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Editorial...

Welcome...

to the third ManuBuild Newsletter. This time we would like to present some news of the "Voice of the Stakeholder" study, which constitutes the starting point for ManuBuild and validates the relevance of on-going progress and results. In addition Prof. Thomas Bock and Ron Unser from the Technische Universität München give a short overview on prefabrication of residential housing. Also, we are very glad to announce the first ManuBuild International Conference, which will be held in spring 2007, The Netherlands.

All newsletters (current and past versions) are also available at the [Community of Interest](http://www.manubuild.net) at www.manubuild.net. For general information about the project please visit the official [ManuBuild Web Site](http://www.manubuild.org) at www.manubuild.org.

Voice of the Stakeholder

As starting point for the research and development activities within ManuBuild, the "Voice of the Stakeholder" was introduced, gathering and analysing the stakeholder requirements according to different geographical areas in Europe (Sweden, UK, Germany, The Netherlands, Poland, Spain and Italy).

More than 100 stakeholders (architects, construction companies, developers, public

administrations et al.) were interviewed in order to get their opinions about the specific features of ManuBuild, the current building trends, their main concerns, ideas of possible changes and their requirements and needs.

The mission and guidelines of ManuBuild are appreciated as strategic development roadmap by the construction sector. From the implementation of ManuBuild the stakeholders expect major advantages like higher quality, real time control of the construction process, cost-efficiency, time-efficiency, safe and controlled structure manufacturing, reduction of labour accidents, the strong consideration of organisational concepts (team building, team management and communication within a building team) as well as the strong integration of the end users from the beginning of a building project.

Modern Methods of Construction for Residential Housing, a short overview

The very beginnings of industrialisation caused overwhelming migration to constantly growing cities, leading to serious housing shortage. Producing almost any type of goods the new industrial way, first ideas of low cost industrial fabrication of housing were conceived.

After World War II urgent needs for affordable housing rose again, leading to new systems in wood, steel and concrete. But again most efforts were focused on low-budget and fast solutions devoid of any architectural quality, resulting in a lasting bad reputation of prefabricated housing.

In the following decades innovative automated construction grew mostly apart from housing industry, till in the eighties the Japanese were the first to use these technologies for fighting price decline and unemployment in the building sector with higher quality, accuracy and adherence to schedules. They designed first computer assisted automated assembly lines and deployed robots even on site, applying high tech from different industrial branches without any reservations.

Modern methods of construction today can be separated in two types of products:

The common planar wall and ceiling units, using framework (timber, steel) as well as solid timber, concrete or even brick. They provide ductwork and insulation under partly completed surfaces and can easily be lined up parallel for transport.

The 3D units vary from simple load carrying constructions to room cells with complete piping behind finished surfaces. Mainly using steel and concrete to create any desired shape, the products are far more bulky causing a more inefficient carriage.

Both are limited in weight and dimensions by the needs of transport, so the joint between the unavoidable multitude of elements has to be one focus for new inventions.

Nowadays full automated assembly lines are linked to CAD/CAM systems delivering individual construction data. Production begins at robot managed stocks that provide any type of material according to the actual design, via full automated formwork and assembly boards, ending in computerized interim storage and loading of the final product.

The ManuBuild Manufacturing Challenge

The vision of ManuBuild includes manufacturing of buildings and building elements in static factories, in mobile factories and in the building workplace itself.

ManuBuild visited manufacturing plants and equipment suppliers in Sweden in late 2005. During the visit, a manufacturer of modules for living quarters for the oil and gas industry was visited. These modules benefit from being very flexible, though currently a high degree of manual work is involved in their manufacture. The facility is participating in a robotic manufacturing project with a goal to create a moveable "factory in a box" for arc welding applications.

A manufacturer who produces frames for buses was also visited. The 14m long frame is precision cut by laser and to a large extent robot welded. Modular design makes it possible to manufacture different types of bus frames in the same plant.

Further visits to facilities elsewhere in the EU are planned for 2006, such visits provide valuable learning for ManuBuild, as well as support for developing a benchmarking methodology for the ManuBuild system.

ManuBuild International Conference, 25th & 26th April 2007, The Netherlands

The international conference "Open Building Manufacturing Systems – The Transformation of the Industry" organised by ManuBuild will invite members of both industry and academic communities to participate. The conference will explore four themes:

- **Building Concepts:** lifecycle guides, key products, connections
- **Business Processes:** value management, process models
- **Production Technologies:** fixed factories, mobile factories, site production
- **ICT Support:** open ICT system, critical ICT tools, ambient & scaleable, technologies

Call for Papers

Participants wishing to present at the conference are invited to submit a 300 word abstract relating to the themes. Please contact the event organiser for a template.

Organisation

The event is organised under the Conference Committee of Dr Samir Boudjabeur, Coordinator of ManuBuild, Adrian Malone, Knowledge Manager for Taylor Woodrow, Charles Perkin, Events manager CIRIA, and support from Kalle Kahkonen (VTT) , Prof Mustafa Alshawi & Jack Goulding (University of Salford), Prof Thomas Bock (TU Munich), Prof Carlos Balageur (CA3), Roland van der Klauw (Director CPIBC, Netherlands).

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Visit www.manubuild.net for further details.

Partners

The ManuBuild Consortium consists of 24 partners from 10 countries in Europe:

Corus Group (UK), www.corusgroup.com
(Coordinator)

VTT Technical Research Centre of Finland (FI),
www.vtt.fi, (Technical Coordinator)

Dragados S.A. (ES), www.grupoacs.com

Empresa Municipal de la Vivienda, SA. (ES),
www.emv.es

FCC Construcción S.A. (ES), www.fcc.es

Fraunhofer Institut für Arbeitswirtschaft und
Organisation (IAO) (DE),
www.rdm.iao.fraunhofer.de

Mostostal Warszawa S.A. (PL),
www.mostostal.waw.pl

NCC Construction Sverige AB (SE), www.ncc.se

Taylor Woodrow Construction Ltd. (UK),
www.taylorwoodrow.com

YIT Construction Ltd. (FI), www.yit.fi

Universidad Carlos III de Madrid (ES),
www.uc3m.es

Construction Industry Research and Information
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Consolis Oy Ab (FI), www.consolis.com

Enterprie Software Ltd. (FI),
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Graphisoft R&D Rt (HU), www.graphisoft.com

Building Research Institute (PL), www.itb.pl

IVF Industrial Research and Development Corp.
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Fundación Labein (ES), www.labein.es

Nuova Quasco (IT), www.quasco.it

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www.isoover.com

TNO Building and Construction Research (NL),
www.bouw.tno.nl

Technische Universität München (DE),
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University of Salford (UK), www.salford.ac.uk

Institut für Arbeitswissenschaft und
Technologiemanagement (IAT), University of
Stuttgart (DE), www.iat.uni-stuttgart.de

European Construction Technology Platform
ManuBuild partners also actively participate in
the ECTP (www.ectp.org) defining the strategic
research directions for the construction sector.

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Voice of the Stakeholder

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Technische Universität München; Ron Unser,
scientist in the chair of building realization:
Prefabrication in residential housing, short
overview.

Adrian Malone, Technology Centre of Taylor
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The ManuBuild Manufacturing Challenge

**For further information,
please visit the official web site
www.manubuild.org**

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Open Building Manufacturing

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