

Proceedings of the 2015 Modular and Offsite Construction (MOC) Summit & 1st International Conference on the Industrialization of Construction (ICIC)

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It is with great pleasure that we welcome you to the 2015 Modular and Off-site Construction [MOC] Summit & 1st International Conference on the Industrialization of Construction [ICIC]: "An Odyssey to Industrialize Construction", being held in Edmonton, Alberta, Canada on May 19-21, 2015. This exciting event encourages networking among academics, practitioners, and industry stakeholders, and offers presentations encompassing leading edge research and best practices in the area of modular and off-site construction.

Compared to traditional construction methods, the industrialized construction process reduces cost and construction time, generates higher quality products, and creates healthier and safer environments for workers and occupants. The 2015 MOC Summit & 1st ICIC brings together researchers and industry stakeholders to showcase the benefits and address the challenges of industrializing building construction through a series of interactive presentations, panel discussions, and information sessions.

Papers have been submitted to this year's conference on a diverse range of topics; we have accepted 78 papers from authors representing 13 countries, and spanning a number of different session tracks:

- (1) Advancements in Building Technologies
- (2) Modular Construction & Prefab Architecture
- (3) Productivity & Lean Construction
- (4) Building Information Modelling (BIM)
- (5) Wood Products
- (6) Heavy Industrial Construction
- (7) Modular & Offsite Construction Research

We are grateful to all who have committed significant time and expertise to make the 2015 MOC 2015 and 1st ICIC a success, from planning and preparation, to submissions and presentations. This conference would not have been possible without your efforts.

Welcome to Edmonton and the 2015 MOC Summit & 1st ICIC!

Best regards,

Editors, 2015 MOC Summit and 1st ICIC



ACKNOWLEDGEMENTS

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SESSION TRACK PRESENTATIONS

ADVANCEMENTS IN BUILDING TECHNOLOGIES

presentation abstract:

Off-site Solutions for General Contractors: Exploring the Options
Hi-velocity HVAC & IAQ Solutions for the Modular Construction Industry
The Stone Paradigm Shift: Ultra-Thin Veneer Stone and its Applications for the Modular Construction Industry
Harness the Devil in the Details: Discover How Data-rich 3D Technology Minimizes Overhead and Errors
Offsite Business and Organizational Development: A Guide to Planning and Implementation
Cavo Condominiums in Yellowknife, NT.: Lowering Cost in the High North—Case Study
Modular Building R&D LAB: Benets of Collaboration Between the University and the Industry
Chassis-Based Modular Structural Steel
full paper and presentation:
Permanent Modular Construction: Construction Performance
Risk Mitigation through Tolerance Strategies for Design in Modularization
Assessment of User Comfort Aspects of Industrialized Building Systems using PROMETHEE and Delphi
A Framework for Comparative Evaluation of the Life Cycle Sustainability of Modular and Conventional Buildings

Prefabricated Steel Buildings
Facilitating Technology Transfer in Offsite Construction Between India and the UK: Drivers and Challenges
Modularization Business Case: Process Flowchart and Major Considerations
Modularization Business Case Analysis Tool: Learning from Industry Practices
Defined Variables for Modular Construction Multi Project Scheduling
Robotic Assembly System for Steel Structures
Near Optimum Selection of Module Configuration for Efficient Modular Construction
MODULAR CONSTRUCTION & PREFAB ARCHITECHTURE
presentation abstract:
Modular Instant Building System (MIBS): For Post-disaster Emergency Shelters and Housing in the Less Developed Regions
full paper and presentation:
Social Network Analysis of Stakeholder Relationships during Construction Industrialization in China
Modelling International Project Feasibility of Sustainable Construction Management: Case Study of Tele-Communication Towers
Key Considerations Before Integrating Modular Construction: Adaptation to the Traditional French Construction Processes
A Case Study on Micro Social Network Structure of Building Industrialization: Based on Structural Hole Theory

Behavior of Double Fish Plate Connector between Steel Plate Shear Wall Structure and Steel Frame
Guochang Li, Zengmei Qiu and Zhijian Yang
From Digital to Physical: Advancing Industrialized Construction through Digital
Prototyping Processes
Estimation Formulas for Embedded-length of Connection Embedded-type Foundation
Unit Modular System
MODULAR CONSTRUCTION: CASE STUDIES & LESSONS LEARNED
presentation abstract:
A New Rotary Viscoelastic Damper for Industrialized Buildings
full paper and presentation:
Development of Conceptual Modular Building Unit Design Framework for Inexperienced Designers at the Pre Design Stage
Steel Beam Column Joint with Discontinuous Vertical Reinforcing Bars
Design and Specification Compilation of a Modularized Prefabricated High-rise Steel Frame Structure with Inclined Braces Part I: Integral Structural Design
Experimental Research on Joint Mechanical Behavior of Container Structures
Automatic Estimation System of Building Frames Integrated with Structural Design Information (AutoES)
An Innovated Integrated Prefabricated Quarter System for the Migrant On-site Construction Workers of China
Tao Wang, Yulong Li, Guijun Li and Sijia Wu
Design and Specification Compilation of a Modularized Prefabricated High-rise Steel Frame Structure with Inclined Braces Part II: Elastic-plastic Analysis and Joint Design

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An Application of Fuzzy Ergonomic Assessn Construction		
PRODUCTIVITY AND LEAN CONSTRU	CTION	
full paper and presentation:		
Toward a Simulation-based Approach for En Metro Stations		•
Design Breakdown in Industrialized Constru Lean Manufacturing		
BUILDING INFORMATION MODELLIN	G (BIM)	
full paper and presentation:		
BIM-Integrated Simulation of Construction SooWon Chang, JeongWook Son, WoonSeon	-	ion Management 288-294
Learning from Previous BIM-based Modula: Comparative Analysis Approach Tae Wan Kim and Jung-ho Yu		
Analyzing Obstacles and Exploring Opportu Construction in Lebanon		dustrialized
BIM-enabled Modular and Industrialized Co Peining Hu and Jinyue Zhang	onstruction in China	
Implementation of Prefabrication and Offsite Lean Construction Techniques		
The Impact of Building Information Modelli Construction Projects in the UK Tochukwu Moses, David Heesom and David		•
A Study on Freeform Optimization using BI Tae Il Choi and Jin Woo Kim	M Technology	340-347
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Workspace Optimization for Modular Off-site Assembly
WOOD PRODUCTS
presentation abstract:
The Wood Construction Horizon: Market and Technical Trends that will Affect the Off-site sector
Qualifying New Wood Products for National Building Code compliance: A Structural Insulated Panel case study
Checker Building: A Tall Wood Building Design Project
Potential benefits of Nanocellulose Crystal Reinforced Expanded Polystyrene (EPS) Foams in the Construction Industry
full paper and presentation:
Cross-Laminated Timber Tornado Safe Room as a Stand-alone Module
HEAVY INDUSTRIAL CONSTRUCTION:
full paper and presentation:
Oscillation Reduction Method for Fast Crane Operation
Development of Novel Connections for Pre-cast Composite and Pre-cast Concrete Frames
Experimental and Numerical Study of Seismic Performance of Precast Prestressed Concrete Frame Internal Connection
A National Multilevel Analytical Research Agenda to support Integrated Construction Supply Chains for Offsite Housing Systems
An Analytical Investigation of Modular Concrete-filled Square Steel Tubes Based on the Strain Compatibility

MODULAR AND OFF-SITE CONSTRUCTION RESEARCH AT THE UNIVERSITY OF ALBERTA

presentation abstract:

Application of Radio-Frequency Identication (RFID) System in Prefabrication of Panelized Home for the Purpose of Real Time Production Control
full paper and presentation:
Productivity Based Management System for Offsite Manufacturing: Case Study of Noralta
Energy Performance Monitoring and Analysis of NetZero Energy Homes (NZEHs) Hong Xian Li, Haitao Yu, Mustafa Gül, Mohamed Al-Hussein, Ahmad Alrifai and Yang Li
Automation of Quantity Take-off for Modular Construction
An Evaluation Method of Assessing the Low Back Muscle Fatigue in Manual Material Handling
Older Adult-centred Design
ACCEPTED PAPERS
Construction-Centric Building Information Modelling to Facilitate Building Panel Prefabrication
Evaluation of the Impact of Multi-Skilled Labour on Wood Framing Stations Using Hybrid Simulation
Modular Home Off-site Construction Production Line Improvement
Innovative and Energy Efficient Smart Window Based on Nanomaterial Technologies
The Regional Industrial Symbiosis Model for Industrialized Construction Ecosystem

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