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REVIEWER'S REPORT

Manuscript No.: IJAR-59826

Title: Engineering Resilient MEP Infrastructure for Saudi Arabia's Mega Projects: Integrating Construction Quality Assurance, Testing and Commissioning, and Lifecycle Operational Reliability under Vision 2030.

Recommendation:

Accept as it is .....

Accept after minor revision.....

Accept after major revision .....

Do not accept (*Reasons below*) .....

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality	✓			
Clarity		✓		
Significance	✓			

Reviewer Id: JPR-274

Reviewer's Comment for Publication.

The manuscript addresses a significant and technically relevant subject concerning the resilience and long-term operational reliability of mechanical, electrical, and plumbing (MEP) infrastructure in Saudi Arabia's mega projects. Its focus on integrating construction quality assurance, testing and commissioning, and lifecycle operational management is particularly relevant to the scale and complexity of developments under Vision 2030. The review presents a coherent synthesis of recent research and develops an assurance-to-reliability framework connecting design requirements, installation conformity, functional acceptance, asset-information handover, and risk-informed maintenance. A major strength is its emphasis on system interfaces, abnormal operating conditions, integrated testing, and the continuity of technical information from construction to facility operation. The discussion of Saudi-specific environmental and operational challenges, including high ambient temperatures, dust exposure, intensive occupancy, and complex subcontracting arrangements, adds contextual value. The proposed tables and figures provide practical illustrations of assurance gates, acceptance evidence, and operational reliability indicators. The methodology appropriately distinguishes conceptual proposals and technological capabilities from verified field outcomes and acknowledges the absence of original project-level data and longitudinal validation. Overall, the manuscript is well structured, technically informative, and makes a useful contribution to construction engineering, MEP management, commissioning practice, and infrastructure resilience. Minor attention to consistency in table formatting, figure presentation, terminology, and reference formatting would further improve the manuscript's publication readiness.