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| Autore                  | Lefebvre, Georges <1874-1959>     |
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| Altri autori (Persone)  | Faralli, Luigi<br>Sozzi, Giuseppe |
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| Soggetti                | Napoleone <Imperatore ; 1.>       |
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| Autore                  | Ungureanu Viorel  |
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| Collana                 | Lecture Notes in Civil Engineering, , 2366-2565 ; ; 489   |
| Altri autori (Persone)  | BragancaLuis<br>BaniotopoulosCharalambos<br>AbdallaKhairedin M  |
| Disciplina              | 720.47<br>696   |
| Soggetti                | Sustainable architecture<br>Sustainability<br>Environmental economics<br>Construction industry - Management<br>Sustainable Architecture/Green Buildings<br>Environmental Economics<br>Construction Management   |
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| Livello bibliografico   | Monografia  |
| Nota di contenuto       | Intro -- Preface -- Organization -- Funder's Acknowledgement -- Contents -- Keynote Papers -- Life-Cycle Risk, Resilience, and Sustainability of Individual and Spatially Distributed Structures -- 1 Introduction -- 2 Lessons from Recent Large Earthquakes in Japan -- 3 Toward Life-Cycle Based Design and Assessment of Bridges and Bridge Networks Under Multiple Hazards -- 3.1 Progress of Structural Performance Methodology and Associated Performance Indicators -- 3.2 Multiple Hazard Issues -- 4 Illustrative Examples -- 5 Conclusions -- References -- Reliability and Durability of Built Environment Under Impact of Climate Natural Hazards -- 1 Introduction -- 2 Case Study: Large Span Steel Frame Production Unit Exposed to Extreme Drifted |

Snow -- 2.1 Building Description -- 2.2 Heavy Snowfall and Damage to the Building -- 2.3 Numerical Simulation of the Accidental Snow Load Effects on the Roof -- 3 Case Study: Roofing of Large Span Concrete Frame Industrial Building Exposed to Extreme Wind -- 3.1 Building Description -- 3.2 Windstorm Damage to the Building Roofing and Enclosure Walls -- 4 Conclusions -- References -- Sustainable Infrastructures -- Integration of Carbon Emissions Estimates into Climate Resilience Frameworks for Transport Asset Recovery -- 1 Introduction -- 2 Integrating Environmental Impact into Resilience Frameworks -- 3 Environmental Impact Assessments -- 3.1 Environmental Impact Modelling -- 3.2 Restoration Tasks -- 4 Results and Discussion -- 4.1 Environmental Impact -- 4.2 Circularity Considerations -- 5 Conclusions -- References -- Resilience Framework for Aged Bridges Subjected to Human-Induced Hazard - Case Study in Ukraine -- 1 Introduction -- 2 Resilience Framework for Combined Ageing and Human-Induced Hazards -- 3 Case Study of Post-conflict Recovery in Ukraine -- 3.1 Portfolio of Bridges -- 3.2 Vulnerability Analysis.

3.3 Resilience Analysis -- 3.4 Cost-Based Resilience -- 4 Conclusions -- References -- A Study on Traffic Awareness at Jordanian Universities: A Case Study of the German Jordanian University -- 1 Introduction -- 2 Background -- 2.1 Traffic Safety and Road Accidents in Jordan -- 2.2 Youth and Traffic Behavior -- 2.3 Impact of Educational Institutions on Traffic Awareness -- 2.4 Urban Transportation and Campus Planning -- 2.5 Gaps in Literature and Research Objective -- 3 Methodology -- 3.1 Descriptive Analysis -- 3.2 Examination of Relationships and Analytical Approaches -- 4 Results and Discussion -- 4.1 Chi-Square Statistic -- 4.2 Traffic Awareness at German Jordanian University -- 5 Conclusions and Recommendations -- References -- Analysis of the Pavement Response with Total/Partial Link Between Layers to the Action of Traffic Load -- 1 Introduction -- 2 Case-Study -- 3 Numerical Model -- 4 Numerical Results -- 4.1 Perfectly Bound Layers Hypothesis -- 4.2 Semi-bonded Layers Hypothesis (BA 16 50% Bonded to BAD 22.4) -- 5 Conclusions -- References -- Thermal-Structural Modelling and Temperature Control of Roller-Compacted Concrete Gravity Dam: A Parametric Study -- 1 Review and Analysis of Related Work -- 2 Location and Description of the Dam -- 3 Dam Wall Profile -- 4 Material Properties and Environmental Conditions -- 5 Methodology -- 6 Effect of RCC Placement Temperature -- 7 Effect of RCC Young Modulus on the Thermal Stresses and Block Length -- 8 Effect of Strain Capacity -- 9 Effect of Layer Thickness -- 10 Conclusions -- References -- Structural Engineering -- Influence of Shear Connection and End Supports onto Self-vibrations of Cold-Formed Steel Concrete Composite Floor -- 1 Introduction -- 2 Numerical and Parametric Analyses -- 3 Results and Discussion -- 4 Conclusions -- References.

Numerical Investigation of Double-Skin Cold-Formed Steel Shear Wall Filled with Concrete -- 1 Introduction -- 2 Finite Element Modelling -- 2.1 Development of FE Models -- 2.2 Model Validation -- 3 Parametric Study -- 4 Conclusions -- References -- Comparative Experimental Study on Improving Structural Performance of the Base Upright Profiles of Steel Storage Pallet Racks Under Operational Conditions -- 1 Introduction -- 2 Experimental Study -- 2.1 Sections and Materials -- 2.2 Methodology -- 3 Results and Discussion -- 4 Conclusions -- References -- Performance Comparison of Different Vibration Control Strategies -- 1 Introduction -- 2 Problem Statement -- 3 Results and Discussion -- 4 Conclusions -- References -- Exploratory Research on the Thermal Properties of Wood in Real Fire Conditions --

1 Introduction -- 2 Experimental Setup -- 3 Numerical Simulations -- 4 Conclusions -- References -- Assessment of Existing Structures for Elongation of the Buildings Lifecycle Based on Ukrainian Experience and Codes -- 1 Development and Structure of Regulatory Framework for Inspection of Existing Constructions -- 2 Comparison with the International Standard for the Evaluation of Operating Structures. -- 3 Conclusions -- References -- Procedure for Generation of Finite Element Models of Steel Members from 3D Scanned Data -- 1 Introduction -- 2 Current Applications and Directions -- 3 3D Scanning of Steel Links -- 3.1 Research Framework -- 3.2 Experimental Specimens -- 3.3 3D Scanning of the Steel Links -- 4 Post-processing of the Scanned Data and Finite Element Modelling -- 4.1 General -- 4.2 Manual Mesh Generation from Point Clouds -- 4.3 Generating Solid Models from 3D Surface Models -- 4.4 FE Model -- 5 Conclusions -- References -- The Behavior of Heat-Damaged RC Beams Reinforced Internally with CFRP Strips -- 1 Introduction. 2 Methodology and Used Materials -- 2.1 Constructing the Specimens -- 2.2 Properties of the Materials -- 2.3 Mixing of Specimens and Heat Treatment -- 2.4 Test Setup and Instrumentation -- 3 Results and Discussion -- 3.1 Mode of Failure -- 3.2 Failure Loads and Corresponding Deflection -- 3.3 Load-Deflection Behavior -- 4 Conclusions -- References -- Energy Systems and Structures -- Influence of Adaptive Controlling Strategies of Floating Offshore Wind Turbine on Corrosion Fatigue Deterioration of Supporting Towers -- 1 Introduction -- 2 Multi-physics Simulation -- 2.1 Probabilistic Corrosion Fatigue Modelling -- 2.2 Derivation of Fatigue Stress Spectra -- 2.3 Probabilistic Deterioration Prognosis -- 3 Adaptation of Controlling Strategies -- 3.1 Variation in Controlling Strategies -- 3.2 Results and Discussion -- 4 Conclusions -- References -- Wind Aerodynamics and Related Energy Potential of Urban High-Rise Vertical Farms -- 1 Introduction -- 2 Methodology -- 2.1 Computational Model -- 2.2 Meshing and Boundary Conditions -- 2.3 Validation -- 3 Results -- 3.1 Impact of Wind Turbulence -- 3.2 Impact of Corridor Width -- 3.3 Impact of the Location of the Wind Turbines -- 4 Conclusion -- References -- Design of Photovoltaic/Thermal Collectors with Thermal Storage and Batteries to Enhance Building Performance and Resilience in Cold Climate -- 1 Introduction -- 2 Methodology -- 2.1 PV/T Collector -- 2.2 Thermal Storage -- 2.3 Heat Pump -- 2.4 Battery -- 3 Results -- 4 Discussion -- 5 Conclusion -- References -- Energy Efficiency in the Higher Education Institutions: A Review of Actions and Their Contribution to Sustainable Development -- 1 Introduction -- 2 Research Strategy -- 3 Results -- 3.1 Energy-Saving Actions -- 3.2 Energy-Generation Actions -- 4 Discussion -- 5 Conclusions -- References. Hybrid Renewable Energy to Greener and Smarter Cities: A Case Study of Kayseri Province -- 1 Introduction -- 2 Methodology -- 2.1 HOMER Simulation and Optimization -- 3 Results -- 3.1 Cost Analysis -- 3.2 Engineering Analysis -- 3.3 Electrical Summary -- 4 Conclusions -- References -- Innovation in Materials, Products and Systems -- Disassembly and Structural Reuse Potential of Steel-Timber Shear Connections with Screws -- 1 Introduction -- 2 Response of Steel-Timber Shear Connections -- 3 Experimental Assessment -- 3.1 Materials -- 3.2 Specimens -- 3.3 Testing Procedures -- 4 Test Results -- 4.1 Monotonic Tests -- 4.2 Reuse Potential Tests -- 5 Concluding Remarks -- References -- Experimental Study on the Behaviour of Glulam Timber Beams Bonded with Glued-in BFRP Rods -- 1 Introduction -- 2 Experimental Study -- 2.1 Materials -- 2.2 Glulam Bonded Specimens -- 2.3 Testing -- 3 Results and Discussion -- 3.1

Load-Vertical Displacement Curves -- 3.2 Failure Loads -- 3.3 Failure Modes -- 3.4 Comparison of Studied Cases -- 4 Conclusions -- References -- Experimental Study on the Feasibility of Disassembling and Reusing Lightweight Façade Wall Systems -- 1 Introduction -- 2 Experiment -- 2.1 Preparation -- 2.2 Results -- 3 Conclusion -- References -- Design for Deconstruction Through Digital Fabrication of Thin Spatial Systems -- 1 Introduction -- 2 Methodology -- 3 Case Studies in the Design of Thin Spatial Systems -- 3.1 The ECHO Shell -- 3.2 The ECHO Arch -- 3.3 Set in Transition Leaf -- 4 Technological Advancements in Digital Fabrication -- 4.1 Additive Manufacturing -- 4.2 Laser Cutting -- 4.3 Approximating Complexity: Stacked Contour Method -- 5 Robotic Assembly -- 6 Conclusions -- References -- Use of Textile Fiber Waste to Improve the Thermal and Mechanical Performance of Cement-Based Mortar -- 1 Introduction -- 2 Materials and Methods.  
2.1 Materials and Sample Preparation.

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## Sommario/riassunto

This open access book gathers the proceedings of the 4th International Conference “Coordinating Engineering for Sustainability and Resilience” (CESARE) & Midterm Conference of CircularB “Implementation of Circular Economy in the Built Environment”, held in Timioara, Romania, on May 29-31, 2024, as part of the COST Action CA21103. The volume represents the state of the art of sustainability and resilience in modern and future built environment, constructions, and infrastructure, and includes topics such as structural materials and robustness, fire engineering, risk assessment, impact of climate change on the built environment, sustainable resilience of systems in the built environment, smart cities, circular economy, design strategies for product design, integration of renewable energy at building and small urban area scales, restoration & rehabilitation of historical buildings, sustainable infrastructures, wind energy structures, façade engineering, green buildings, and waste management.

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