INTERNATIONAL COUNCIL FOR RESEARCH AND INNOVATION IN BUILDING AND CONSTRUCTION

INFORMATION

April 2005

Around the Task Groups and Working Commissions

TG57 – Industrialisation in Construction

Introducing the New Joint Coordinator

Prof.Dr.-Ing. Gerhard Girmscheid

During its latest meeting that took place on March 8 2005 in Madrid, Spain, the CIB Programme Committee (PC) appointed Prof. Gerhard Girmscheid as the new Joint Coordinator of CIB Task Group TG57 Industrialisation in Construction. Below follows a short version of Prof. Girmscheid's CV.

Professional and Academic Record

1978	Civil Engineering Diploma (MSc) Tech. University Darmstadt, Germany
1984	PhD Degree in Civil Engineering Tech. University Darmstadt, Germany
1984 -1987	Design Manager and Construction Preparation Manager, Bilfinger Berger AG, Wiesbaden, Germany
1987 - 1991	Site Manager in Alexandria / Egypt, FruCon Construction Corp., Ballwin Mo., USA
1991 - 1993	Manager of the Bridge Construction Department, Bilfinger Berger AG, Wiesbaden, Germany
1993 - 1995	Project Manager BOT (Joint Venture Bilfinger Berger and Chang Choy), Bilfinger Berger Asia Branch, Bangkok
1995 - 1996	Technical Site Manager (Joint Venture 4th Elb Tunnel Tube), Bilfinger Berger AG, Hamburg, Germany
1996	CEO of the Engineering and Construction Service Enterprise of Walter Bau AG, Deutsche Bau Consulting, Augsburg, Germany
since 10/1996	Professor of Construction Management and Process Technology in Civil

	Engineering, Swiss Federal Institute of Technology Zurich, Institute for Construction Engineering and Management
since 10/1998	Director of the Institute for Construction Engineering and Management
since 09/2004	President of the Swiss / German / Austrian Construction Management Professors' Association

Current Research Interest

- Life cycle business process models
- Life cycle procurement process models
- Project and enterprise risk management models
- Innovation and knowledge process models
- Industrialisation in construction

Selected Publications

Girmscheid, G.; Hofmann, E.: Industrielles Bauen: Fertigungstechnologie oder Managementkonzept? Bauingenieur, Vol. 75, issue 9/2000, p. 586-592

Research Group Industrial Construction: Industrielles Bauen - neue Wege für innovative KMU. Teil 1: Grundlagen industrieller Produktion. Publ.: Schweizerischer Baumeisterverband, Zürich, 2001.

Research Group Industrial Construction: Industrielles Bauen - neue Wege für innovative KMU. Teil 2: Leitfaden für Geschäftsführer. Publ.: Schweizerischer Baumeisterverband, Zürich, 2002.

Girmscheid, G.; Bärthel, J.: Industrielles Bauen: Die funktionale Ausschreibung als Voraussetzung / Rationalisierungsmöglichkeiten im Wohnungsbau. Der Schweizerische Hauseigentümer, Vol. 84, issue 1/2002

Selected Books and Book Chapters

- Girmscheid, G.: Baubetrieb und Bauverfahren im Tunnelbau. Ernst & Sohn Verlag, Berlin, 2000.
- Girmscheid, G.: Auswege aus dem reinen Preiswettbewerb - Lösungsansätze für marktorientierte Bauunternehmen. In: Handbuch Bau-Betriebswirtschaft, eds: Prof. H. Mayrzedt / Prof. H. Fissenewert. Werner Verlag, Düsseldorf, 2001.
- Girmscheid, G.; Briner, H.; Glättli, M.: Faires Nachtragsmanagement - Leitfaden für Bauunternehmer und Bauherren. h.e.p. Verlag, Bern, 2003.
- Girmscheid, G.: Projektabwicklung in der Bauwirtschaft. Springer Verlag, Berlin, 2003.
- Girmscheid, G.: Wettbewerbsvorteile nutzen - Konzepte für Bauunternehmen. h.e.p. Verlag, Bern, 2003.
- Gamisch, T.; Girmscheid, G.; Meinlschmidt, A., Muncke, M.: Versinterung der Entwässerungsanlagen von Eisenbahntunneln - Verringerung des Reinigungsaufwands durch die Härtestabilisation. In: Taschenbuch für den Tunnelbau 2004, ed.: Deutsche Gesellschaft für Geotechnik. Verlag Glückauf, Essen, 2003.
- Girmscheid, G.: Prozess des fairen Nachtragsmanagements. In: Fortschritts-Berichte VDI Reihe 4 (Bauingenieurwesen), ed.: Prof. Dr.-Ing. Ch. Motzko. VDI Verlag, Düsseldorf, 2003.
- Martin, L.; Schaiter, B.; Girmscheid, G.: Leistungspotentiale automatisierter Schalungsplattformen. IBB-Eigenverlag, Zürich, 2003.
- Girmscheid, G.: Forschungsmethodik in den Baubetriebswissenschaften. IBB-Eigenverlag, Zürich, 2003.

Coordinators Statement

With few exceptions, e.g. in Japan or in the field of excavation by tunnel driving machines, the construction industry throughout the world is, to a large extent, dominated by manual labour. In concrete and masonry construction, the consequent industrialised production in a stationary off-site prefabrication has not systematically happened to this day. Timber construction, to the contrary, has systematically organised the prefabrication as in line process. In the off-site prefabrication of timber houses, the elements and modules of the building as well as the finishing works will, in the most cases, be highly integrated with technical installation under use of computer-aided and computer-controlled stationary machinery. Further on, working design, production planning, and production are highly integrated by information systems using computer industrial manufacturing (CIM). This allows wood house construction with a high individual, architectural, and functional variety. In the 1970s, the concrete construction industry made great efforts with the prefabrication of concrete buildings. This resulted in uniform, massive buildings with an unaesthetic appearance because, at that time, only mass construction with uniform features appeared to be both in conformity with the technology and economical. Upon becoming more prosperous, society in most countries refused such uniformity. Under the changing paradigms, the construction industry went back to individual buildings and on-site production with new system formwork to improve productivity.

Since the 1980s, the building construction industry has lost track of the changes of the stationary industry. The stationary industry changed its

production process to computer-aided manufacturing and its industrial paradigm from mass production to individual customer-oriented production, incorporating further services and guarantees.

Today, in many countries the construction industry is in a long-term crisis. Owners complain that the services provided are not life cycle oriented, that the quality, in many cases, is not consistent with contract requirements, and that last but not least the financial investment frame is often exceeded by claims. On the other side, the construction industry is complaining that the profit margins are shrinking. These are hard facts to reconsider the current mainstream in the concrete and masonry construction industries in regard to the products and services they provide to their customers, and to the production processes they apply, particularly in the light of the opportunities provided by computer-aided manufacturing. For this reason, the joint coordinator wants to contribute together with interested researchers, experts, entrepreneurs, and associations in the Task Group TG57 to the paradigm change in regard to industrialisation of the construction industry.

To reach this aim, the following elements must substitute today's handicraft approach in the building construction to suit in the specific unique building construction process:

- process oriented work preparation and production cycles
- optimised (mechanical / automated) machinery and plant for on-site as well as for off-site production

Industrialisation of construction is a generic process with

- standardisation
- systematisation
- flexibilisation
- rationalisation

The approach to industrialisation in construction should be in a staged manner to improve the performance, to keep the required quality on a constant level, and to increase the productivity. Further, industrialisation should create continuous improvement and innovation in small, medium and large enterprises. Therefore, the focus should be staged in

- improving and rationalising the work preparation and execution on-site,
- incorporating prefabricated products,
- producing industrialised on- and off-site structures,
- offering to selected client segments off- and on-site construction products.

The building industry needs a platform for the exchange of ideas in regard to the potentials of, and different approaches to, industrialisation in regard to different products and services in the building value chain.

It is our expectation that TG57 will provide such a platform for all those interested in the industrialisation of building construction.

Additional Information

If you are interested in joining (or making contribution to) TG57, please contact: Prof. Frits Scheublin fjm.scheublin@bamutiliteitsbouw.nl and Prof. Gerhard Girmscheid girmscheid@ibb.baug.ethz.ch.
You can find more information on the activities of CIB TG57 at www.cibworld.nl.
Search under Databases/CIB Commissions. Click on Commissions and type TG57 in the search field.