not achieved | |
| 6.1.3 Project records | a) Organisation <u>determines the type of records to be retained</u> as evidence of conformity to all project, legal and any other relevant requirements. | |
| | b) Organisation ensures records <u>are well maintained and readily available</u> . | |

| Assessment Criteria | | Max Score |
|--|---|-----------|
| 6.2 Site Management - <i>Organisation manages project site including site layout, logistics arrangement, housekeeping, environmental and safety management and preventive maintenance program to meet legal and stakeholders requirements</i> | | 30 |
| 6.2.1 Site environmental management | a) Organisation <u>establishes a site environmental management plan</u> to minimise environmental impact and its impacts to neighbouring properties and public. | |
| 6.2.2 Site safety management | a) Organisation <u>establishes a site safety management plan to identify hazards and manage risks at worksite.</u> | |
| 6.2.3 Emergency preparedness and response | a) Organisation <u>identifies potential emergency situations and determine the actions required to respond</u> to such emergency situations | |
| | b) Organisation <u>periodically tests, reviews and revises the planned response actions</u> when practicable | |

| Assessment Criteria | | Max Score |
|---|--|-----------|
| 6.3 Quality Assurance and Control - <i>Organisation manages process to ensure products are quality controlled and assured to meet the project requirements and performance standards. This includes inspection and tests at site and factory, etc.</i> | | 60 |
| 6.3.1 QA/QC resources | a) Organisation ensures <u>sufficient QA/QC personnel are provided</u> . This includes qualified QA/QC team to inspect quality workmanship, skilled personnel to rectify defects internally or manage subcontractors effectively, etc. | |
| | b) Organisation <u>ensures essential QA/QC inspection tools and equipment are readily available</u> . This includes IT structure, CAD stations, calibrated test and measuring instruments, etc. | |
| | c) Organisation <u>establishes communication channel and sharing of QA/QC information</u> . | |
| 6.3.2 Material selections and sequencing of works | a) Organisation <u>evaluates material proposed and counter propose material</u> to ensure quality and improve productivity, where possible. | |
| | b) Organisation <u>determines the sequencing of works</u> to ensure quality and productivity can be achieved | |
| | c) Organisation <u>uses IT tools and technologies for QA/QC inspections</u> . | |
| 6.3.3 Inspection and test records | a) Organisation <u>develops QA/QC inspection and test plan</u> . This include tests requirement in factory and site, acceptance criteria and the approving authority. | |
| | b) Organisation <u>determines the test records required for all trades</u> . This includes the products accreditation and test laboratories (internal or external) | |
| | c) Organisation <u>determines test and acceptance criteria</u> for each trade. Reference to CONQUAS manual and Good Industry Practices (GIP) Guides e.g. certification of approval, certificate of origin, accredited laboratory test report, standard compliance mark, etc. | |
| | d) Organisation <u>benchmarks to improve their quality of works</u> . This includes sharing within QA/QC teams and across projects or subscribe to third party inspections e.g. CONQUAS or QM | |

| Assessment Criteria | | Max Score |
|---|---|-----------|
| 6.3.4 Material handling | a) Organisation <u>inspects goods when delivered to site or store</u> | |
| | b) Organisation <u>provides designated storage area</u> and ensures material are stored as per product specifications and nature of the product | |
| | c) Organisation <u>controls access and protects completed works</u> at all projects stages, where applicable. | |
| 6.3.5 Defects handling at construction stage | a) Organisation <u>records and monitors defects identified at each stage of construction</u> as per inspection plan | |
| | b) Organisation <u>analyses defects identified for trend and root cause</u> and rectify them timely | |
| | c) Organisation <u>ensures all defects are rectified</u> before proceeding to next step/works | |
| 6.4 Suppliers Management - <i>Organisation partners with subcontractors/ suppliers to deliver high products or services meeting requirements</i> | | 20 |
| 6.4.1 Evaluation of subcontractors/suppliers | a) Organisation <u>prequalifies subcontractor/suppliers</u> based on their track records and past project performance to provide products and/or services | |
| | b) Organisation <u>evaluates subcontractor/suppliers</u> considering the choice of materials, product certification, construction or fabrication methodology, commitment in meeting requirements such as CONQUAS score and GGBS, for the projects | |
| | c) Organisation <u>audits subcontractor/suppliers at their production site</u> to ensure products meet project quality requirements. | |
| | d) Organisation <u>monitors and re-evaluates the performance</u> of subcontractors/suppliers based on defect rates, lead time, response time, delivery time, etc. | |
| 6.4.2 Partnership with subcontractors/suppliers | a) Organisation <u>involves subcontractor/suppliers</u> in their value engineering and optimisation of processes | |
| | b) Organisation <u>provides training and support</u> to subcontractors/suppliers to equip with knowledge and resources to deliver products/or services to meet requirements | |
| | c) Organisation <u>specifies product and material requirements in subcontract agreement</u> e.g. material protection where applicable. | |

| Assessment Criteria | | Max Score |
|--|---|-----------|
| 6.5 Service Management - <i>Organisation provides post-project customer services to facilitate feedback including defect management</i> | | 50 |
| 6.5.1 Project handover | a) Organisation has a <u>dedicated customer service team</u> to explain technicalities to client. | |
| | b) Organisation <u>conducts inspection checks</u> before handing over to developer. | |
| | c) Organisation <u>provides channels</u> for client to seek information on the proper usage and maintenance of equipment and systems. | |
| 6.5.2 Defects handling at Defect Liability Period (DLP) | a) Organisation has a <u>dedicated customer service team</u> to record and monitor defects identified, including response time to close out defects | |
| | b) Organisation <u>ensures all defects are rectified and closed out timely</u> before handing over to developer | |
| | c) Organisation <u>uses IT application or technologies</u> for handling of defects | |
| | d) Organisation <u>analyses defects identified for trend</u> and provide feedback to subcontractor/suppliers and management for improvement | |

| 7.0 Innovation | | |
|--|---|--|
| Assessment Criteria | | Max Score |
| 7.1 Cultivation of Innovation - <i>Organisation promotes the development of Innovation culture</i> | | 50 |
| 7.1.1 Promotion of Innovation culture | a) Organisation has <u>a system to select and reward</u> innovations | |
| | b) Organisation takes active steps to <u>guide and ensure implementation</u> of innovation | |
| | c) Organisation <u>provides trainings</u> for employees on lateral thinking and techniques on creative thinking to equip and enable employees to innovate | |
| | d) Organisation <u>organises innovation campaigns and/or talks</u> for its employees internally as well as for vendors and sub-contractors | |
| | e) Organisation <u>sets up innovation team(s)</u> to lead and promote innovation in the organisation | |
| 7.2 Lists of Innovations - <i>List of innovations related to higher quality, higher productivity, safe building, a more sustainable, user friendly built environment. Including innovative use of technology and/or special construction methods.</i> | | 200 |
| Innovation Lists | Impact of innovation (Before /After illustration) adapted and improved of existing technology | Extent of implementation e.g. single project/ all projects / industry |
| | | |

| 8.0 Results – Performance of Firms/projects for the past 3 years | |
|---|------------------------|
| Assessment Criteria | Max Score - 450 |
| <p>8.1 Customer Results</p> <p>a) Achievement of Customer Satisfaction Level % b) % of positive feedback</p> | |
| <p>8.2 People Results</p> <p>a) Achievement of Staff Satisfaction Level % b) No. of Staff attended engagement activities c) Training man-hours d) % of staff promoted e) % of staff left</p> | |
| <p>8.3 Process Results</p> <p><u>Productivity</u></p> <p>a) Constructability Score Index Performance (CS index from all their projects in the past 3 years compared against the published CS Index performance) b) Productivity Score performance (Project Productivity from all their projects in the past 3 years compared with the published annual project productivity indicators) c) No. of project completed on time</p> <p><u>Quality</u></p> <p>d) CONQUAS performance (CONQUAS score from all their projects in the past 3 years compared against their respective annual industry average CONQUAS scores)</p> | |
| <p>8.4 Compliance Performance</p> <p>a) Stop Work Order b) Regulatory fines and amount c) Warnings Letters/Emails</p> | |
| <p>8.5 Awards</p> <p>a) Corporate awards b) Project awards</p> | |

End