2022 Engineering and Technology for Sustainable Architectural and **Interior Design Environments (ETSAIDE 2022)**

Manama, Bahrain 6 – 7 June 2022



IEEE Catalog Number: CFP22AW5-POD ISBN:

978-1-6654-4286-2

Copyright © 2022 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

 IEEE Catalog Number:
 CFP22AW5-POD

 ISBN (Print-On-Demand):
 978-1-6654-4286-2

 ISBN (Online):
 978-1-6654-4285-5

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

E-mail: curran@proceedings.com Web: www.proceedings.com



TABLE OF CONTENTS

Meeting Architectural and Engineering Requirements Provided by COVID-19	1
The Role of BIM in Achieving Sustainable and Environmental Aspects for Interior Spaces	5
Photorealistic Rendering for the Prophet Mosque in 3D Media: Issues and Solutions	12
Daylighting Assessment and Optimization: A Case Study in an Office Building	17
The Impact of COVID-19 on the Standards of Interior Design for Restaurants	24
Intelligent Façade Skinning System Based on Crowd-Sensing and Air-Quality Monitoring	29
Legal Maxims Artificial Intelligence Application for Sustainable Architecture and Interior Design to Achieve the Maqasid of Preserving the Life and Money	36
Designation of a Home Automation System Using Nodemcu with Home Wireless Control Appliances in Traditional Malay House	40
Investigation of Segmental SPAFRUnder Static Lateral Load Using Stress Mapping Pre-Scale Film Techniques	43
hVR Educational Teaching Tools for Viewing 3D View in Interior Design Education at Higher Institution	46
Noor Hafizah Mahamarowi; Ahmad Fazeel; Nur Huda Mat Yusoff; Safinaz Mustapha	
Emerging Technology (AR, VR and MR) in Interior Design Program in the UAE: Challenges and Solutions	50
Abdul Samad Aalkhalidi; Mohd Izani; Aishah Abdul Razak	
E-Learning Techniques in the Virtual Interior Design Studio	
Reviewing Sustainable Building Renovation Considering Indoor Environmental Quality	64
Challenges for Applying Artificial Intelligence in the Field of Urban Design and Planning; Case of Egypt	69
Innovative Building Materials, Between Sustainable Development and Technology, a Promising Approach Towards Sustainable Construction	73

Environmental Thinking in Higher Education: Towards a Systemic Integration	
Publication: DIY Accessories Making with Nyonya Batik Style	
Author Index	