International Interdisciplinary Congress on Renewable Energies, Industrial Maintenance, Mechatronics and Informatics

Booklets

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Title: Evaluation of luminance levels. Digital tool or traditional device? Case Study: Alameda Park in Saltillo, Mexico

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Editorial label RINOE: 607-8695
VCIERMMI Control Number: 2023-02
VCIERMMI Classification (2023): 261023-0002

Pages: 07
RNA: 03-2010-032610115700-14

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Introduction

Introduction to Luminance

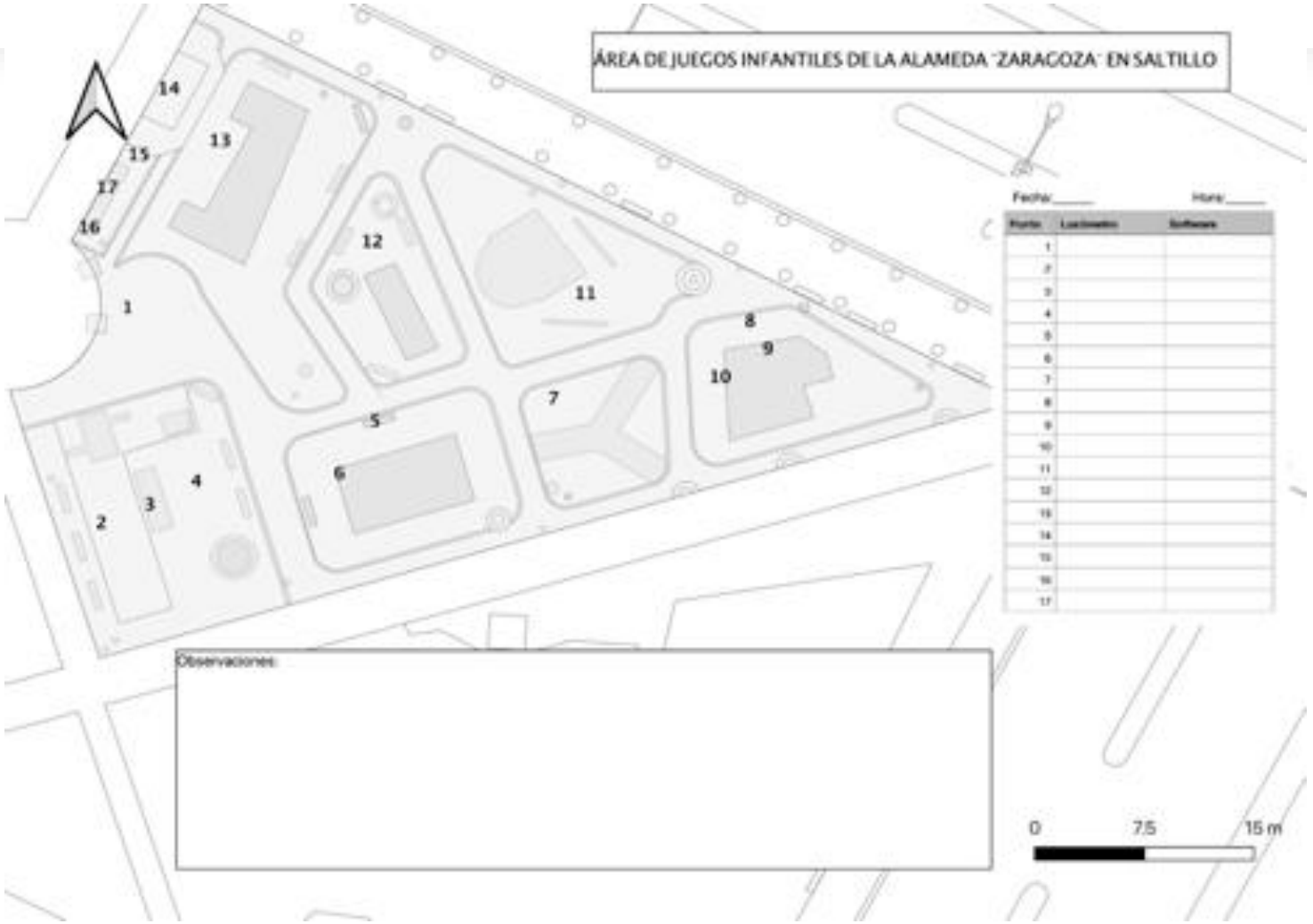
Luminance: Described as the light emitted or reflected from a surface.
Measurement: Candelas per square meter (cd/m^2) as specified by Rea (2019).
Influential Factors: Sun's positioning, location of light sources, and the reflective properties of surfaces (Krawez et al., 2021).

The Importance of Luminance Measurement

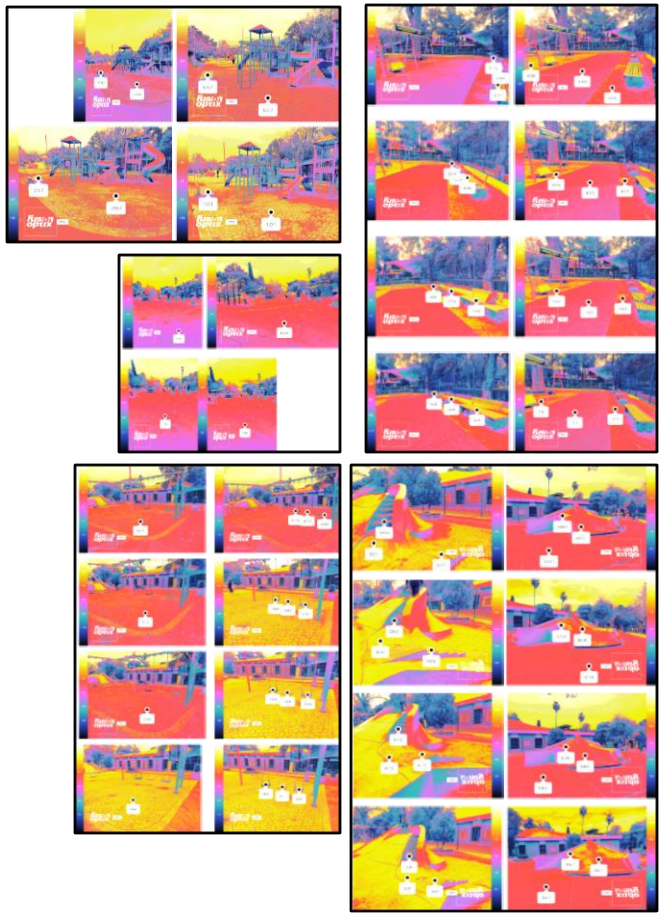
Application: Essential for ensuring that lighting design is tailored to the outdoor environment.
Regulations: Aligns with safety and energy conservation norms (Kwong, 2020).
Natural Lighting: Emphasized for its comfort and its ability to meet visual requirements, as outlined by Córica & Pattini (2005).

Methodology

The research was conducted with a quantitative approach and at an explanatory level.



Results



	Measurement with lux meter (traditional device)				Points on luminance maps with digital tool (Fusion Optix)			
Measurement hour	14:00	15:00	16:00	17:00	14:00	15:00	16:00	17:00
Measurement point	FC				cd/m^2			
1	2086	2044	626	184	1180	856	291	153
2	1906	1868	703	220	429	419	161	77
3	2339	2222	786	237	430	425	163	77
4	2506	2471	756	228	438	426	161	76
5	2268	2158	846	266	730	627	200	101
6	2539	2295	851	273	836	657	237	101
7	2359	1702	884	281	821	511	256	94
8	2650	2043	888	255	1042	811	349	148
9	2737	2101	909	241	1046	804	348	148
10	2757	2130	917	259	1060	822	363	149
11	2480	1776	982	206	707	446	268	104
12	2268	1958	1083	200	564	384	223	94
13	1954	1852	986	175	621	352	150	78
14	1836	1772	908	163	506	257	193	74
15	1713	1497	793	140	278	223	143	69
16	1606	1470	756	132	280	224	143	68
17	1595	1341	743	123	273	223	143	68

Conclusions

Transdisciplinary Approach in Architectural Public Spaces

Definition:

•Transcends boundaries of individual disciplines.

•Allows for a holistic understanding of public spaces.

Benefits:

1.Illuminates various dimensions often overlooked in single-discipline studies.

2.Reveals the interplay between design, daylight, and social behavior.

3.Integrates community lived experiences with academic and professional insights.

Application:

•Incorporates architectural, sociological, psychological, and urban planning perspectives.

•Unravels the intricate relationships that constitute our public spaces.

For Practitioners & Policymakers:

•Encourages engagement across fields and with the community.

•Design considerations go beyond aesthetics, including social, psychological, and environmental aspects.

Conclusion:

•Offers a fresh, holistic approach to urban development.

•Points toward public spaces as pillars of sustainability, inclusivity, and well-being.

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