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
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

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
4. Questions & Answers

Thank you.