

**19th CONFERENCE ON
SUSTAINABLE DEVELOPMENT
OF ENERGY, WATER AND
ENVIRONMENT SYSTEMS**

 **19th
sdewes
Conference
ROME
2024**



**SEPTEMBER
08-12, 2024
ROME,
ITALY**



INTERNATIONAL CENTRE FOR SUSTAINABLE
DEVELOPMENT OF ENERGY, WATER AND
ENVIRONMENT SYSTEMS



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BOOK OF ABSTRACTS

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Publisher Faculty of Mechanical Engineering and Naval Architecture, Zagreb

ISSN 2706-3690 (digital proceedings)

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Technical Editors Aleksandra Mudrovčić, Marko Ban

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SDEWES2024.1073

Overview on Potentialities and Contributions of Off-Site Steel Constructions for the European Decarbonization Target and the Current State of the Italian Context

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Abstract

The concept of off-site construction has been around for years now, enabling entire structures to be pre-built off-site before being transported to their location for assembly with some key advantages such as improved cost efficiency, enhanced quality control, increased safety for workers and better environmental performance. Today the Off-Site construction technologies has advanced far beyond its beginnings stage, and in particular the steel solutions have become a viable alternative, or even superior one, to the traditional ones employed in most cases in on-site constructions. Considering the significant shifts that the building sector is facing to change its perspective from zero energy to zero carbon, the Off-Site Steel constructions offer a worthy solution to this transition. Evidence in the existing literature and real case studies show that Off-Site Steel constructions can reduce carbon emissions across their entire life cycle, boost retrofit efforts, and provide high-quality assets that meet energy performance standards. Coupling the review of the latest regulations for zero carbon building assessment, within the scope of the European Green Deal, and the critical analysis of some of the most recent Off-Site Steel projects in Italy, the publication provides an overview on potentialities and contributions that this construction technology can offer to the building sector transition in terms of circularity and sustainability.