Designing for Connection

Classical Antiquity's Models for Public Well-being.

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1. Introduction

This study explores public buildings with social gathering spaces from Classical Antiquity, specifically those found in Greek agoras and Roman Bathhouses. These ancient examples of public spaces were essential hubs for civic life, facilitating discourse, politics, leisure, and community rituals. Their relevance extends beyond historical significance, offering valuable insights for addressing contemporary challenges related to social interaction and public health. The WELL Building Standard (v2) will serve as a framework for evaluating these historical principles through the lens of contemporary understandings and value systems, thereby informing the design of healthy buildings. This will provide a structured approach to identify knowledge gaps, discrepancies in values and practices and enable these principles to translate into actionable insights for the design of contemporary social gathering spaces in built structures and public settings.

Urban environments of the 21st century face a growing need for typologies of public spaces that cultivate social connections between people on all levels of society. The advent of the internet and social media has widened the gap between people, leading to a growing sense of disconnection and divisiveness, politically, socially, and spiritually, shifting interactions from physical to virtual spaces. This paper operates on the premise that contemporary designs of public gathering spaces in built structures and urban settings have the potential to act as a catalyst for re-engaging the public in more meaningful social connections. Yet, design strategies that effectively promote social well-being in such spaces remain underexplored. Revisiting the spatial and social functions of Greek agoras, renowned for enabling democratic engagement, and Roman bathhouses, fostering collective rituals and everyday social life, can reveal historically proven strategies applicable to contemporary contexts. The WELL Building Standard offers a comprehensive lens for aligning these insights with contemporary health and sustainability goals.

How can the design principles of Greek agoras and Roman bathhouses, evaluated through the most relevant WELL concepts, inform the creation of health-oriented contemporary public spaces in buildings that foster social connection and well-being?

The research applies a two-part methodology: historical analysis and a systematic comparative evaluation. The historical analysis draws from key sources such as *Travlos (1971)* on the architectural configurations of ancient Athens, *Thompson & Wycherley (1972)* on the social dynamics of Greek agoras, and *Yegül (1992)* on the significance of Roman bathhouses. The evaluation framework will include a matrix comparing historical design principles with the 10 WELL concepts, ranked by their contribution to social connection. Community, Mind, and Movement will form the primary criteria, supported by factors such as Air, Thermal Comfort, Light, Sound, Materials, Water, and Nourishment.

Previous research by Hillier & Hanson (1984) on the relationship between spatial configurations and social behavior and the International WELL Building Institute (2025) on health-focused architecture will inform this study. Systematically linking ancient design principles to the WELL framework within the context of public buildings is the knowledge gap this research aims to address.

The thesis will be structured into six main chapters: Introduction, Historical Analysis, Grounding Principles in Theoretical Frameworks, Evaluation of the WELL building standard, and conclusion, culminating in principles for health-oriented, socially connected public spaces that integrate wisdom from classical antiquity and contemporary knowledge.

2. Literature Review

The design of public spaces has long been a key point of architectural discourse, historical precedents offer lasting lessons for contemporary practice. This literature review explores the intersection of Classical Antiquity's public spaces, specifically Greek agoras and Roman bathhouses, with modern frameworks for health-oriented design, the WELL Building Standard. By synthesizing historical, theoretical, and contemporary sources, this review identifies key concepts, research gaps, and the relevance of ancient design principles to today's challenges of fostering social connection and well-being in the design of public space.

2.1 Historical Foundations: Greek Agoras and Roman Bathhouses

The architectural and social significance of Greek agoras and Roman bathhouses has been extensively documented by scholars. *Travlos (1971)* provides a detailed analysis of the spatial organization of ancient Athens, emphasizing how agoras were designed to facilitate community interaction, movement, and access to natural light. Similarly, *Thompson and Wycherley (1972)* highlight the agora's role as a hub for democratic engagement and social discourse, underscoring its architectural strategies for promoting civic life and social cohesion.

Roman bathhouses, as explored by *Yegül (1992) and Fagan (1999)*, offer a detailed analysis of the design of these public spaces. Yegül's work delves into the circulation patterns, thermal comfort strategies, and water systems of bathhouses, revealing how these elements contributed to their function as centers of public health and social interaction. Fagan further emphasizes the bathhouses' role in promoting hygiene, leisure, and community rituals, making them central to Roman urban life. *Trümper and Lucore (2013)* expand on this by studying Greek baths, revealing parallels in their social and cultural significance. Together, these sources demonstrate that both agoras and bathhouses were designed with intentionality, prioritizing specific spatial configurations and architectural features that fostered social connection and well-being.

2.2 Theoretical Frameworks: Linking Space and Social Behavior

The relationship between spatial design and social behavior, and the notion that they affect one another, is an essential basis for this study. Hillier and Hanson's (1984) *The Social Logic of Space* introduces Space Syntax theory, which discusses how spatial configurations directly influence social interactions. This framework is particularly relevant for analyzing how the layouts of agoras and bathhouses facilitated community engagement and movement. The book *PUBLIC PLACES – URBAN SPACES, The Dimensions of Urban design* Carmona et al. (2003) further contextualize this by exploring the multi-functionality and accessibility of public spaces, linking these qualities to social sustainability and urban vitality, later writing a paper on *Principles for public space design, planning to do better* Carmona, M. (2018). The journal article *Architectural Design Principles of Public Spaces Based on Social Sustainability Approach* by Raeisi et al. (2010) builds on this by examining how architectural design principles can enhance social sustainability, offering a case study that underscores the importance of inclusivity and adaptability in public spaces.

2.3 Contemporary Applications: The WELL Building Standard and Beyond

The WELL Building Standard provides a modern framework for evaluating health-oriented design, aligning with the historical principles of agoras and bathhouses. The International WELL Building Institute (2025) outlines ten concepts: Community, Mind, Movement, Air, Thermal Comfort, Light, Sound, Materials, Water, and Nourishment. This serves as the contemporary understanding and value system for designing spaces that promote well-being. Engineer et al. (2020) comprises eight articles exploring how physical environments can optimize health and performance, emphasizing the role of design in reducing stress and enhancing cognitive function. These contemporary sources bridge the

gap between historical practices and modern needs, offering a structured approach to translating ancient principles into actionable insights.

2.4 Identification of the Gap

Existing research provides a solid foundation, however, there is a notable gap in linking the design principles of Classical Antiquity to contemporary benchmarks like WELL in a systematic way. As well as the analysis and comparison of contemporary understandings and value systems related to social well-being and ancient practices. Hillier and Hanson (1984) and Carmona et al. (2003) offer theoretical insights into the relationship between space and social behavior, however, their application to ancient historical contexts remains underexplored. Similarly, while Yegül (1992) and Fagan (1999) provide detailed analyses of Roman bathhouses, their findings have yet to be fully integrated into modern health-oriented design strategies. This research aims to address this gap by developing a comparative evaluation framework that aligns historical principles with WELL concepts, focusing on Community, Mind, and Movement as primary criteria.

The utility of this research lies in its potential to inform the design of contemporary public spaces that address the growing sense of disconnection in urban environments. By revisiting the spatial and social design of agoras and bathhouses, this study looks for historically successful strategies for fostering social connection and well-being. The integration of WELL concepts ensures that these insights are measured against contemporary health and sustainability benchmarks, finding the relevant nuances in ancient practices. This research bridges historical and contemporary discourses in addition to contributing to the broader conversation on how design can catalyze re-engaging the public in meaningful social interactions.

3. Historical Analysis

To gain an understanding of the classical antiquities approaches to the design and use of public spaces, the following sections of this paper will discuss and analyze the documentation and literature on the Athenian Agora of Ancient Greece and a quintessential Roman Bathhouse. The focus of this historical analysis is relegated to insights in relation to social functions and behaviors, societal factors, spatial qualities, and values adopted by the respective cultures that cultivated the designs of these enormously successful public spaces. More specifically, the Stoa as a building type will be investigated in section 3.1 and the Thermae of Caracalla in section 3.2. These case studies apply to one another in many dimensions, primarily their multifunctional programming, habitual nature, and accessibility to diverse social groups. The Stoas and Thermae of Caracalla were more than architectural feats, they were social institutions that were vital to the functioning of the societies for which they provided utility and reflected the values and priorities of the cultures that they served. This historical analysis will clarify the theory of how these structures cultivated a strong community and a sense of well-being, both physically and psychologically.

3.1 The Agora of Athens Speaks: The Architecture of Discourse.

The Agoras were the city center of ancient Athens. The use of the Agoras spanned several centuries, facilitating multiple dimensions of Greek society. It was a hub for political, commercial, administrative, judicial, social and cultural activity in Athens. The focus of this paper will be on the Classical period (5th-4th centuries BCE) and the Hellenistic Period (3rd-1st centuries BCE). In comparison to a modern city center there are recognizable morphological elements characterized by an open rectangular square bordered by a variety of public buildings, including monuments, shrines, temples, theatres, altars and Stoa as seen in figure 1. The Stoas as a building type will be investigated in this section in depth as they embody the democratic ideals and values of the ancient Athenian culture; structures designed to facilitate discourse, commerce and civic rituals. Stoas are characterized by long colonnaded walkways with internal rows of columns to provide depth and

sheltered space for a public program. The linear morphology in harmony with the open design maintained a connection and orientation towards the open square (Thompson & Wycherley, 1972, p. 82). As Thompson and Wycherley note, "the space thus covered was neither indoors nor out-of-doors but something in between" (1972, p. 82). The colonnades, steps, and open design creates inviting thresholds, allowing for a seamless flow of people and activities in and around the stoas. This provided an ideal stage for a diverse public program such as political assemblies, legal proceedings and informal gatherings. The Stoas' multifunctionality mirrored the Agora itself, serving as a repository for the laws of the city, space for religious ceremonies and venues for social interaction (Thompson & Wycherley, 1972, p. 87).
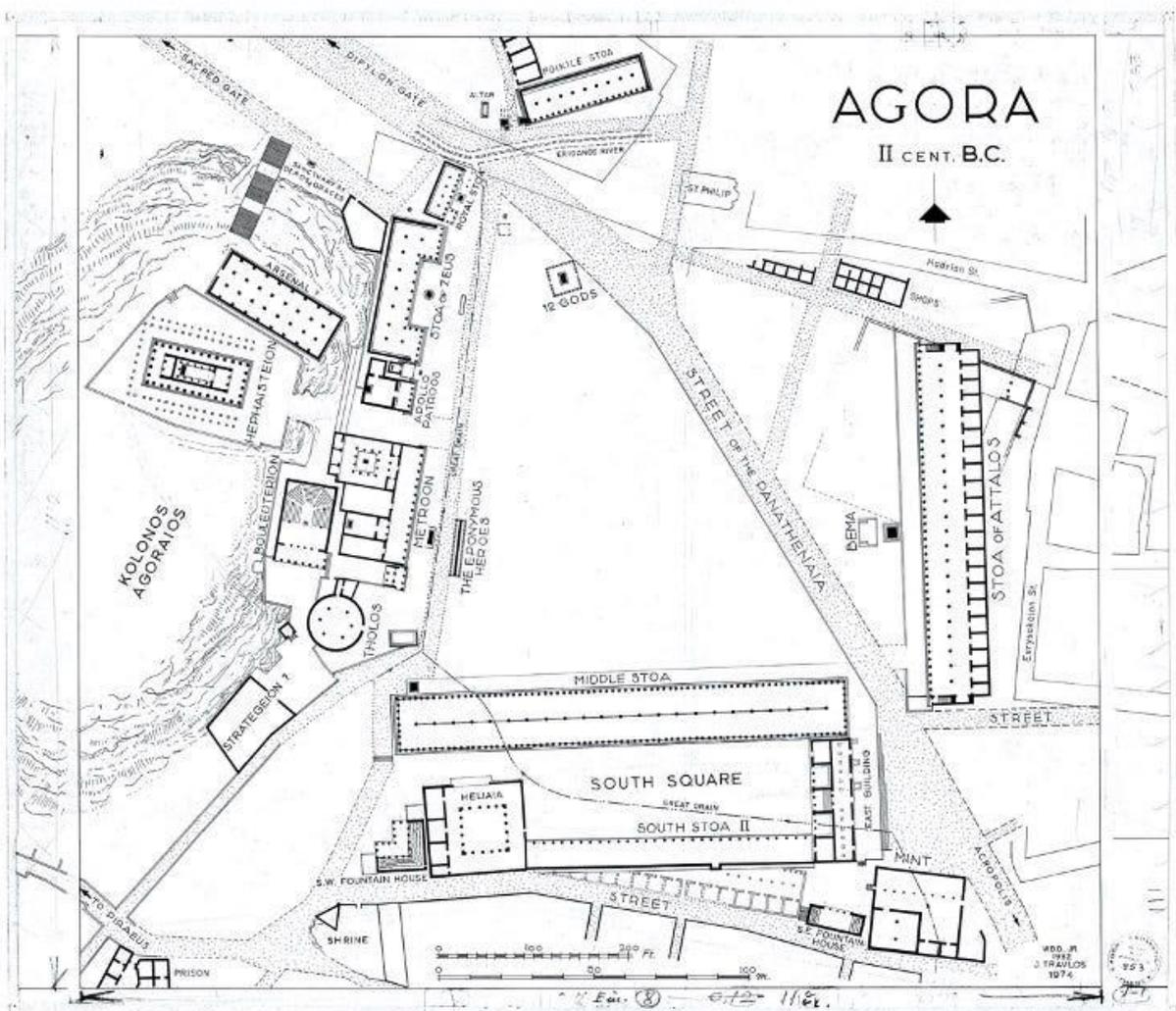

Fig. 1
Plan of the Athenian Agora, 2nd century BCE.
From Pictorial Dictionary of Ancient Athens (p. 23), by J. Travlos, 1971, Praeger.
Copyright 1971 by J. Travlos.

The scale of the stoas as a building type varied significantly and generally marked the limits of the city center with a solid wall along the boundary. Each Stoa was inherently multifunctional but served a more specific role in certain dimensions of Athenian public life. The Stoa Poikile, for instance, was a grand structure, stretching roughly 36 meters in length and defining the northern limit of the Agora. It featured a double colonnade that provided ample space for public gatherings and displays of art (Thompson & Wycherley, 1972 p. 90). The Stoa Poikile served as a "superior lesche or place of

informal conversation" (Thompson & Wycherley, 1972, p. 92). This emphasis on informal interaction highlights the stoas' role in fostering cohesion and democratic participation by design.

Accessibility was a key feature of the Stoa, as they were open to all societal groups in ancient Athens, from politicians to merchants and ordinary citizens. The Stoa of Attalos, for example, one of the few Stoas that became a two-story structure in the Hellenistic period as seen in figure 2, prominently functioned as a marketplace within the agora and served as the commercial hub for all Athenians. The Stoa of Attalos featured a series of rooms on the border wall with shops and stalls where merchants could sell their goods. Thompson and Wycherley describe the Stoa of Attalos as "handsome shops presumably rented by the city to some of the more substantial merchants" (1972, p. 107). Located on the eastern side of the agora, it faced the Panathenaic Way, making it a central and accessible point for trade. The stoa's design with wide intercolumniations and a spacious terrace allowed for an easy movement of people and goods, thereby enhancing its function as a social commerce hub (Thompson & Wycherley, 1972, p 104).
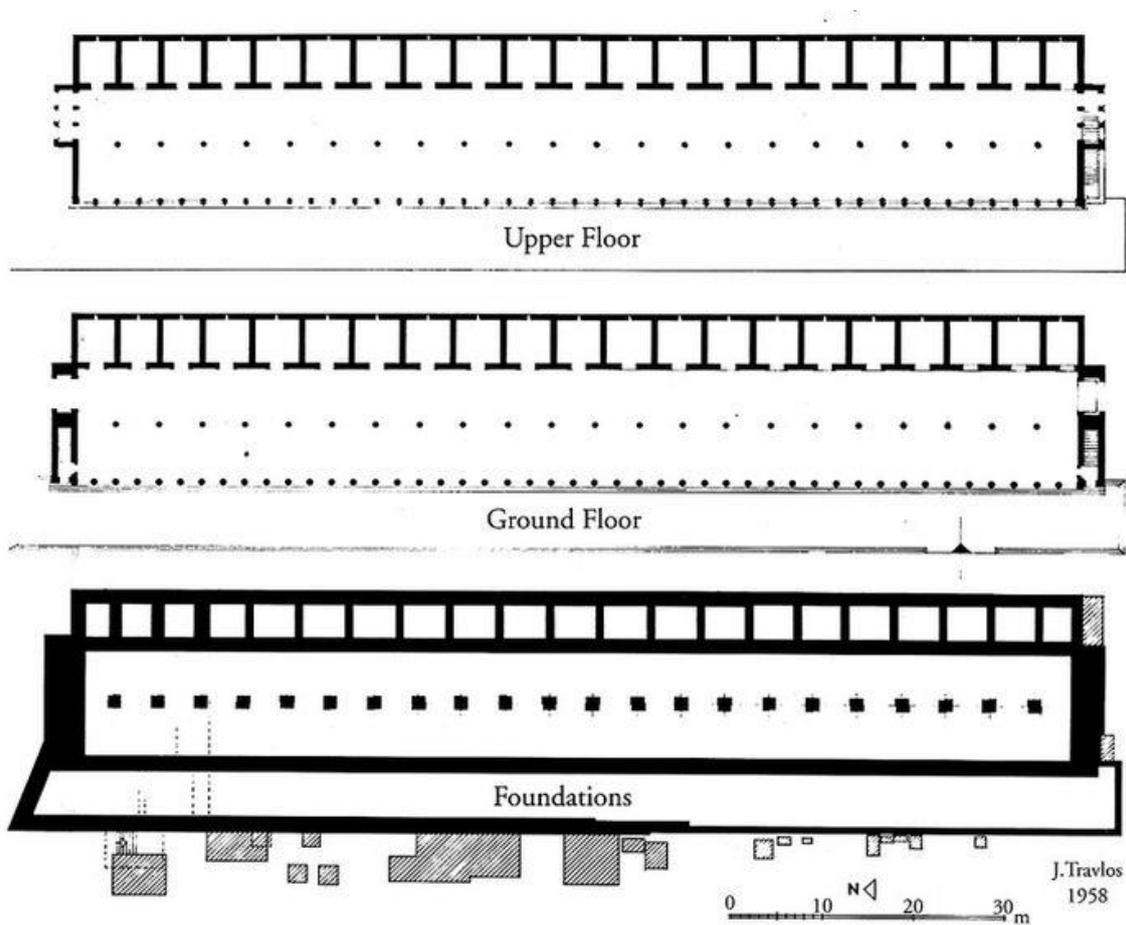

Fig. 2
Stoa of Attalos, plans at three levels [Drawing by J. Travlos].
From The Agora of Athens: The History, Shape and Uses of an Ancient City Center (p. 105), by R. E.
Wycherley, 1972, American School of Classical Studies at Athens.
Copyright 1972 by American School of Classical Studies at Athens.

In contrast, the Stoa Basileious, one of the earliest and most politically significant stoas, was more modest in size, measuring around 18 meters in length. This stoa was located on the west side of the agora, acting as a repository for the laws of the city. With continuous benches accommodating up to 60 people, it was a focal point of Athenian life, accommodating space for small and medium-sized gatherings. and the optimal venue for the oath-taking ceremony of the archons. The lithos, a sacred

stone used for this kind of oath-taking, was located within the Stoa Basileios. It becomes clear that the sacred and the profane were not separated in the Athenian culture. This multifunctional role centered around legal and political proceedings underscores the stoas' importance in the governance and daily life of Athens (Thompson & Wycherley, 1972, p. 88)

The design of the stoa prioritizes comfort and a multisensory spatial experience. The orientation with respect to the sun provides the stoas with ample natural lighting. Moreover, the nature of the semi-enclosed space provided shelter from the elements when travelling through the Agora, enhancing its purpose as an informal meeting place. Thompson and Wycherley comment on the careful attention to detailing of the outer columns of the stoa bordering the public square with incised egg and dart motifs of the iconic capital in Pentelic marble on which there was a play of light and shade (1972, p.98). In addition, the symmetry and placement of the stoas aligned and defined the broader layout of the Agora which fostered a sense of order and familiarity. The grand scale and decorative elements, such as sculptures and inscriptions, inspired civic pride and collective ownership. As Thompson and Wycherley observe, "the Stoa represents the achievement of two aims by the unknown architects… to give some architectural distinction to the west side of the Agora, and to design a stoa which was in itself a satisfying architectural unit" (1972, p. 100). The stoas were architectural statements that reflected the values of Athenian society, promoting social cohesion and democratic participation.

3.2 The Bathhouse: The Ritual of Well-being.

Constructed between 212 and 216 CE in the heart of Rome under the reign of Emperor Caracalla, spanned approximately 11 hectares, and accommodated thousands of bathers daily. The Thermae of Caracalla exemplified the ancient roman approach to public space design. The Caracalla was the largest imperial thermae as seen in figure 3, characterized by a symmetrical composition, monumental scale, and multifunctional design that integrated a variety of functions related to the mind and body, Yegül notes that "imperial thermae we as much a robust expression of the empire's assurance at the height of its power as they were a vehicle of propaganda for it" (1992, p. 133). The opulence reflected in its scale, layout and ornamentation and communal function reflected its role as a symbol of civic generosity. The functional diversity of the communal program of the thermae included gymnasiums, baths, libraries, lecture halls, cult-shrines, porticoes, promenades, dining place and a range of activities for the Roman citizens. (Yegül, 1992, p. 128).

The design of the bathhouse created a sensory-rich environment that promoted mental and physical well-being, with features such as vaulted ceilings, attention to various qualities of natural lighting, elaborate water displays, open spaces, green spaces, and monumental scale. Yegül describes the natatio, or swimming pool, as "one of the most magnificent spaces of the complex," with its vast expanse of water reflecting the richly decorated marble facades (1992, p. 158). The integration of gardens further enhanced the connection to nature, offering bathers a mental respite from the city. Yegül notes that the vast belt of open space surrounding the bath block "may well have been designed and planted as a garden," creating a green space that complemented the opulence of the interior spaces (1992, p. 180). It becomes clear that all the emphasis on sensory richness in terms of sight, sound and touch and as a result, well-being, was central to the success of the bathhouse as a social hub where Romans engaged in exercise, conversation and cultural activities.

Accessibility was a core value of the bathhouses and reflects its role as a social leveler. The Roman baths were inclusive for all citizens of ancient Rome, regardless of sex, color, creed or wealth, as it reflected the democratic ideals and institutions of the Empire (Yegül, 1992, p. 2). Moreover, mixed bathing was a notable feature of the Roman bathhouses, a topic that attracted prior scholarly attention. Fagan summarizes, "That mixed bathing was practiced is hardly in doubt, but disagreement has arisen over its prevalence" (1999, p. 26). Furthermore, all groups of society bathed from the poorest citizens to Emperors, and there is even substantial evidence to support the fact that slaves used the bathhouses as well. Fagan observes that "the evidence seems clear that they did just that in the baths," suggesting

that the baths as a daily ritual of self-care in Roman life were egalitarian in nature (1999, p. 189). However, this egalitarian nature was tempered by the fact that the baths could serve as an arena for status display. Elite, wealthy and powerful citizens could showcase their wealth and influence.

Fig. 3
Thermae of Caracalla, Rome. Plan of the bath block [Drawing by Krencker].
From Baths and Bathing in Classical Antiquity (p. 150), by F. K. Yegül, 1992, MIT Press.
Copyright 1992 by MIT Press.

Despite the prominence of a social hierarchy that extended, even to the Thermae of Caracalla, it can be argued that the inclusive design and habitual use by the masses made it a cornerstone of ancient Roman culture that fostered a sense of community and shared identity through its accessible nature. This argument is strengthened by the fact that the Romans used bathing as an institution to "integrate the individual into the mainstream national culture" (Yegül, 1992, p. 4). Bathing is a habitual necessity that becomes a daily social activity. Yegül went as far as to say, "Not to bathe would have been un-Roman. The Thermae of Caracalla has some of the most elaborate cultural functions with an educational center, lecture halls, libraries and art displays that serve to enrich the mental well-being of its visitors. Yegül highlights the integration of physical and mental well-being in the bathhouse's design, noting that "recreation and hygiene were brought under the same roof with intellectual or quasi-intellectual interests" (1992, p. 128). This integration speaks to the Roman value system for a balanced lifestyle, which involves a foundational connection between self-care of the mind and body and the understanding that they are interconnected.

3.3 Comparative Summary: Enduring Principles of Connection.

The Stoas of the Athenian agora and the Thermae of Caracalla share several design principles that underscore their role as spaces for social connection and well-being. Both ancient examples of public buildings were accessible to diverse societal groups and facilitated social rituals that had a low barrier of entry and unplanned social encounters. Their multifunctional programming accommodated a wide range of activities, from political discourse and legal proceedings to exercise and cultural events, reflecting the interconnectedness of mind and body in ancient thought (Thompson & Wycherley, 1972, p. 82; Yegül, 1992, p. 128).

Spatial design and careful attention to materialization and detailing played a crucial role in enhancing the multi-sensory experience of these spaces. The stoas' open colonnades and the bathhouse's symmetrical layout created clear, navigable environments that fostered feelings of safety and familiarity (Thompson & Wycherley, 1972, p. 99; Yegül, 1992, p. 133). Both spaces also emphasized the importance of natural elements, such as light, water, and greenery, in creating inspiring and therapeutic environments. For example, the stoas' use of natural lighting and ventilation, and the bathhouse's integration of gardens and water displays, highlight the ancient architects' understanding of the psychological benefits of connecting with nature (Thompson & Wycherley, 1972, p. 88; Yegül, 1992, p. 180).

The opulence of these public spaces, whether through the stoas' decorative sculptures or the bathhouse's marble-clad interiors, served as a reminder of civic pride and collective ownership. As Yegül notes, the Thermae of Caracalla was "as much a robust expression of the empire's assurance at the height of its power as it was a vehicle of propaganda for it" (1992, p. 133). Similarly, the stoas' architectural distinction and decorative elements reflected the values of Athenian society, promoting social cohesion and democratic participation (Thompson & Wycherley, 1972, p. 100). What is perhaps most insightful is the habitual nature of these public buildings. Regardless of social status, these spaces were designed to be used daily for a variety of essential and non-essential activities that catered to the culture which they served and reflected the values of the citizens. Drawing from historical precedents, the following key principles emerge.

I. Accessibility to diverse societal groups
II. Integration of social rituals and habitual use
III. Low barrier of entry and unplanned social encounters
IV. Blend of formal, informal, essential, and non-essential programming
V. Prioritization of mind and body with a holistic approach
VI. Strong attention to detailing and the sensory experience: sight, sound, touch, taste, smell
VII. Intuitive spatial organization and legibility
VIII. Democratic engagement and civic pride
IX. Incorporation of natural elements
X. Accessible opulence

4. Grounding Classical Principles in Theoretical Frameworks

The Stoa of the ancient Greek Agoras and the Thermae of Caracalla of ancient Rome are models of highly successful, culturally integrated and socially connected public space. In the following section, the spatial features, derived from the historical analysis, are examined through three key lenses from the literature to uncover the theoretical basis for the success of these public spaces: Hillier and Hanson's (1984) spatial configurations, Carmona's (2003, 2018) principles of public space design, and Raeisi's (2010) framework of social sustainability. Together, these theoretical understandings will decode the architectural strategies of Classical Antiquity that fostered community and well-being in ways that remain underutilized in contemporary Western design standards such as WELL.

4.1 Theoretical Alignment: Why Classical Principles Worked

Spatial configurations that engineered social interaction were a key feature of the classical antique approach to the design of public space. Hiller and Hanson's *Space Syntax Theory* (1984) provides critical insight into how the spatial sequence and order of the stoas and thermae actively shaped the habitual social behavior of the users. As you may recall, Thompson & Wycherley pointed out the transitional spaces, starting with a threshold such as steps or colonnades, leading to a space that was "neither indoors nor out-of-doors" (1972, p. 82), a signature feature of the stoas. Hiller and Hanson (1984) use the term "interface zones" to describe this design, spatial thresholds that naturally slowed movement and encouraged chance encounters. The long colonnades with intermittent seating created a "behavioral circuit" that guided users of the stoas through the sequence of spaces, which each presented the possibility for social interaction, from political debates to commerce.

Similarly, the Thermae of Caracalla was designed with rigorous axial symmetry (Yegül, 1992) and a specific sequence of spaces of functions that choreographed movement in ways that made social mixing inevitable. Drawing a comparison to contemporary gyms or spas where individuals move independently through open spaces to isolated stations, the Caracalla featured an intentional spatial progression through thresholds of compression and then expansion from frigidarium to caldarium. This created what Hiller and Hanson call "controlled convergence," forcing shared pathways that made interaction inevitable and comfortable. This intentional sequencing of spaces and thresholds between them cultivated the habitual daily use that made these ancient social institutions successful social hubs.

Moreover, Carmona's work on designing public space (2003, 2018) explains the social durability of classical spaces. The principle of "flexible programming" is clear in the seamless blending of essential functions of the stoas program, such as commerce, with the intentional fostering of non-essential socializing, with movement slowing thresholds initiating discourse and debate. This "thickened" use of space (Carmona 2018) created what Raeisi (2010) identified as true social sustainability, where diverse activities overlap to sustain continuous public life. To deepen this point, Carmona describes "social infrastructure" as spaces where civic, intellectual and recreational uses intersect. Ancient models were designed on the principle that social connections thrive when activities collide. This idea can be seen in the difference between the classical approach with libraries, lecture halls and gymnasiums within a continuous complex and the contemporary approach that silo functions to separate buildings with limited functional layering.

The Stoas play of light on colonnades (Travlos, 1971) and tactile variation and the bathhouses' hydro acoustics, material richness and gardens created immersive environments that engaged multiple senses at once. Raeisi (2010) emphasizes multisensory design as a pillar of social sustainability. These classical models created visceral connections to place. Furthermore, Carmona's (2003) analysis of symbolic design explains how the imperial grandeur of the Thermae of Caracalla and the Display of Athenian military victories were not solely for decoration purposes, but served as "architectural persuasion" (Carmona, 2018), shaping a civic pride and collective identity.

4.2 Critique of Classical Models

While the classical models explored in this paper have been discussed in a relatively positive light concerning the discussion on fostering social connections, for which these models are exceedingly successful. The Greek Agoras and Roman bathhouses had significant critiques when it comes to well-being and contradictions in philosophy that will be discussed in this section, which temper romanticized views. As Fagan observes, bathhouses became arenas where "the elite used entourages and perfumed oils" to display status (1999, p. 205), shining light on the prevalence of status display and wealth of elites that created social pressure. The Agora, celebrated as democratic, excluded women from political discourse and relied on slave labor for maintenance and construction.

Thompson and Wycherley point to the Stoa Basileios, where the vast marble surfaces were maintained by slave labor (1972, p.87).

Additionally, medical understandings of health risks plagued the bathhouses being designed with aesthetics over hygiene, with vast open baths, which brings water quality standards into question. Stagnant bathhouse waters breed parasites. A knowledge gap that affected users' health directly, which contemporary understandings of medicine would wholly prevent. Finally, it can be argued that imperial propaganda overshadowed communal benefits. The opulent display of "polychromatic marble" and guided statues in the Thermae of Caracalla served as a "robust expression of the empire's assurance" (Yegül, 1992, pp. 133, 178). These spaces achieved social connectivity despite prevailing hierarchies, imperial propaganda, slavery, exclusionary practices in some cases and sanitation shortcomings, which contemporary standards, in contrast, are specifically tailored to address.

5. Evaluating the WELL Building Standard

The WELL Building Standard, developed by the International WELL Building Institute (2025), represents a Western contemporary understanding of health-focused design. It is organized around ten concepts, each consisting of a comprehensive effort to synthesize medical research into architectural specifications (Engineer et al., 2020). For the purposes of this paper, the concepts – Community, Mind and Movement are selected as primary and Air, Thermal Comfort, Light, Sound, Materials, Water, and Nourishment as supporting concepts to discuss the most relevant concepts concerning the classical antique models explored in the sections above. It is important to note that Classical principles and the WELL framework largely overlap in most areas in relation to well-being; however, identifying where specific gaps and discrepancies occur is valuable in advancing discussions on how to formulate frameworks like WELL.

5.1 WELL: A Measured Critique

The evidence-based approach of the WELL building standard is rigorous and backed by metrics addressing contemporary health crises such as sedentary lifestyles and stressful urban environments. The WELL certification uses a performance-based scoring model where projects gain points through 23 mandatory 'preconditions' such as: air filtration, water quality testing, etc. and 92 'optimizations' including mental health support and circadian lighting systems, for example. The primary strength of WELL is the measurable benchmarks for factors like air quality and acoustic performance, which address well-being analytically in contrast to the intuitive nature of Classical Antiquity. In addition, the Mind concept integrates neuroscience findings, while Movement guidelines promote active design through ergonomics and visibility of circulation elements, filling knowledge gaps in ancient practices.

Running parallel to this strength is the market-driven implementation of WELL certifications that brings cost barriers, privatization and increasing property values to the front of the conversation, effectively commodifying well-being rather than serving as a shared public infrastructure that poses well-being as a civic right. Evidence of this critical limitation can be seen by the diversity of projects certified by WELL, of which 83% serve corporate or private residential uses *(International WELL Building Institute, 2023)*. This contrasts with the democratic spirit of the Thermae of Caracalla and the Stoa, which served every social group from slaves to emperors as an incredibly high investment in shared infrastructure with free access.

5.2 Matrix: Gaps and Discrepancies

The WELL Building Standard's treatment of Community Mind and Movement reveals critical disconnects from Classical Antiquity's most successful social design strategies. The criteria assessed with the community concept reveal a social experience gap as there is a lack of spatial sequencing demonstrated in the stoas thresholds, such as colonnades with calibrated dimensions and seating arrangements that naturally slowed users and invited conversations conversation and social

participation (Hillier & Hanson, 1984; Thompson & Wycherley, 1972). In comparison to WELL-certified lounges, measuring social spaces by area rather than interaction quality results in underutilized public space, as they are not assessed on similar design triggers for socialization that Carmona (2018) identifies as essential for vibrant public life.

Secondly, the neglect of behavioral rituals is exposed by the movement concept, where the Thermae of Caracalla and Athenian stoas engineered physical activity as a social experience through spatial sequencing (Yegül, 1992), WELL focuses narrowly on facilities, exercise equipment placement, ergonomics and circulation visibility which misses how classical spaces cultivated a wholistic approach through ritualized spatial progression reflecting Hiller and Hanson's (1984) principle of "controlled convergence," deliberately designing movement around social mixing is a more integrated and effective approach to meet movement goals.

Additionally, WELL treats sensory experiences as isolated metrics, such as decibel limits for sound, illuminance for light and material toxicity of materials in a project, while bathhouses prioritized a multisensory experience through hydro acoustics, aromatics and tactile qualities of materials to create immersive therapeutic environments (Yegül, 1992, p. 390). Raeisi's (2010) work on social sustainability highlights that a fragmented sensory experience falls short of replicating the 'psychosocial cohesion' of classical spaces. This effort carried over to the spatial expression of inspiring, monumental spaces that fostered civic identity and pride in public arenas.

Finally, classical models exhibited strategic programmatic layering through accessible spaces which wove commerce, politics and leisure into a single space, such as the Stoa of Attalos facing the Panathenaic Way (Thompson & Wycherley, 1972, p. 107). In contrast with WELL requiring "social spaces," while overlooking the simultaneous functional activity, such as markets, debates, philosophy and relaxation that made classical examples thrive. The gaps discussed in this section are systematized in Table 1 presented in the appendix of this paper, which maps classical design principles against WELL's framework to identify the critical gap and reveal design implications with a theoretical basis.

6. Conclusion

The answers to designing successful public spaces cannot be found solely in returning to ancient practices or adopting contemporary frameworks but lie in exploring and interrogating models to synthesize principles and increase understanding about designing for social connection. The WELL building standard offers valuable tools for quantifying health in buildings and is based on rigorous research, making it strong. At the same time, the standard leans individualistic and isolated in several key areas, as formulated by the gap analysis matrix, this shortcoming extends to its market-driven nature through certifications. Classical spaces were "dedicated to the cultivation of the body and, by extension, the mind" (Yegül, 1992, p. 128). The WELL framework would be more effective in exploring the integration of social and psychological well-being with equal rigor as health outcome metrics, with the acknowledgement that there is a tension in quantifying the 'social alchemy' of ancient spaces. There is an urgent need for community-building to be as rigorously designed as HVAC systems, social experiences are dwindling in contemporary settings while digital isolation grows. Cultivating spontaneous social encounters and shared experiences in inclusive and inspiring ways are essential considerations for the design of healthy buildings of the 21st century.

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Appendices

Table 1: Gap Analysis Matrix

Classical Design feature	WELL concept	Critical Gap	Theoretical and Historical Basis	Design Implication
Social Rituals and behavioral spatial sequencing	Community	WELL measures social space area over interaction quality	Hiller & Hanson (1984): Spatial configurations drive social behavior	Incorporate "social condensers" with transitional thresholds.
Multisensory richness and Layering	Mind & Sound & Light	WELL focuses on isolation rather than integration of the senses	Raeisi (2010): Sensory richness enhances social sustainability	Design spaces that engage multiple senses simultaneously through materiality and environmental features.
Movement as a Social Catalyst	Movement & Mind	Focuses on exercise efficiency over social circulation	Yegül (1992): Ritualized sequences foster interaction	Create a circulation that encourages chance encounters through programmatic sequencing.
Monumentality and Civic Identity	Materials	Lacks inclusive, inspirational, and monumental spaces where opulence is shared	Carmona (2003): Symbolic design fosters collective identity	Use local materials and inclusive monumental elements to inspire civic pride
Strategic of Programmatic layering	Community & Movement	WELL compartmentalizes functions, separating work/ leisure/ social zones	Thompson & Wycherley (1972): Agora's "thickened programming" sustained vitality	Design Zones for multiple functions happening in harmony to force suitable activity overlap
Inclusive Thresholds	Community	Neglects low-barrier entry points for diverse users	Fagan (1999): Bathhouses' free access as a social leveler	Design "soft edges" (Carmona, 2018): stepped seating, shaded colonnades, and open palestrae.