ICCREM 2024

ESG Development in the Construction Industry

Proceedings of the International Conference on Construction and Real Estate Management 2024

Guangzhou, China 23-24 November 2024

Volume 1 of 3

Editors:

Yaowu Wang Cheng Su Geoffrey Q. P. Shen

ISBN: 979-8-3313-1722-5

Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2025) by American Society of Civil Engineers All rights reserved.

Printed with permission by Curran Associates, Inc. (2025)

For permission requests, please contact American Society of Civil Engineers at the address below.

American Society of Civil Engineers 1801 Alexander Bell Drive Reston, VA 20191 USA

Phone: (800) 548-2723 Fax: (703) 295-6333

www.asce.org

Additional copies of this publication are available from:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571 USA Phone: 845-758-0400 Fax: 845-758-2633 Email: curran@proceedings.com Web: www.proceedings.com

Contents

ESG Development in the Construction Industry

Does ESG Performance in the Construction Industry Have an Impact on Digital Technology Innovation? A Stakeholder Theory Perspective1 Xianyu Tan, Xiaolong Xue, Hongqin Fan, and Shuaiyu Li
EPC Project Schedule Control Study14 Jun Fang, Yang Yang, and Xu Zhang
Research on the Causations of Major Construction Accidents Using Text Mining and Network Theory
Research on the Factors Influencing Employee Performance in Building Material Production Enterprises Based on ISM
Evolutionary Game Study on Sustainable Development of Zero-Carbon Buildings under Government Incentives 45 Qinghui Tang and Rui Guo
The Era Implication, Restrictive Factors, and Promotion Ideas of the Coordinated Development of "Sports, Medicine, and Maintenance" in the Yangtze River Delta
Exploration of Teaching Reform for Data Intelligence Drives Management Specialty in the Context of New Liberal Arts69 Zhenxiang Shi
Key Factors Influencing Enterprise ESG Performance
Research on the Present Situation and Motivation of ESG Information Disclosure in the Building Materials Industry
Design of Talent Training System for Engineering Management Major in Finance and Economics Universities: A Case Study of CUFE91 Quan Mao, Haijun Fu, Yanqiu Song, Yulong Li, and Fan Yang

Evaluation of Competence of EPC Project Management Team Based on the Matter-Element Extensible Model102 Yu Du and Junwu Wang
Research on the Way to Cultivate Digital Talents in Construction Enterprises112 Guangjie Liu, Weixiao Wang, Yajuan Yu, Xuelei Zhou, and Yang Han
Analysis of Influencing Factors of Private Enterprises' Participation in Building Waste Resource Utilization Construction Projects
Study on Contract Risk Evaluation of Government-Invested EPC Projects132 Jinyingjun Wan and Liang Yuan
Managing Supply Chain Vulnerability through Stakeholder Capability in Prefabricated Construction: Two-Mode Network Analysis
Will Digital Transformation Produce Better ESG Performance? Evidence from Construction Sector in China
Architectural Design Strategy of the Arctic Research Stations to Restore the Mental Health of Team Members
Pulandian National Forest Park Based on Landscape Resource Evaluation Research on Optimization Design Strategies
Research on Financial Risks of China Overseas Land & Investment Ltd. from the Perspective of ESG
How Can Construction Companies Build Digital Technology Capabilities? An Exploratory Study Based on Grounded Theory
Research on Influencing Factors of BIM Learning Stickiness in Higher Education Based on SEM
Research on ESG Information Disclosure, Media Supervision, and Financial Risk of Real Estate Enterprises: Empirical Evidence from Chinese A-Share Listed Companies

The Corporate Social Responsibility, Internal Control, and Financial Risk of Listed Real Estate Companies
Corporate Fraud, Director Turnover, and Corporate Performance in the Chinese Construction Industry
Relationship between ESG System Construction and High-Quality Development of Real Estate Enterprises244 Heran Yang, Dapeng Pan, and Yanru Gao
Research on the Development Strategy of Private Construction Engineering Quality Inspection Organization Based on SWOT-AHP Analysis Approach252 Zhiren Xiao and Huizhu Xie
Research on the Constraining Factors and Countermeasures of the Development of the Full Industrial Chain of New Construction Industrialization
Research on the Impact of ESG Scoring Mechanism on Financing Efficiency of the Real Estate Industry under Agency Cost Perspective
Facility Management ESG Maturity Model for Industrial Parks
What Are the Barriers Hindering Smart Community Governance in China? An Analysis Using the ISM Approach
Study on the Influencing Factors of Mine Environmental Treatment Effect from Stakeholder Perspective
Balancing Economic Sustainable Growth and Carbon Emissions:A Review and Analysis
Analysis of Research Trends and Hotspots of Engineering Construction Project Approval System Based on CiteSpace
High-Quality Development of Chinese Construction Enterprises from the Perspective of ESG—Evidence from the A-Share Market

Correlations between Crowd Characteristics and Thermal Comfort in Hospitals: A Case Study of Jiangsu Province Hospital
Mapping of Environmental, Social, and Governance Indicators to Stakeholder Engagement in Major Infrastructure Projects: A Critical Review
A Blockchained Work Package System for Progress Payment and Delay Claims
Influence of Supply Chain Stakeholders on Low Carbon Modular Construction
Zero-Carbon Development Framework in Higher Education Institutions: An Integrative Review from Emissions Accounting to Pathway Design
Simulation-Based Modular Construction Shop Floor Design for Productivity Optimization
ESG Performance and Investment Efficiency in the Listed Real Estate Industry in China: From the Perspective of Financing Constraints436 Qirui Ye, Dapeng Pan, and Yanru Gao
Investigating Stakeholder-Associated Risks for Prefabricated Housing Production
Shaping Inter-Team Knowledge Transfer Networks in EPC Projects: A Structural-Affective-Cognitive Framework
Research on Sustainable Development Evaluation of Construction Enterprises Based on ESG System
Innovative Technology and Intelligent Construction
A Critical Review on Visual Attribute Learning in the AEC Industry

Research on Multi-Dimensional Evaluation of Project Collaboration Management under EPC Mode
Research on Risk Assessment of Urban Underground Pipe Gallery during Construction Period
Research on Risk Assessment of Construction Project Construction Phase Based on Interval Numbers and DEMATEL Method517 Xiaotian Zhao
Risk Evaluation of Deep Foundation Pit Construction for Underground Wastewater Treatment Plant Based on Matter-Element Theory525 Xinxi Zhao, Hongliang Yu, Weijing Yu, and Dongmin Zhou
Risk Assessment of Concrete Quality Defects in Sewage and Drainage Pumping Station Projects Based on ISM-BN
Causal Analysis of Concrete Cracks in Sewage Treatment Plant Based on FTA-RST
A Study on the Characteristics of Construction Safety Innovation Network in China
Unlocking Large Language Models for Project Scheduling562 Yaning Zhang, Xiao Li, Yue Teng, Geoffrey Q. P. Shen, and Sijun Bai
Application and Challenge of Big Data in Decision-Making of Engineering Project Management
U-Net Based Concrete Honeycomb Planking Segmentation in Sewage Treatment Plant under Low Light Condition
Pushover Experiment on Low Rise Double-Sided Precast Concrete Composite Sandwich Shear Wall Structure
Crack Detection and Quantification on Concrete Surface of Sewage Treatment Plant Based on Improved Deep Learning Method

Risk Assessment of Construction Cost Overspend of F+EPC Project
Based on the Fuzzy Matter-Element Model
singuo rong, sunwa wang, and man wa
Research on Construction Tower Crane Safety Management Based on
FDA-DBN
Construction Safety Risk Analysis Based on MC-IAHP634
Xiaoxia Wang, Haitao Lin, and Xun Jiang
Improved Fuzzy Evaluation Method for Safety Risk Assessment in
Prefabricated Building Construction
Xukong Yang and Yingpan Li
Research on Performance Evaluation of Airport Based on DEA
Fengping Xue, Bo Xue, and Shang Wang
Application Research of the Technology of New Integrated Formwork Equipment for Aerial Building Construction
Tingchen Fang, Jian Gong, Yu Feng, Xinli Fu, Yimin Zhu, and Qingfeng Shen
Survey on Characteristics of Construction Workers in Human-Robot
Interactions
Predicting Collaboration Requests in Dynamic Construction
Environments for Smooth Worker-Robot Collaboration
A KG-LLM-Based Product2inspection Mapping Approach for Module
Prefabrication
Qing Dong, Xiao Li, Taicong Chen, and Chengke Wu
Safety Risk Analysis and Control of Deep Foundation Pit Construction
Based on DFT and DT Model704
Hong Yang, Liqiong Yang, and Yan He
Research on Cost Influencing Factors of BIM Technology Based on
Fuzzy Clustering Maximum Tree Algorithm in Construction
Engineering Design Stage
Xiufang Li, Xiaorui Jia, Mingqiang Huang, Jundao Chen, and Meng Yuan
DEMATEL-AISM-Based Identification and Evaluation of Construction
Cost Influencing Factors for Pumped Storage Projects in Northwest China
Xiaoyu Gu, Muyang Li, Yuyang Li, Xiaorong Sun, Chenfang Peng, and Xueping Pan

A Literature Review of Smart Construction Sites: Analysis and Visualization
Smart Facility Management for Smart Cities: A Complex Adaptive Systems Perspective
Exploring Innovative Strategies towards Solving Dampness in Parapet Roof Construction
Research and Prospect on the Current Status of Quality Management of Piling Engineering764
Jincheng Su, Zhixin Huang, Jixiang Zhang, and Xiaozhuang Yang
Optimization Analysis of Procurement Cost for Prefabricated Components Based on JIT Mode771 Yao Li and Jie Zhang
Study on the Path Planning Method of a Bridge Spraying Robot Based on the Application of RGB-D Camera
Adaptive and Automatic Illuminance Control of Semi-Open Historic Underground Sites Using Smart Glass Based on Digital Twins and 3D Reconstruction
Mechanical Mechanism of a Post-Grouting Pile795 Jie Zhang and Yao Li
Fresh Retail Layout and Forecast Based on Multi-Source Big Data and Machine Learning: A Case Study of Guangzhou
Comparing Network Indicators for Identifying Critical Facilities among Interdependent Infrastructure
Research on Building Energy Consumption Prediction and Optimization Based on Artificial Intelligence and DeST Simulation

Enhancing Construction Safety: A Computer Vision Approach for Proactive Near-Miss Events Identification
Digital Technology Innovation in Architecture, Engineering, and Construction: A Patent-Based Analysis852 Yuna Wang and Kangling Yuan
Exploring Technological Innovation Dynamics in Prefabricated Construction in China
Impact of Thermal Properties on Building Stock Energy Use Using Explainable Artificial Intelligence
Research on Tower Crane Transportation Path Guidance Integrating YOLOv8 and TC-DWA Algorithm
A Splitting Diffusion Model for Synchronous Grouting during Shield Tunnelling in Fault Fracture Zone
Analytical Solution of Mechanical Response in Large Diameter Ring Structure Considering Shear Effect
Collaborative Management of Prefabricated Building Supply Chains Based on BIM-RFID
Research on 3D Scene Data Organization and Management Based on Object-Oriented Dynamic Octree
Real Estate and Urban Management
An Innovative Adaptive Pedestrian Flow Prediction Model Based on HMM-Fod-LSTM956
Hui Deng, Zebin Fang, Kejie Fu, Hengyun Zhang, Yichuan Deng, and Huanyu Zhu
Research on the Evolutionary Game of Performance Assessment of Urban Underground Comprehensive Pipeline Gallery PPP Project

Research on the Influencing Factors of Life Cycle Cost of Urban Underground Comprehensive Pipe Gallery
Analysis of Leakage Causes in Hydraulic Structures Based on DEMATEL-ISM
Evaluating Resident Satisfaction in Urban Village Reconstruction in Tourist Cities from the Perspective of Perceived Value: A Case Study of Sanya City, China
The Links between Children's Education Choices and Residential Location: Evidence from Migrant Households of Shanghai, China1007 Yishan Cai and Li Tao
Resilience Evaluation of PC Component Supply Chain Based on Supplier Enterprise Perspective1017 Fulin Xie and Yingpan Li
Resilience Assessment of Real Estate Development Enterprises Based on the Theory of Resilience and the AHP-MARCOS Method
Research on the Measurement and Improvement Path of Residents' Happiness in the Process of Urban Renewal in the Chengdu-Chongqing Area1039 Qin He and Yuhong Pan
Influence of Environment Support on the Self-Efficiency and Activity Engagement of the Elderly in the Community1051 Yujie Lin, Chendi Wang, Pan Xu, and Shaohua Qiang
Evaluation of Urban Infrastructure Resilience Based on Entropy Weight-TOPSIS Model: Taking Shenyang as an Example1060 Yinghui Xiang, Chunlei Ding, Yuhuan Meng, and Jingxuan Fan
The Effects of the Neighborhood Environment on the Subjective Well-Being of the Elderly in the Community1070 Xingjian Li, Chendi Wang, Jun Yin, and Shaohua Qiang
The Effects of the Digital Economy on the Economic Resilience of the Chengdu-Chongqing Region1079 Deqiong Tan and Yuhong Pan

Study on Urban Road Congestion Problems Based on Panel Regression Model1089 Xinru Chang, Yanhua Wang, and Daoyuan Guo
Research on the Impact of Debt Level on Corporate Performance of Real Estate Enterprises: Based on Listed Company Data
Whether Digital Finance Can Reduce the Financial Risk of Real Estate Enterprises: Based on the Perspective of Corporate Governance and Financing Constraints
Analysis of the Factors Influencing the Landscape Design of Rural Cultural and Tourism Integrated District Based on ISM1122 Li Li and Yaxin Yang
Research on Safety Risk of Operation and Maintenance of Urban Underground Utility Tunnel Based on Fault Tree and Fuzzy Bayesian Network1133 Jun Fang and Xu Zhang
A Comparative Study on the Business Performance of the Top 10 Listed Property Management Firms in China and Japan1147 Xingfu Wei, Haolin Yin, and Katayoshi Tamura
How Digital Technology Can Enhance Firms' Value: From the Perspective of the Construction and Real Estate Industries1160 Jianshuo Chen, Xiaolong Xue, and Junpeng Liao
Research on the Formation Mechanism of Land Mismatch1174 Simeng Liu, Ru Zhang, and Lin Zhu
From Silicon Valley to Silicon Alley: Investigating the Dynamic Development of Urban Technological Industries1181 Lin Jiang, Xiaoming Li, Weixi Wang, Xiao Tang, and Renzhong Guo
Spatio-Temporal Evolution of Urban Residential Welfare and Analysis of Obstacle Factors in Hainan Province under the Background of Urban Renewal
Planning for Public Cultural Facilities in the Municipal Area from the Perspective of Territory Planning
The Relationship between Corporate Financialization and Financial Risk: Empirical Evidence Based on Listed Companies in the Real Estate Industry1211 Bingqi Zhang, Yanru Gao, and Dapeng Pan

Research on the Influence of Street Space Environment on Residents' Cycling Behavior: A Case Study of Tiantongyuan Community in Beijing
Research on the Integration Strategy of Rural Culture and Tourism in Dalian from the Perspective of Art Empowerment: A Case Study of Luoxiawan Park in Yangquan Village, Dalian
An Ethical Study of Digital Twin Urban Governance from the Perspective of New Quality Productivity1238 Xinai Wang
Research on the Spatial and Temporal Impact of High-Speed Railway Construction on Real Estate Price: Take Shanghai-Kunming High-Speed Railway as an Example1246 Peitai Yu
CRITIC-FCE Based Evaluation of Residents' Sense of Safety: Evidence from Smart Communities in China
Research on the Development Strategy of Rural Cultural and Tourism Integration in Liaoning from the Perspective of "Five States" Integration1269 Lin Lin, Xinyu Zhao, Xiao Guo, Honghe E, and Shufu Mu
Study on Residents' Intentions to Purchase Prefabricated Housing in China1282 Fanxi Zhou, Zhenzong Zhou, Qingpeng Man, and Yaowu Wang
Integration and Prosperity: An Analysis of the Impact of Beijing's Urban Infrastructure and Service Facilities on Real Estate Value
Study on the Professional Competence Requirements of Engineering Management in the Construction and Real Estate Fields for High-Quality Development
The Resilience of Smart Cities: A System Analysis of Seven Megacities in China1309 Zijun Wu, Xi He, and Daohan Huang
Research on Implementation Strategies for Urban Old Residential Area Renovation from the Perspective of "Micro Renewal"

Which Kinds of Older People Will Pay More for Community Home-Based Elderly Care Services? Evidence from Age-Friendly Communities in Beijing
Research on REITs Financing Credit Risk of Urban Residential Renewal: A Case of Yangzhou Affordable Housing Project
The Impact of Shopping Mall Attributes and Social Media Dynamics on Residential Property Prices in Shanghai
Study on the Evaluation and Enhancement Strategy of Habitat Quality under the Perspective of Urban Renewal: Taking Beixinqiao Street as an Example
Yuefang Rong, Simiao Peng, Hangcheng Li, and Xiaokun Sun Factors Influencing the Consideration of Gamification Design for Walkability-Enhanced Applications in Smart Cities
Yang Liu, Shiyu Wang, and Wenjing Yang Supply and Demand Relationship of Fresh Retail Based on Accessibility:
A Case Study of Guangzhou
Reduction in the Urban Village of Guangzhou, China
Sustainable Construction and Green Buildings
Longitudinal Associations between Community Outdoor Environment Renovation and Outdoor Activities of the Elderly: An Observational Study1401 Wei Gao and Ruifeng Zhang
Research on Influencing Factors of Sustainable Development of Urban Underground Comprehensive Pipe Gallery Based on DEMATEL-ISM1414 Xihua Peng, Jun Fang, and Yingpan Li
The Micro-Renewal Strategy of Workers' Village of Zhangjiakou City Public Spaces: A Case Study

Research on the Post-Evaluation of Smart Water Management Transformation Projects in Wastewater Treatment Plants Based on AHP-Fuzzy Comprehensive Evaluation
Research on the Influencing Factors of Carbon Emissions in the Construction Stage of Prefabricated Buildings
Exploration of the Pathway for the Integration of Ideological and Political Elements into Real Estate Specialty Courses under the "Dual Carbon" Target1457 Chunhai Yu
Construction Safety Management of Prefabricated Buildings: A Systematic Literature Review
Research on Incremental Cost Management of Prefabricated Buildings Based on DEMATEL-ISM
Research on Key Influencing Factors for Sustainable Development of Municipal Road Projects
Analysis of Influencing Factors of Adding Elevators to Old Neighborhoods Based on ISM-AHP
Analysis of Influencing Factors on the Sustainable Development of High-Tech Zones Based on Small-World Network1503 Yang Wang
Carbon Emissions Estimation and Forecasting in the Yangtze Economic Belt Construction Industry
An Optimization Study on the Concept and Evaluation Methods of Residential Areas' Building Shadow Ratio
Research on the Analysis of Green Travel Behavior of Central City Residents and Improvement Path in the Context of Urban Renewal

Effect of Green Finance on Reducing CO ₂ Emissions Associated with the Building Sector in China
Risk Assessment of Urban Renewal Projects in Old Residential Areas Based on C-OWA Operator-FCE
Exploring Determinants of Environmentally Responsible Behavior in a Megaproject: The Influence of Institutional Norms and Contractors' Perception
Research on the Decoupling Effect and Driving Factors of Rural Carbon Emissions in Three Northeastern Provinces of China1575 Yinghui Xiang, Yao Lu, and Yao Wang
Analysis of Key Influencing Factors and Countermeasures for Integrated Cost Control of Prefabricated Buildings1586 Lianghu Ding and Shasha Xie
Digital Twin-Enabled Visualization of Carbon Emissions in Building Operation and Maintenance1594 Yu Chen and Xincong Yang
Research on the Design Method of Rural Residence from the Perspective of Organic Renewal: Take Liping County Maogong Township as an Example
Construction of Green Management System for Engineering Projects in Hainan1614 Xiao Chen
Development and Evolution of China's Zero-Waste City Construction Based on LDA Approach
Embodied CO ₂ Mitigation Potential of Residential Buildings in China's Urban Agglomerations: A Case Study of the Beijing-Tianjin-Hebei Region
Research Progress of Carbon Emissions Assessment Techniques and Influencing Factors under the Perspective of Sustainable Buildings: An Example of Prefabricated Buildings

Exploring Mega-Trend Diffusion Algorithms for Synthetizing Data Associated with Occupant-Building Interaction in IVEs1653 Chanachok Chokwitthaya, Pengju Liu, and Weizhuo Lu
Comparative Analysis of Embodied Carbon Emissions in Steel and Concrete Modular Buildings
Risk Analysis and Countermeasure Research of Old Residential Renovation Project under PPP Model
Research on Sustainable Design Strategy of University Campus Public Space from the Perspective of Health Promotion1689 Leyao Wang, Rui Liu, and Ling Yu
Study on the Carbon Reduction Effect of Resource Utilization of Construction Waste in Urban Areas
Building Energy Simulation for Dynamic Control of HVAC in an Airport Terminal Integrating Agent-Based Model
Interaction of Carbon Emissions Factors in the Transportation Industry in Sichuan and Chongqing Regions Based on LMDI Model
Research on Design Strategies for Rural Cultural Museums' Transformation under the Concept of Ecological Sustainability1735 Jinxuan Suo, Shilin Zhou, and Ling Yu
Green Building Design Strategy of University Teaching Building in the Northeast Region
Ecological Sustainable Design Strategy for Teaching Buildings in Rural Primary Schools
A Comprehensive Bibliometric Analysis of Green Buildings during 2013–2023

Research on the Government-Industry-University Collaborative Innovation Game of Low-Carbon Construction Technology from the Perspective of Innovation Chain
Evaluation of Street Vitality under the Background of Urban Regeneration1783 Fan Wu and Jiayi Huang
Assessment of Energy Consumption and Thermal Comfort of Social Housing in a Mild Australian Climate
Analyzing Influencing Factors for Low-Carbon Development of Commercial Buildings Using DEMATEL-ISM
A Decision-Making Support Model Based on Case-Based Reasoning for Utilizing Building Renewable Energy Technologies
An IoT-Based System for Lifecycle-Wide Carbon Emissions Assessment in Prefabricated Construction
Green Construction of Expressways Based on the Whole Life Cycle ESG Concepts: A Case Study of the Construction of the Xingyi Ring Expressway
A Visualization Analysis of Occupant Behavior Research Based on CiteSpace