

Summary Remarks of the

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Presented by:

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These observations are from an educator's viewpoint and contain brief summary statements and the main items from the conference papers, keynote addressees, speeches and the Educators Roundtable.

Threefold Challenge

There are some challenges to construction, to construction education, and to the construction industry to improving the construction process that are centered around three primary topics:

- 1 The need for training at all levels, particularly front line construction supervisors and project managers.
- 2 We must improve the quality of construction work.
- 3 We need support for the Administration of construction by implementation of progressive laws and codes.

Presently, there are some limitations to the effectiveness of construction managers. This demonstrates an urgent need for project managers who have the technical knowledge to control and manage financial matters, material procurement and movement, scheduling of labour, marketing, and legal matters in construction. Project managers need to actually have the experience of building and managing the construction process.

To be competitive and efficient as project managers, potential construction managers need training and education. Being competitive and efficient depends on the talents of the people who are to be the project managers and construction supervisors. To be competitive and efficient, construction operations and companies need to base their methods of management on their local needs and regulations. Therefore, take what information from the conference and proceedings that by common sense appears to apply and use what works.

Training is the crux of the issue relative to improving construction efficiency and management. Effective education is the key to ensuring implementation of the training of construction supervisors. According to many of the papers and discussions at the Educators' Roundtable, construction education should focus on three primary areas:

- 1) Management and Administration; which would include courses in communications, law, supervision, and organisational behaviour;
- 2) Specific technologies; like courses in mechanics, use of computers, understanding construction materials, and surveying;
- 3) Business and financing; like courses in quantity takeoff, surveying, estimating and bidding, and cost control.

Lower costs and higher productivity can be achieved through better planning, new company procedures, cooperation, exchange of experiences of qualified people, and by the use of benchmarking and partnering. Using these methods would be better ways to increase productivity.

Everywhere in construction there are changes. As the changes occur so the need for better quality and improvements in construction become increasingly important. The principal quality required of the main contractor at a construction site is to be fair and honest with the subcontractors and the other organisations involved in the project.

In organisational behaviour the manager needs both to be and to understand the link between the individual and the organisation and its needs.

Effective bidding of construction work requires that the bidding party obtain good feedback information from the customer or client. Construction education means giving people (supervisors) the skills they need to do the job. This must be done before assigning people to do a job or task.

Safety is a concern in both design and construction. This concern requires to be incorporated in engineering, education, and enforcement. Safety is dependent upon management's commitment to safety and to transform and modernise the construction process.

Managers must add value

The efforts and work of construction managers must be based on adding value to the project, and to maintain the trust of all parties involved in the project. The managers must be trained and allowed to perform their duties in design and construction in a creative manner. Construction managers and engineers must maintain a lifelong commitment to continuous learning.

Construction management is a continuous process focusing on quality, productivity, and safety. Training must be given to implement quality, and quality improvement efforts.

Professional construction management requires that the manager understand the client or customer. There are different approaches to this, but it is necessary in all construction management systems. There is a need for new and improved theories in construction management, for example, better teamwork.

The technical skills required to accurately complete a quantity survey or estimate, calls for extensive education, field training and a knowledge of computers. The use of mini-computers or small computers is needed to accomplish effective construction management.

The application of a quality process and inspection that can be accomplished rapidly and accurately in the field is referred to as real-time. Use of this technique means that a constructor must be extremely well organised.

Total quality construction is a process that never ends. Its purpose is to provide the knowledge necessary for continued improvements in construction efficiency. Effective sustainability of construction project management depends on developing mutually beneficial technical cooperation between organisations.

The future belongs to those organisations and constructors who have been able to best develop their own talents. Improvements to human factors in construction depend on human resource management.

Use the New Technologies

There are new technologies available that are useful tools for using technical information to improve the construction process. Significant possibilities exist in the area referred to as Management Information Systems (MIS). Improvements in construction productivity through mechanisation greatly impact the

training requirements of construction personnel. The people that use new mechanised equipment need more and extensive training.

Lastly, the qualifications of construction educators require theory and practical field experience. Site training giving practical input and application is needed in construction education. Construction requires a multi-disciplinary education for the construction manager and educator alike.

The way to start the implementation of these ideas and methods is through networking. Networking can be achieved through organisations such as CIB, professional organisations, trade organisations, and the Associated Schools of Construction (ASC). My offer of ASC input and services provides willing help to anyone who contacts me.

