



The Hong Kong Polytechnic University
Department of Land Surveying & Geo-Informatics

TQM of Engineering Survey Operations under ISO 9001 in Hong Kong

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Topics:

1. Engineering survey operations
2. TQM under ISO 9001
3. Conclusions
4. Q & A

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1. Engineering survey operations

- ❑ Geodetic control
- ❑ Detail surveying and mapping
- ❑ Geometric modeling
- ❑ Setting-out for construction
- ❑ As-built surveys
- ❑ Deformation monitoring
- ❑ TQM of the above operations

2. TQM of engineering surveying under ISO 9001 in HK (Fig. 2)

- ❑ **Principles of surveying (GBMOD, 1965):**
(1) control; (2) economy of accuracy; (3) consistency, (4) independent check; (5) revision; (6) safeguarding.
- ❑ **ISO 9000 principles:** (1) customer focus; (2) leadership; (3) involvement of people; (4) process approach; (5) system approach to management; (6) continual improvement; (7) factual approach to decision making; (8) mutually beneficial supplier relationship. **Actions are published in (Lam & Tang, 2004).**
- ❑ **ISO 9001 (2008) criteria/modules:**
 - (1) Quality management system
 - (2) Management responsibility
 - (3) Resource management
 - (4) Product/service realization
 - (5) Measurement, analysis, improvement
- ❑ **Performance indicators (Lam & Tang, 2004):** quality, cost, time, safety, communication, morale, Winner of Quality Awards.

ISO 9001 (2008) criteria and practice in HK

- ❑ **Quality Management System:**
 - Standards, specifications, contracts
 - Project Quality Plan (PQP), **Outsource Plan (OP)**
 - Survey Quality Plan (SQP)
 - Inspection & Testing Plan (ITP)
 - Work Instructions (WI)
- ❑ **Management Responsibility:** organization, authority
- ❑ **Resource Management:** human, financial and project resources
- ❑ **Product/Service Realization:** implementation and motivation under controlled conditions
- ❑ **Measurement, Analysis, Improvement:** internal and external audits

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3. Conclusions

- ❑ TQM criteria of ISO 9001 (2008) are adopted by all surveying and construction firms in HK
- ❑ Based on **documented procedure**, every surveyor has a clear understanding of his/her duty
- ❑ When a surveyor leaves the job, his/her duty can be taken over by other surveyor and production will continue as usual according to SQP, ITP, WI, etc.
- ❑ The system results in **better quality , more efficient allocation of resources and better site safety.**
- ❑ Notable results in customer satisfaction and cost saving are reported by surveyors

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4. Questions & Answers



Thank you.