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(DE)SIGNS FOR DIGNITY:

TOWARDS AN ENABLING ENVIRONMENT IN ATHENS, GREECE

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Abstract

In spite of regulations aimed at ensuring that all people can enter and move through spaces, the need to create physical solutions that do not separate or segregate disabled populations has been overlooked. Further, the response of architects and designers is often to meet these regulations without considering the emotional impact of their designs, or the need for all users to be able to retain a sense of dignity as they enter and move through buildings and open spaces.

This gap calls for a (re)generation of the urban form with a totally new agenda. My research argues that designing spaces for disability should focus on designing places for dignity. Aimed at upcycling everyday environments as enabling environments, this research identifies and comparatively analyses typologies of apartment buildings and neighbourhoods in Athens, Greece, where the experience of dignity is ubiquitously threatened due to a planning pathogenesis. Here, typologies are evaluated using dignity-based criteria, and new design guidelines and actions are proposed.

This research and its findings will enrich access-knowledge through their innovative urban design paradigms with the potential to transform spatial environments into dignified spaces for all.

Keywords

Dignity, disability, accessibility, universal design, inclusive environments

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1. Introduction

> 'I admit there is a dignity and beauty in a long flight of steps. Let them be used, then, around statues and monuments, where we don't have to mount them. But they become a highly unwelcome form of beauty when they add, each day, to the exertions of everyone, and shut out some of the public completely.'
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> Clarence Day (1920) 'Legs vs. architects,' *Harper's magazine*, 141, pp.805-806.

Designing spaces for disabled people should be designing places for dignity. The design of buildings and their adjacent sidewalks and streets primarily reflects the needs of healthy-bodied individuals, considered capable of climbing stairs, opening doors, traversing narrow hallways, and crossing streets. This is in spite of the fact that one in seven people worldwide has physical difficulties performing these tasks.

This paper not only promotes design for disabled people but also argues for design that promotes human dignity. More specifically, it demonstrates a critical need for architects and urban designers to respond to dignity-based criteria such as accessibility, safety, privacy, social interaction, and flexibility in a way that transforms physical forms into meaningful places serving all-inclusive communities. As the literature shows, spatial issues related to disability are often not discussed by actors and institutions involved in the development of the built environment, and thus disability remains stuck in a non-historical, a-theoretical, and seriously underexplored category in relation to building design practices (Imrie and Hall, 2001; J. Boys, 2017). Moreover, as this paper argues, designing both private and public spaces (such as homes and neighbourhoods) without addressing accessibility concerns is an attitude and practice that promotes exclusionary spatial design.

1.1. Exclusionary Space: The Role of Experts and the Impact on Users

Creating spaces that accommodate people with diverse abilities supports social integration and inclusion. Yet practitioners – architects, urban designers, engineers, developers, builders – are often reluctant to apply accessibility regulations in design solutions. Interviews conducted when the American Standards for Accessible Design went into effect in 1992 revealed that practitioners greeted this regulation with everything from 'irritation to outright hostility'. They found the guidelines a 'headache' and an 'epidemic' difficult to understand. They ignored them, hoping 'they would go away' (Busch, 1994, p.45; Leibrock, 1994, p.56; Guffey 2018, p.156-158).

Historically, practitioners' willingness to apply regulations and adapt to accessibility guidelines depends on whether the project is new construction or re-design of an existing building. In the case of the latter, the entrance of MIT's main monumental entrance, with its long ascending flight of stairs, is an example of how wheelchair users have to bypass the 'beauty' and 'dignity' of the space, and instead enter through a small side door below leading to the basement. There, they move through windowless and utilitarian underground corridors leading to lifts. Back in the 1970s, MIT was a frontrunner in finding new ways to solve the 'specialised problems' of 'physically handicapped students', turning the entire campus into an enormous accessibility laboratory (MIT Planning Office,1978). However, today, the ideology that dictated the elevated, neoclassical façade and the reluctance to adapt it have prevented fully equitable accessibility. Similarly, the award-winning, iconic new library at TUDelft, despite its sloped green roof that transforms the building into a walkable landscape, fails to provide access at the front entrance to those with disabilities. Instead, they have to ring the bell at the staff entrance in the back of the building and be escorted to a lift. As Imrie and Hall (2001, p.103) note, defending their decision to bypass accessibility design regulations, architects often claim that 'it looks better.' Beyond what is seen as architects' 'myopic preoccupation with aesthetics', academic journals and schools further discourage 'diluting' architects' visions. Yet this attitude can be transcended, as was the case in Robson Square, Vancouver, where stairs and ramps are intertwined, in compliance with Universal Design principles – thus demonstrating it is possible to merge aesthetics and accessibility. However, this project is often criticised as dangerous for both disabled and non-disabled users.

Beyond conventional aesthetic priorities, barrier-free design is widely believed to increase cost but not profit. Among the costs related to accessibility features which are considered a burden are sloped surfaces, wide corridors, and appropriate furnishings and materials. Time spent attempting to meet highly innovative aesthetic expectations also increases cost – such projects are often time-consuming during both the design and construction process, which a competitive construction market may not support. Even when time and cost are not an issue, disability remains a widely avoided topic compared to other disadvantaged identities. As Boys (2016) observes, unlike gender, race, or sexuality, we assume disability is unable to bring any criticality or creativity to the discipline of architecture.

When lacking appropriate training, spatial designers rely mostly on basic accessibility standards and rarely go beyond minimum legislated practices. Furthermore, surveys show that architects often stereotype individuals with disabilities as only those who are wheelchair-dependent, failing to provide design solutions and adaptive environments for a multiplicity of physical and cognitive impairments (Imrie and Hall, 2001, p.96-97, 143). Despite initial moves in the 1960s in the US, UK, and Sweden to redesign architecture education to include more inclusive design solutions, today's academic and design communities remain unmotivated to provide dignified solutions for the disabled population. When they do, they turn to pedagogical disability tools whereby non-disabled students use wheelchairs or blindfolds to inform their designs. These tools are criticized as inaccurate, dangerous, reductive, ineffective, and depoliticising – serving only 'to impart pity' (Imrie and Hall, 2001, p.101; Hamraie, 2017, pp.133, 209).

Access-knowledge actually involves communities from multiple scientific disciplines, including social scientists, ergonomists, human engineers, medical specialists, rehabilitation experts, product designers, and disability theorists, as well as activists and policy makers. Despite the World Health Organization adopting a biopsychosocial model of disability that views disability as arising from physical, emotional, and environmental factors in 2011 (World Health Organization & World Bank, 2011), modern practitioners rarely understand that design with dignity as a fundamental criterion is necessary to achieve user equity.

Clearly, there is statutory inertia and awkwardness about the meaning or application of dignity in design. Dignity has a privileged position in the first article of the Universal Declaration of Human Rights: 'All human beings are born free and equal in dignity and rights.' However, in the rest of the document, dignity is mentioned only twice and then but briefly (Mann, 1998, p.31). It was only in 1990 that the United States, where modern discussions about disability began as early as the 1950s, adopted the pioneering Americans with Disability Act, which prohibited discrimination against individuals with disabilities in all public and private places open to the public. As far back as 1945, in the United Nations Charter and the 1948 Universal Declaration of Human Rights (UDHR), the need for dignity for all human beings was recognised. Yet, it was not until 2006 that this prohibition of discriminatory practices was adopted by the United Nations Convention on the Rights of Persons with Disabilities (CRPD), with 'respect for their inherent dignity'.

Although approaches within different cultures vary widely, societies tend to create space only for a majority user. Historic exceptions include the city of Bath, where the mobility of the infirm and elderly were considered before 1821, and the Crystal Palace, the vast glass-and-iron hall of the Great Exhibition of 1851, where wheelchair users and the elderly could easily move indoors. However, entering the building from outdoors was only via stairs – making access the product of accident rather than ambition (Guffey, 2018, pp.27-28). Recently, Stephen Hawking, prefacing the World Report on Disability, recognised how 'lucky' he was that, contrary to the majority of people who struggle with everyday survival, he lived and worked with 'comfort and dignity' in a purposefully designed and built environment.

Research has underscored a strong relationship between living arrangements and the quality of a person's life especially when they are disabled (Henning-Smith, 2015). The design of everyday surroundings, such as a person's house, workplace, and neighbourhood, has a tremendous impact on their emotional, physical, and psychological well-being. Physical environments either disable or enable: stairs and revolving doors disable; ramps and automated evolving doors enable. Rectangular rooms enable people with impaired vision, but at the same time disable sound for those with hearing impairments. I argue that design decisions based on precise accessibility criteria contribute to the creation of inclusive and just societies.

1.2. Research Rationale

Little is known about how the physical characteristics of spatial arrangements affect disability, resulting in under-theorised and under-analysed approaches across both mainstream and innovative practices in architecture. Clearly, producing spaces for dignity requires a totally new agenda.

This paper proposes public and private urban forms that are dignifying and accessible for all users. The goal is to (re)generate urban spaces so that everyone, regardless of physical or other limitations, may move through the built environment with dignity. Within this framework, I introduce an approach that integrates innovative design principles with the theory and practices of architecture and urban design. As Rosen (2012, p.4) points out, no significant area of human life – from sports to architecture, from war to sexuality – is without its attendant philosophical specialists, conferences, and journals. Yet, the lack of philosophical interest in the concept of dignity is striking. Respecting dignity requires treating people 'with dignity' and never degrading, insulting, or expressing contempt or indifference towards anyone. I advocate spaces that in no way increase physical effort or create hazards, or violate disabled individuals' dignity – all of which results in a sense of being excluded, segregated, or stigmatised.

I further argue that it is our task as designers to align our design priorities with the desires, emotions and needs of individuals both disabled and non-disabled, following Davis and Lifchez's (1987, p.49) recommendation that 'access for disabled people should be viewed not as a constraint on architectural design but as a major perceptual orientation to humanity instead'. Architecture and urban design theory and practice, viewed as 'Universal' and 'All-inclusive', have not yet been fully evaluated in terms of the way they meet, or fail to meet, the basic need for barrier-free routes from dwelling to community centre or work space. Spaces that attempt to conceive of spatial design in a way that has a positive impact on all people who enter or move through them are rare. This becomes evident in reading the 2017 Proceedings of the Association of the European Schools of Planning (AESOP) Congress, entitled 'Spaces of Dialog for Places of Dignity,' in which the words 'disability' and 'dignity' only appear on pages 7 and 27 (respectively) in a 3,328 page document. Rather than an academic endeavour, I propose meeting this challenge by asking how can we (re)design private and public spaces so that these environments assume, as a starting point, that people with disabilities are entitled to conduct their lives with dignity?

To this end, it is assumed that access-knowledge should go beyond the dichotomy of private and public urban environments to include houses, workplaces, and neighbourhoods – all of which are primary settings for people with temporary and permanent disabilities. Yet the majority of regulations control access to public buildings only, with no access controls applied to private dwellings, housing complexes, or city blocks. In the European Union, where the case study of this research is located, the existence of specific accessibility requirements and general obligations are far from universal for private housing compared to public buildings and work places. Practitioners and developers' concerns about incorporating accessibility provisions into the design of private spaces widens statutory gaps. Beyond prescriptive access solutions as a condition of funding, creative design should find new solutions for individual needs and desires that are attractive and competitive within the real estate market. This approach transcends the dilemma of aesthetics versus function, as in Rem Koolhaas's 'Maison à Bordeaux', where a 3m x 3.5m platform constitutes an open transposable room that carries the owner, who is in a wheelchair, to all levels of the house.

In this vein, I support 'out-of-the-box' design that promotes dignity. This paper investigates methods for upgrading the urban fabric to enable access to environments through regeneration or new development. With the goal of creating or regenerating the urban fabric so it can become an enabling environment, this paper identifies strengths and weaknesses of accessible private and public space used by both the permanently and temporarily disabled and the ageing population living in mass-produced built environments. Having argued that all urban spaces are primary environments in which dignity is exercised, the paper analyses urban forms at different scales – from apartment to building, city block and neighbourhood – and assigns access-based criteria. Through a case study approach in the city of Athens, where the dignity of disabled people has ubiquitously been ignored or threatened, design guidelines are presented in the hope of dignifying spaces in the manner of urban upcycling rather than mere recycling.

2. From Kaiadas to Universal Design

2.1. Disability and Dignity in a Historic Perspective

Definitions, terminology, meaning, and perceptions relating to both disability and dignity constitute an ongoing discourse, with distinct strands that have supported and contradicted each other in different historical contexts.

In ancient Greece there was no word directly translating to 'dignity', but evidence of it can be found, according to Rankine (2017, p.44), in terms of cultural standards for how 'others' (such as enemies, strangers, slaves, and beggars) were treated. Unlike today, there was no classification for 'disabled' and 'non-disabled' (Edwards, 1995, p.166). In Athens, the disabled population could provide for themselves and perform a variety of roles, and they received maintenance and pension allowances from the community (Sneed, 2018, pp.128-164). On the other hand, children with disabilities in Sparta were thrown into the abyss of Kaiadas – perhaps the reluctance to adapt a cruel metaphor for social exclusion and rejection. Being fearful was even interpreted by Spartans as a mark of disability. It is worth noticing that, according to Thucydides' discourse about the plague and civil strife, human dignity in Classical Greece was seen as a value that could easily lapse and therefore should be 'jealously guarded' (Rankine, 2017, p.45).

In Roman terms, *dignitas* initially denoted an elevated social status. Cicero's texts, in which half of the total appearances of the term *dignitas* in classical Latin are found, follow Greek Stoic teachings that human beings should see themselves as 'citizens of the world' (Rosen, 2012, p.12). Similarly, in the Renaissance, Giovanni Pico della Mirandola drew from Cicero's concept of dignity to describe human beings as free to become whatever they choose, influencing the modern concept of human rights. Thus, the ideas of dignity and self-determination evolved from an exclusive right of the few into an inclusive right of all people (Rosen, 2012, p.14-15). In contrast, on the streets of Rome, people with physical impediments did not meet the 'ideal' Roman standard for 'perfect beauty', and were therefore excluded from public space.

Human dignity was little discussed in Western Medieval literature. This is often attributed to the Christian belief that God gave greater dignity to angels than to humans after the latter's Fall from Paradise (Kent, 2017, p.95). At the beginning of the Middle Ages, the disabled were indistinguishable from the economically weak. On one hand, the fact that hunchbacks, dwarfs or others with disabilities were allowed to speak openly to rulers of European courts gave them a sort of prestige (Stiker, 1999, pp.67-70). On the other, it became commonplace to use *'idiot cages'* to keep people with disabilities out of trouble, which turned them into entertainment for pedestrians in medieval towns. As if this were not enough, in the 16th century, disabled people were viewed as deformed.

In the 17th century, by contrast, the disabled were understood to be deserving of assistance. England's Poor Law of 1601, a model also used in the American colonies established 'structures' for the disabled. Nonetheless, this ended in social stigma and alienation. Begging on the streets of Paris became outlawed in 1657 and further marginalised people with disabilities as it deprived them of an important source of income. (Albrecht et al., p.23)

One of the Enlightenment's most enduring legacies is the conviction that all people have a distinct value or dignity (Darwall, 2017, p.181). The 18th century shifted dignity from the realm of merit to that of morality. Kant described dignity in 1785 as an unconditional, incomparable, non-interchangeable value that all humans should respect. He argued that it was one's duty to treat people as 'ends in themselves', not as 'mere means', and identified autonomy as the grounds for dignity (Egonsson, 1998, p.100). Furthermore, Samuel Johnson defined equality as offering 'the same degree of dignity' to everyone (Debes, 2017, pp.6-7). Yet before the end of the 18th century, the Industrial Revolution had begun – turning cities and workplaces into hostile environments for people with impairments, leading to renewed marginalisation or institutionalised segregation. In the view of Vic Finkelstein (1981), disability was essentially a creation of industrial capitalism. On the other hand, the industrial era also prompted policy innovations and momentous changes relating to modern welfare services. These include workplace health, safety regulations, medical institutions for specific populations, trade union accident funds, and life insurance (Turner and Blackie, 2018, pp.4-5,93-128). This, in turn, led to the 20th century's de-institutionalisation, normalisation, and extended lifespans for the disabled. However, this shift did not significantly alter the attitude and practices of architects and designers.

Throughout history, then, important shifts in attitude greatly affected the conceptual basis for dignity, as well as the treatment of, and attitudes towards, the disabled. The notable shifts were from a ranking of people by status to acknowledging the intrinsic value of all human beings and that all people should be treated with respect (Rosen, 2012). Likewise, percentual models of disability have evolved from ethical (stigma) and medical (functional loss) to social (a product of a disabling environment) and geographical-geospatial (spatial exclusion) and then to bio-psycho-social (synthesis of medical and social perspectives) (Zajadacz, 2015) viewpoints. Frameworks such as the UDHR and CRPD created the grounds for the 2011 World Report on Disability, which advocated measures to improve accessibility and equal opportunity; promoted participation and inclusion; and increased respect for the autonomy and dignity of the disabled. Most countries today include the word 'dignity' in their constitutions and legislation, shifting from nomenclature such as 'handicapped' to 'a person who uses a wheelchair' – emphasising the person rather than the disability. Yet with all this, we have not changed how we design for people with disabilities. To address this lag, this research pursues a more inclusive physical form that will allow people with disabilities to live with dignity.

2.2. Accessibility Thinking: A Brief Overview of Designing for Disability

In Europe, discourse on design that accommodates disability began to emerge in the 1960s. It was at this time that disability shifted from being understood as either a physical pathology requiring a cure or a functional limitation demanding rehabilitation to a function of impairment and interactions with the environment (a construct of built and social environments) (Hamraie, 2017, pp.12, 268). Recall that a decade earlier, barrier-free advocacy was already widespread in the USA.

Two ideological approaches to disablement arose: self-help in the United States and social welfare in Europe. Tim Nugent, the 'Father of Accessibility', argued for helping disabled people help themselves, while Selwyn Goldsmith, an architect suffering from polio and a principal theorist of disability design in the United Kingdom, insisted that society should help and protect its weaker members. In Nugent's scheme, the integration between disabled persons and the world around them should be seamless, as he advocated not drawing attention to disability. In Goldsmiths' conception, special features for disabled people should not be hidden or denied. On the contrary, attention should be drawn to them. He argued for separate but equal facilities for disabled people and advocated 'positive discrimination'. (Guffey, pp.67-86, 95-108)

Subsequently, the need to increase accessibility and equal opportunities gained wider recognition. Ronald Mace coined the term 'Universal Design' to describe the design of products and environments usable by all people without the need for adaptative or specialised design. Although based on the concept of Barrier-free Design, he argued that what can be barrier-free for one person can be a barrier for someone else. Initially concerned with defining users and disseminating new access-knowledge, Universal Design has emphasised project/product evaluation at all scales (Mace, 1985, pp.147-52; Hamraie, 2017, p.226-250). Further shifts include 'Accessible Design' broadening the notion of standard design so as to include people with some types of performance limitations; 'Design for All', a holistic approach that aims to enable all people to have equal opportunities to participate in every aspect of society; 'Inclusive Design', an evolving philosophy emphasising a heightened understanding of individuals-with- disabilities' requirements, desires, and expectations (Persson et al., 2014).

Since no single theory explains all the complexities of human-environment relationships, a synthesis of multiple theories is required (Webb et al., 2011). Within this framework, this research recognises that some disabilities can be accommodated through permanent spatial devices and modifications, while others can be better accommodated through portable technologies and gadgets (e.g. hearing aids, prosthetic devices). The research will focus on permanent spatial devices at architectural and urban levels.

3. Research Method

The present research conducts a case study analysis and evaluation in order to acquire access-knowledge towards rehabilitative interventions in private and public urban space.

Dignity is usually violated due to an asymmetrical prevalence of interest or benefit (Jacobsen et al., 2009). I selected contemporary Athens as a setting in which dignity is neglected due to land speculation precedents, petty interests, non-implementation of rules, and faulty design accentuated by the recent economic and social crises. As a result, common good and disability rights have been ignored, creating an exclusive and disabling urban environment.

To reverse this trend, I adopt a knowledge-based framework, 'Morphology-Operation-Performance' (MOP), based on values of inclusion and dignity. Evaluating physical artefacts, including built objects, this framework analyses and represents knowledge about how they are made (Morphology), how they work (Operation), and what benefits or impacts these buildings create for people (Performance). Initially developed within the domain of architectural design at Harvard (Tzonis, 1992), MOP later expanded to urban design and planning due to its generic knowledge representation (Rodi, 2008). Within this framework, this research identifies, describes, and explains conditions of Athenian spaces (Morphology) that constrain conditions of access (Operation), and in turn constrain the possibility for an inclusive environment that promotes dignity (Performance). Knowledge is gained through a targeted typo-morphological analysis of Athens' urban fabric. Based on inclusion and dignity values, and following the backward chaining of 'Performance-Operation-Morphology' (POM) (prescription), design guidelines leading to regenerated urban spaces are developed (Table 1).

My research focuses on the private and public built environments of homes and neighbourhoods, where I establish the essential basis on which a person with disabilities is able to manage everyday activities independently, safely, and with contentment. Through the subsequent scales of apartment, building, city-block, and neighbourhood, it explores the typo-morphological features connecting spaces – ranging from intimate (e.g. bathrooms), private (e.g. bedrooms) semi-private (e.g. living rooms), shared and common areas of buildings (e.g. staircase landings), semi-public ones (e.g. building entrance) and, finally, to public spaces (e.g. street, neighbourhood).

Table 1: Forward and Backward Chaining of 'Morphology-Operation-Performance' Framework for Regenerating Space

POM: Knowledge-based chaining (description/explanation)

Performance		**Operation**		**Morphology**
Wh eelchair-user cannot enter the building (user is excluded: non-dignifying space)		Wheelchairs cannot climb the stairs. (no access)		Building entrance with stairs (barrier)

Using *dignity*-based criteria

MOP: Prescriptive chaining (prescription for the ideal)

New Performance (desired)		**New Operation (desired)**		**New Morphology (desired)**
Wheelchair-user enter the building (user is included: dignifying space)		Wheelchairs can enter through ramp (access)		Building entrance with ramp (no-barrier)

In order to identify the conditions that enable urban forms, I select types of urban fabric and apartment buildings in Athens as case studies. The following selection procedure is applied:

- Sixteen particular neighbourhoods (eight in central Athens and eight on the periphery) were identified as complying with the following criteria: (i) street pattern typologies; (ii) predominantly residential use; (iii) diverse population densities; and (iv) diverse socio-economic characteristics. The selection process included the 'scanning' of maps, evaluation of statistical data, site visits, and surveys. The study areas are in the form of either a 750m x 750m square or a 400m-diameter circle.

- Apartment building typologies in a typical city block were identified as complying with the following criteria: (i) construction from 1917 to date, and of the predominant architectural style; (ii) in relation to Building Codes of the years 1929, 1955, 1973, 1985, and 2000; (iii) diverse sizes; and (iv) diverse socio-economic characteristics. The process included archival and source research, site visits and evaluations, and surveys of twenty apartment buildings and one office building constituting a city block (CB).

The typo-morphological features of the selected cases (Morphology) permitting, establishing or eliminating accessibility (Operation) were identified and analysed in order to evaluate inclusion or exclusion (Performance). However, this alone may not capture disabled people's overall perception and experience of apartment buildings and public open spaces that impact their dignity. Therefore, I introduce ten access-based criteria either drawn from the context of contemporary urban theory and literature on inclusion and dignity (Egonsson, 1998; Herwig, 2008; Preiser and Smith, 2011), or developed within the framework of this research in order to evaluate private and urban spaces in the case studies. The criteria are as follows: adaptability, aesthetics, autonomy, efficiency, equitability, flexibility, perception, privacy, safety and social interaction.

4. Athens, a Case to Apply Dignity

In 348 BC, in his judicial oration *Against Meidias* (21.221-225), Demosthenes described a public realm where the individual citizen could walk with his head held high, without worrying about threats to his dignity. In his endeavour to actively defend and establish civic dignity in Athens, he intuitively established walking in public space as the action of and locus for practising dignity. Much earlier, according to Panetsos (1997, pp.64-65), Theseus, the legendary hero of Athens, united various townships into an administrative entity (the Greek word Athēnai was plural because the city had several distinct parts). Panetsos asked, 'should we perhaps again create many Athēnai, respect particularity, recognise individuality, accept diversity, ensure the possibility of choice, permit a comparison between equally valuable but different pieces of the city?'

Walking in today's Athens contrasts sharply with the conditions of the polis envisioned by Demosthenes. Because the public realm can be physically and emotionally challenging, disabled citizens in Athens are all but excluded. Narrow pavements with obstacles, faulty construction, and poor maintenance of paving and ramps, open gutters, an absence of a system at crossings for the hearing impaired, and dysfunctional parking make the outdoors hostile and dangerous (Figure 1). Indoor spaces are also unwelcoming and oppressive. They feature stairs to the entrance of apartment buildings, substandard corridors, lifts, and clearances with restricted access. Austerity measures and the ongoing social crisis have added to this deterioration due to both inadequate maintenance and vandalism.

Beyond the disabled, the percentage of seniors within the Athenian population is currently increasing faster than before due to longer life expectancy, low birth rates, and emigration. It is predicted that one in every three residents will be over 65 by 2050. Because strong family ties in Greek society keep the elderly within the family home, rather than care homes, the existing built environment will become increasingly unable to accommodate users with temporary or permanent disabilities.

4.1. The Formation of a Disabling Urban Fabric

Within a period of almost two centuries, modern Athens has developed from a small town to a diffused metropolis. The city has taken shape without the long processes of evolution that other European cities have experienced (Panetsos, 1996), with the administration failing to enforce regulation or prioritise common good over individual or speculative interests. The very concept of planning was undermined as soon as the first city plan was created by private speculation and petty interests (Tzonis and Rodi, 2013). This shaped a sub-standard and discriminatory urban environment with narrow streets, small city blocks, and a lack of public open spaces.

Figure 1 - Obstacles on Guiding Tiles for the Visually Impaired Pedestrians in Athens.
Available from: https://www.instahu.net/p/1989283743461883459 [Accessed, 29 April 2019]

Today, central Athens is an aggregation of repetitive apartment buildings, the *Polykatoikias*, introduced in the early 20th century. They grew thanks to a quid pro quo system (*antiparochi*) based on private initiative and interpersonal relations, a process that affronts participatory design. A version of the Corbusian Domino (1914), *Polykatoikias* were adopted on a mass scale due to their ease of construction, low cost, density on small building plots, long life expectancy, and design/use flexibility. It provided fast-track solutions to housing problems and minimised the need for social welfare programmes – thus eliminating protests advocating for working-class housing.

As a mass-marketed residential product, the polykatoikias reflected a desire for better living standards paired with economic potential. Although intended for the average user and based on the Modernist concept of *Existenzminimum* – another word for a subsistence dwelling with minimally-acceptable floor space and considerable density – it proved flexible to mixed use; accommodating the diverse activities of different users independent of professional and economic situation, lifestyle, individual challenges, origin, or status.

Overall, this housing solution has been resilient because the apartments themselves are flexible enough to serve this relatively diverse population with different needs (Rodi, 2018). However, the very concepts of *Existenzminimum* and 'average user' largely exclude people with disabilities. Furthermore, the polykatoikias have become run-down due to physical aging, a lack of maintenance, outdated amenities, and abandonment by their original tenants. Furthermore, the dominant presence of cars in neighbourhoods, unstructured parking on pavements and pedestrian streets, and a lack of (or vandalised) signage – including that related to disability – have produced a discriminatory urban environment. Quite clearly, this degraded and degrading situation calls for ideological revision and physical transformation.

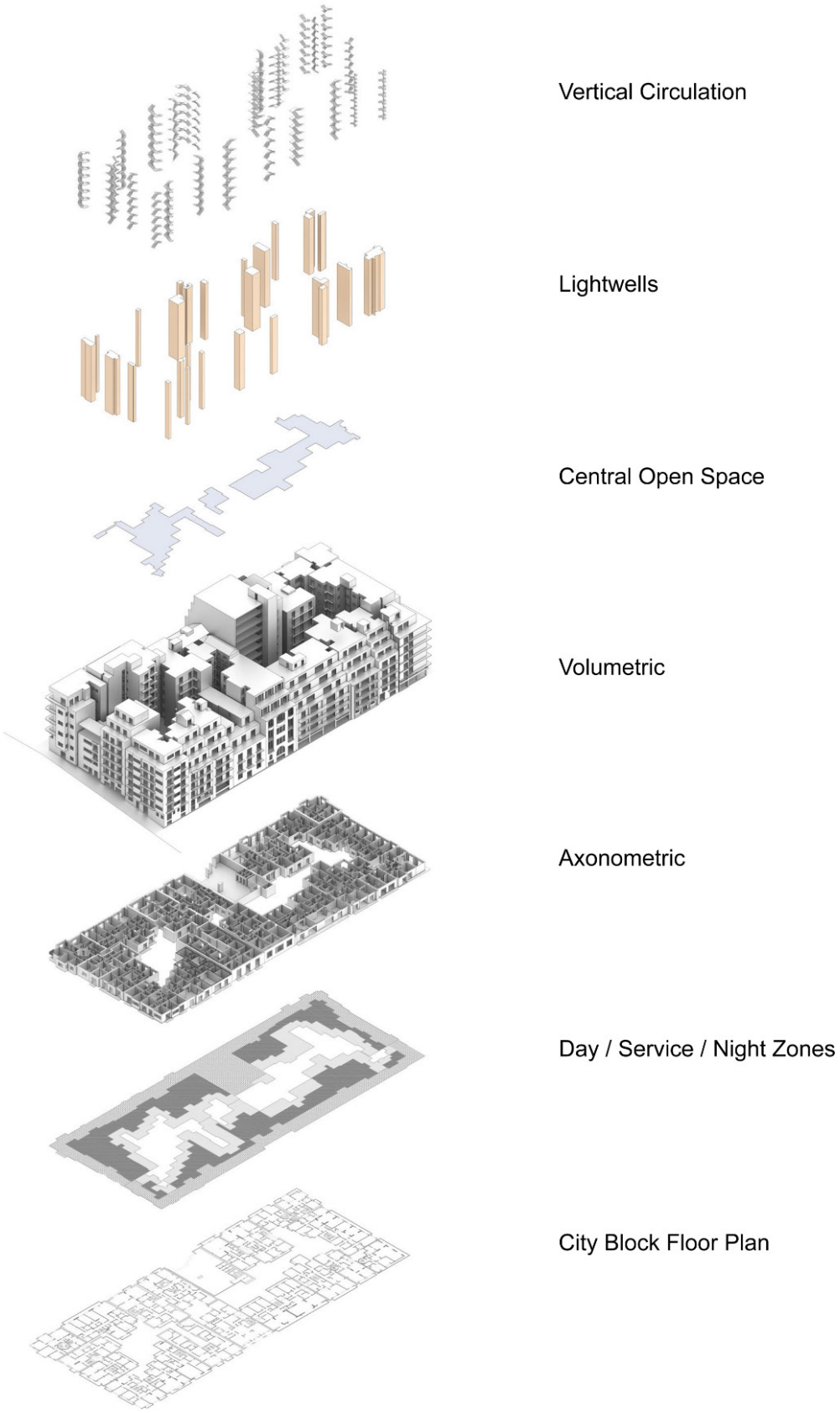


Figure 2 - City Block #3911, Kolonaki, Athens, Greece

Since massive demolition and rebuilding are not realistic options (Rodi, 2008), redesign at all scales, from the apartment to the neighbourhood, targeted to the needs of people with diverse bodies and abilities, constitutes the focus of this research.

4.2. From Private to Public: A Territorial Continuum

The existing territorial depth of the Athenian built fabric provides a continuous and gradual transition from public to private, allowing for various levels of privacy and intimacy for disabled residents as well as multiple opportunities for interaction with family and community (Tables 2-3).

Apartment buildings and streets, and private and public spaces, are closely interwoven, with building façades forming the street edge. In contrast, social interaction decreases in suburban environments where street walls are 'dissolved' and front gardens lie between streets and houses. Anomalies to the continuous territorial depth are the polykatoikias' backyards – common spaces totally separated from the street – and front balconies, private spaces hovering over the public realm. In back yards, disabled residents may enjoy privacy, safety and social interactions with neighbours. On balconies, residents acquire a better visual perception of street and neighbourhood life, without even exiting their apartments.

Table 2: Territorial Structure of the Athenian Fabric Based on Accessibility

Neighbourhood street network	Street	Sidewalk	Building entrance	Lobby	Staircase/Elevator	Back yard*	Stair landing	Roof*	Hall	Living room	Balcony*	Dining room	Kitchen	Bedroom	Bathroom
public ..... private															

Table 3: Territorial Structure of the Athenian Fabric Based on Visibility

Neighbourhood street network	Street	Sidewalk	Building entrance	Balcony*	Lobby	Staircase/Elevator	Stair landing	Hall	Living room	Dining room	Kitchen	Bedroom	Bathroom	Back yard*	Roof*
public ..... private															

*Asterisks denote anomalies in ranking

This spatial/territorial 'advantage' is, however, invalidated by various obstacles, grade differences, inadequate dimensioning and interior layouts, and the presence of steps at the threshold between the pavement and polykatoikia entrances. The buildings' back yards within city blocks are rarely unified into an integrated outdoor space for social interactions and recreation, despite various incentives. Furthermore, Athenians today prefer to stay in their private, air-conditioned apartments rather than relax on balconies – a practice which was common in the past and afforded verbal and visual communication between neighbours.

4.2.1. On Private Space (Apartments, Buildings, City Blocks)

The greatest part of Athens' private space is confined within city blocks, consisting of small lots, where 6- to 7-storey polykatoikias are arranged contiguously along the edges of streets (Figure 3). Backyards aggregate into an irregularly shaped open space in the centre of blocks. My research on the polykatoikia's typo-morphological elements captures differentiations and similarities across the building type's evolution (Rodi, 2008). A comparative analysis of building and apartment plans, room shapes and sizes, access and circulation graphs, and space syntaxes have informed my quantitative and qualitative diagrams. Polykatoikias dating from before and after World War II can be distinguished.

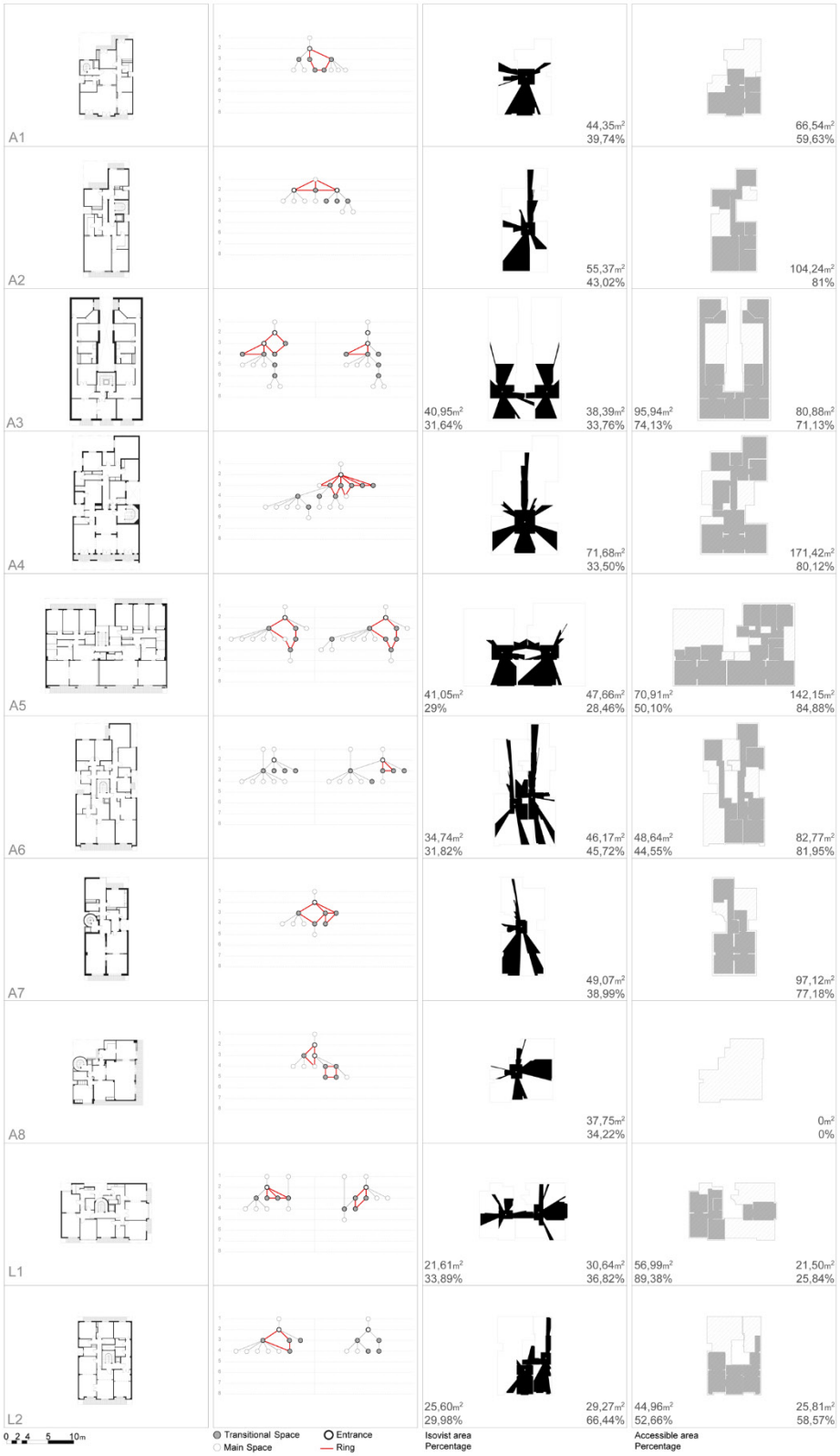
City Block 3911 (Figure 2) is composed of eight apartment buildings from the 1930-1938 period, and twelve apartment buildings and one office building from the 1955-1989 period.

Precedents of the polykatoikia can be found in the European, primarily French, apartment building type. Following Julien Guadet's codification (1902), apartment layouts, irrespective of the period and building code, are separated into three zones: day-zone (living rooms, dining rooms); night-zone (bedrooms); and service-zone (kitchen, bathrooms, halls, corridors, service rooms). The same zoning is found at the city block scale. Regardless of sunlight considerations, daytime rooms are oriented towards the street, night-time rooms towards the centre of city blocks, and service areas in-between (Figure 2. Day/Service/Night). The socio-economic status of polykatoikia residents broadened from the bourgeoisie in the pre-WWII period to lower classes post-WWII. Improved contemporary amenities, such as lifts and centralised services were provided. However, apartments and individual spaces shrank, ceiling heights were lowered, and corridors narrowed in compliance with modernist standards. Following WWII, live-in personnel were replaced by weekly service cleaners, and new social habits and forms of families, households, and living arrangements emerged. These social changes minimised service areas and brought day and night zones closer together, facilitating in-house mobility.

Evaluating residential space in Athenian city blocks on the basis of inclusion and dignity-related criteria, I find that the polykatoikias, and typical city blocks, constitute either enabling or disabling environments. Front daytime rooms, as well as balconies, afford views of public space and adjacent buildings, interaction with neighbours, and street life perspective. Windows, doors and balconies increase residents' visual connection to public activities, and opportunities to see and be seen. Night zones in the back of buildings create privacy and quietude (Figure 3 isovists and ratios). Although in-between service and circulation areas allow for efficient navigation between serving and served apartment spaces, the width of corridors and doors do not always permit disabled access (Figure 3 accessible apartment area). The same applies to bathrooms and kitchens, where swinging doors and inadequate space restricts wheelchair movement and manoeuvring.

Entry areas from the street to apartments can create opportunities for face-to-face contact between passers-by and residents. Lobbies, landings, and other common areas can foster encounters and encourage social interaction. While the polykatoikias address access issues with lifts, landings do not always comply with dimension specifications for wheelchair manoeuvring. Furthermore, flights of steps between entrances and lifts, and stepped thresholds to the pavement, restrict disabled residents' passage (Figure 4). Duplex and split-level apartments do not exist in CB3911; they generally constitute exceptions.

The Domino-like system allows flexibility and adaptability in the polykatoikias. However, not all layouts are sensitive to the concerns of the disabled. This research finds that the pre-WWII apartments are easier to adapt for persons with disabilities due to the number and size of the rooms, while 1970s apartments require more changes. Minimum dimensions for rooms suggest a reconfiguration of layouts through demolition. Newly built apartments need few adjustments due to open-plan layouts, round-like circulation paths, and shallow space syntaxes (for space syntax theory see Hiller and Hanson, 1984). Short corridors increase mobility efficiency and improve autonomy. The dominance of linear-type space syntaxes dictates disabled individuals' move along the same route (Figure 3 accessible areas and ratios in apartments).


A1
44,35m²
39,74%
66,54m²
59,63%
A2
55,37m²
43,02%
104,24m²
81%
A3
40,95m²
31,64%
38,39m²
33,76%
95,94m²
74,13%
80,88m²
71,13%
A4
71,68m²
33,50%
171,42m²
80,12%
A5
41,05m²
29%
47,66m²
28,46%
70,91m²
50,10%
142,15m²
84,88%
A6
34,74m²
31,82%
46,17m²
45,72%
48,64m²
44,55%
82,77m²
81,95%
A7
49,07m²
38,99%
97,12m²
77,18%
A8
37,75m²
34,22%
0m²
0%
L1
21,61m²
33,89%
30,64m²
36,82%
56,99m²
89,38%
21,50m²
25,84%
L2
25,60m²
29,98%
29,27m²
66,44%
44,96m²
52,66%
25,81m²
58,57%
0 2 4 5 10m
Transitional Space
Main Space
Entrance
Ring
Isovist area
Percentage
Accessible area
Percentage

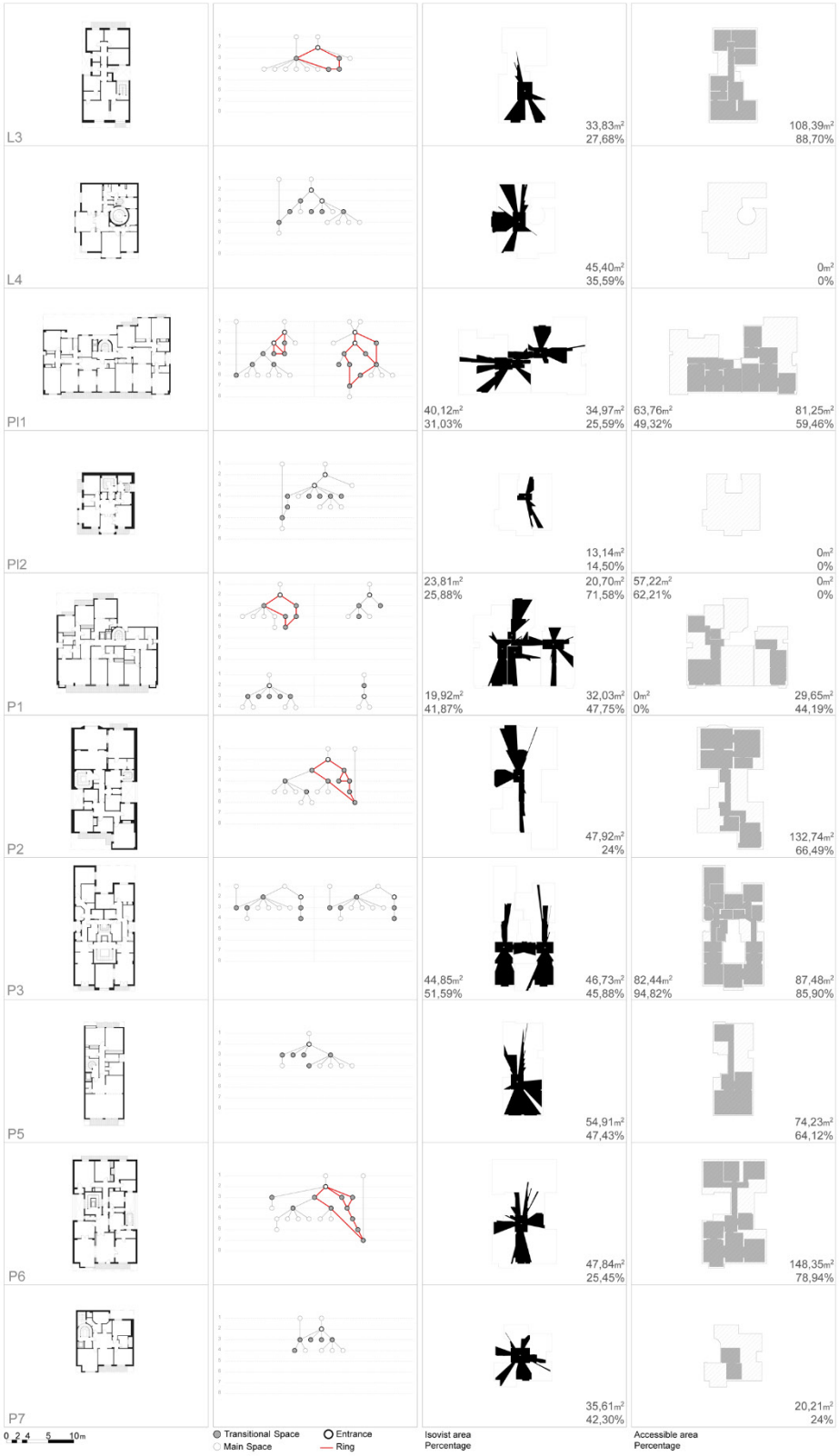


Figure 3 - Comparative Floor Plans, Space Syntaxes and Depths, Isovists and Ratios, and Wheelchair Accessible Areas and Ratios in CB#3911 Apartment Buildings

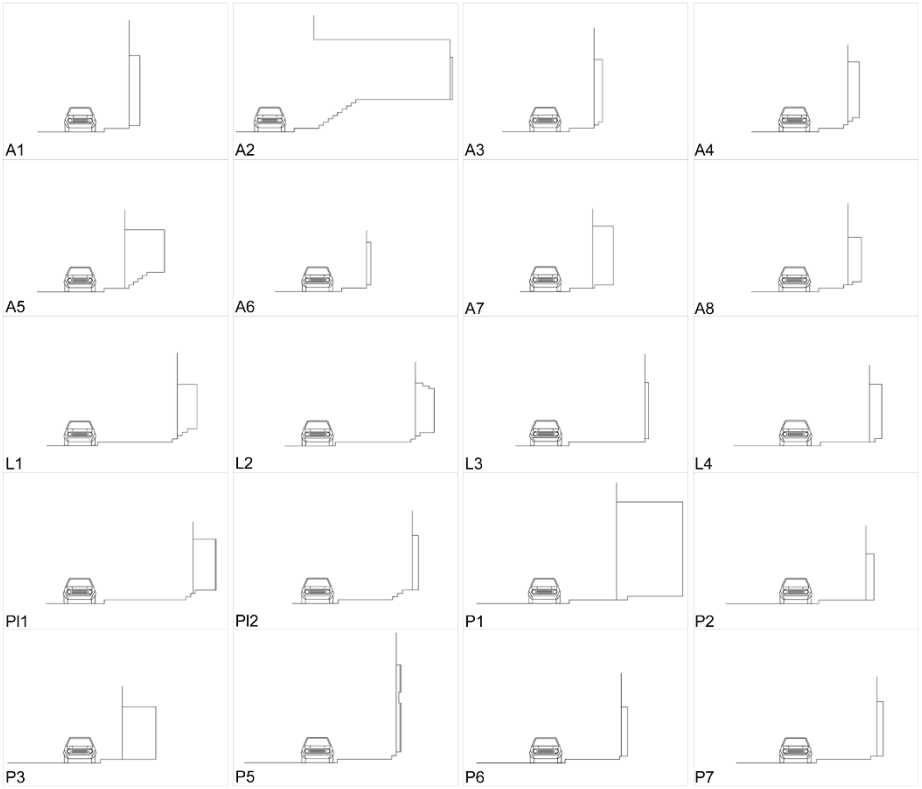


Figure 4 - Comparative Sections of Polykatoikia Entrance Thresholds

4.2.2. On Public Space (Streets, Neighbourhoods)

In eight central neighbourhoods in Athens (Figure 5, rows one to eight) and eight peripheral neighbourhoods (Figure 5, rows nine to sixteen), I have assessed street patterns and street lengths, including dead-ends. Pedestrian experiences differ substantially across street patterns (Rodi, 2013). Areas developed on highly sloping sites, and new developments, possess shorter street lengths. Hilly areas and short total street lengths require more physical effort and reduce autonomy (Figure 5b).

The increased number of intersections (Figure 5d) provides many alternative routes for disabled people, but also increased danger of traffic accidents. Organically developed areas with irregular street patterns, as well as rectangular street patterns and short city blocks, have numerous intersections, where the repetitive nature of the grid improves perception and may facilitate orientation albeit involving frequent manoeuvring.

Numerous entry points into areas (Figure 5e) increase connectivity to the surroundings. Most dead-end streets are to be found in urban developments along arterials (Figure 5d, third column, ninth row). Designed neighbourhoods do not have dead-ends. Dead-end streets (Figure 5c) hamper circulation through the area and, therefore, reduce through traffic. This contributes to disabled people's safety and privacy, by decreasing chances for spontaneous social interaction.

Historic urban and peripheral areas have the highest number of city blocks, which prevent the disabled from moving efficiently from place to place along a choice of alternative routes. On the other hand, numerous small city blocks, as in historic peripheral settlements and central urban areas of Athens, shorten walks, allowing people to zig zag through. Contrary to the rectangular designs, irregularly shaped blocks may confuse people with learning problems, especially non-residents.

Alternative routes connecting two diametrically opposed points on a notional circle of a 200m-radius are also compared (Figure 6). A neighbourhood with alternative routes may provide different options for the disabled population. The large number of intersections in organic street patterns result in almost twice as many

alternative routes as in gridded patterns, even though they are similar in total length. Short city blocks create more alternative routes, thus increasing flexibility and autonomy for the disabled.

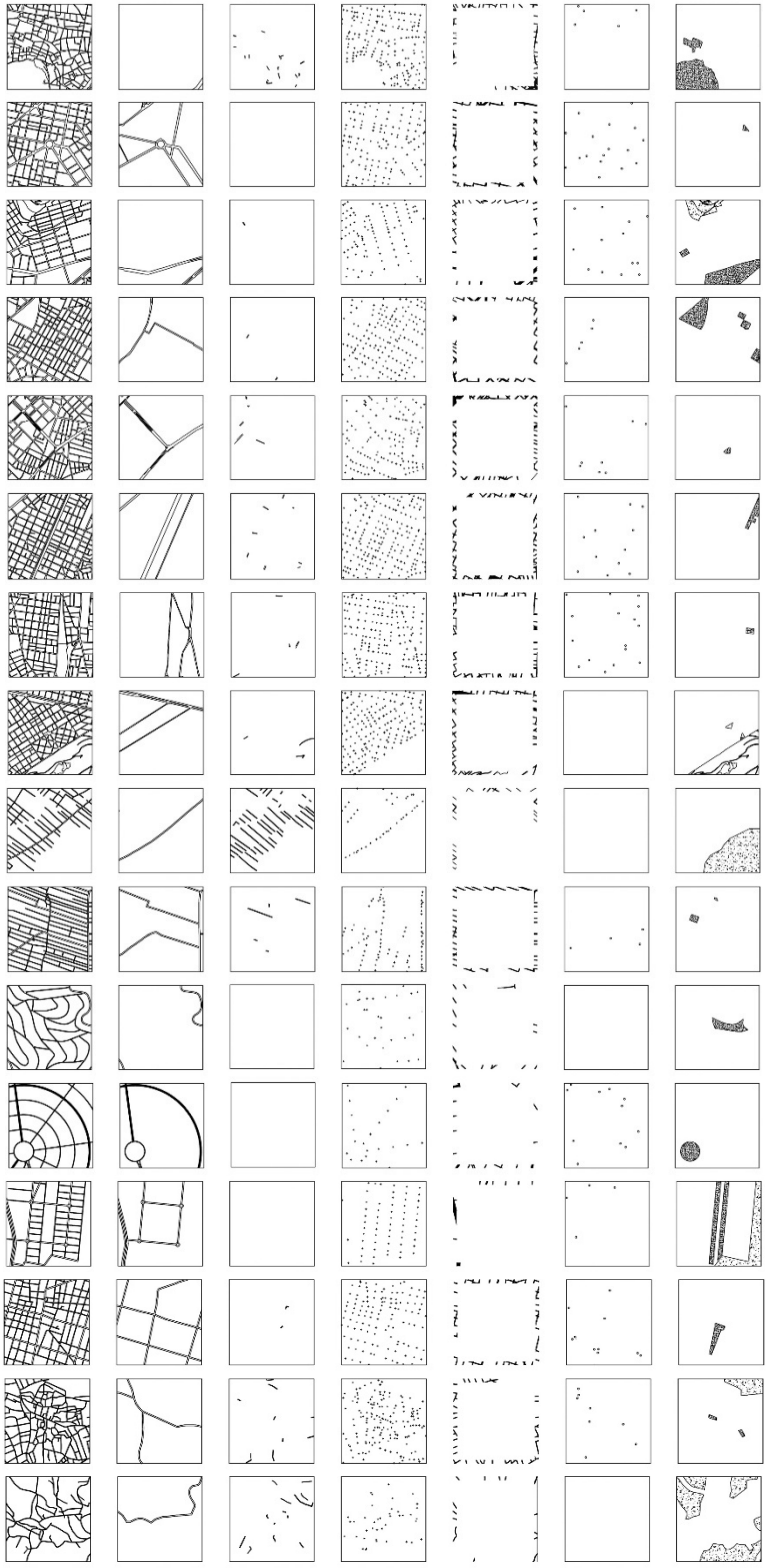


Figure 5 - Comparison of Central (rows one to eight) and Peripheral (rows nine to sixteen) Neighbourhood Cases (750m X 750m). From left to right: (a) Street pattern, (b) main streets, (c) dead-end streets, (d) street intersections, (e) entrances to areas, (f) bus stops, (g) green areas

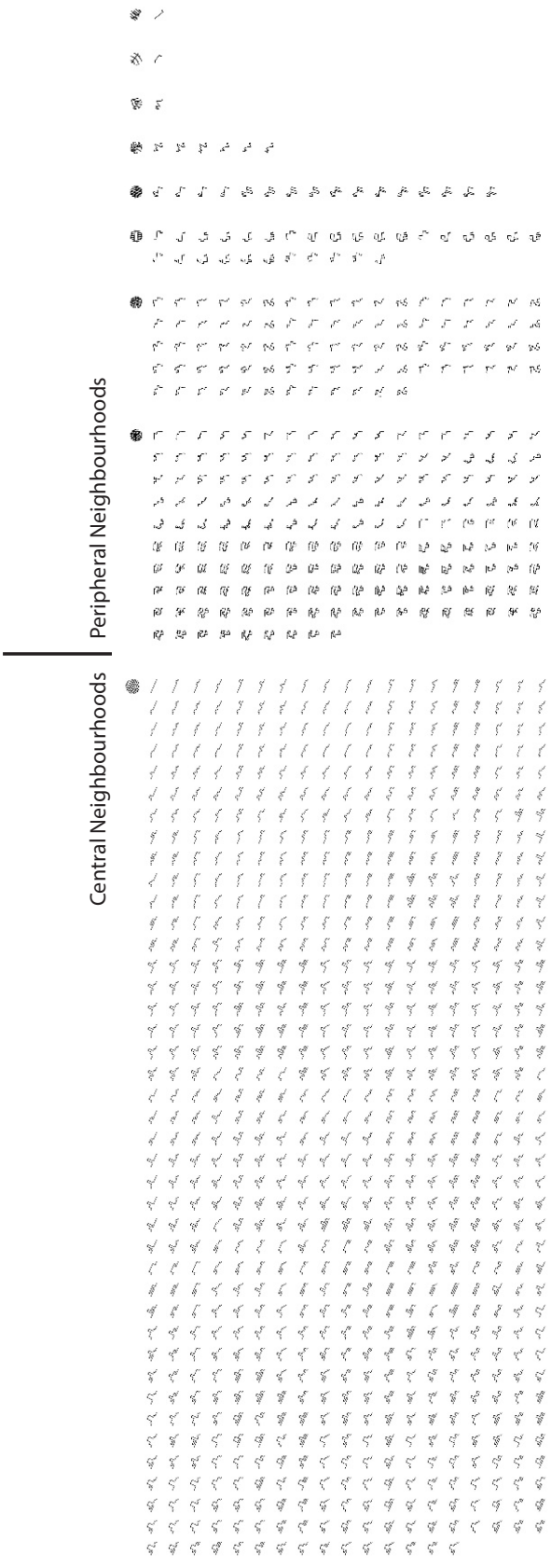


Figure 6 - Alternative Routes Connecting Two Diametrically Opposed Points on a Notional Circle of a 200m-radius in Peripheral (Eight) and Central (One) Neighbourhoods
(As shown, the number of alternative routes may range from one to 174 in peripheral areas, while in only one central area is 775.)

Accidents are more frequent at crossings, which may lead to reduced mobility and decisions to stay at home. I show the number and frequency of crossings, the size and shape of blocks and the area travelled for destinations to be reached safely (Figure 7). A high Safe Access Ratio is achieved when large areas can be traversed with minimum street crossings. High on the list are neighbourhoods with large city blocks.

Archaeological areas, natural enclaves, and busy arteries generally create circulation barriers and hamper accessibility. Peri-urban developments are poorly connected to other locations, thus diminishing accessibility. This, in turn, can affect disabled people's sociability and willingness to go out. In contrast, neighbourhood parks and squares may increase social interaction, particularly for people with diverse mobility alternatives (Figure 5g).

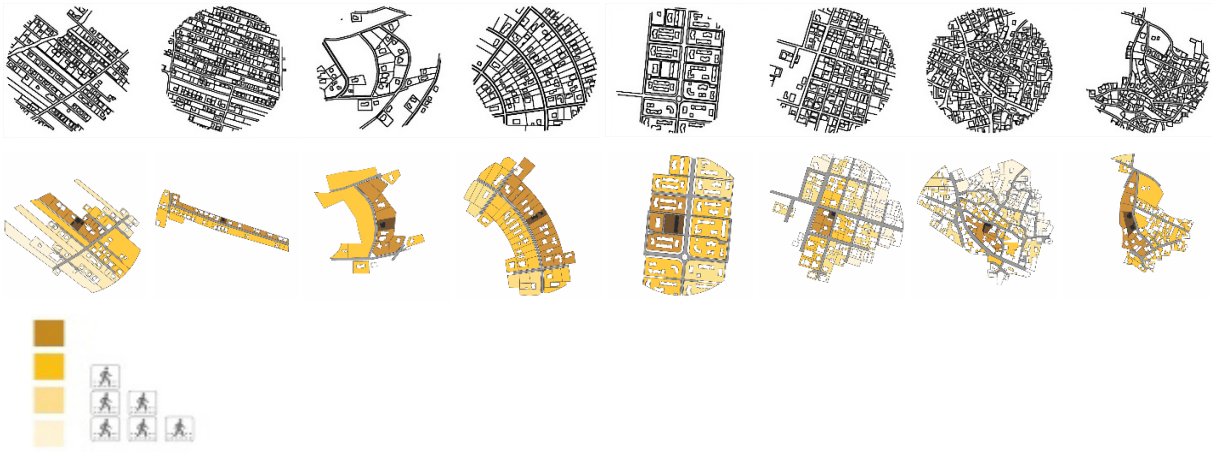


Figure 7 - Areas in Peripheral Neighbourhoods within a 200m Travelling Distance from One's Home Accessed with Zero to Three Pedestrian Crossings
(Crossings reduce safety, especially for disabled.)

4.3. Proposals: Towards an 'Enabling' Environment

Using a prescriptive chain of performance-operation-morphology, I develop a new set of design guidelines and actions beyond accessibility regulations and the public-private dichotomy. These include:

Neighbourhood level:

- Expanded pedestrian networks.
- Improved neighbourhood connectivity and accessibility through additional pathways.
- Restored or improved continuity of private-public spaces.
- Specialised infrastructure for the disabled e.g. rehabilitation centres, activity hubs.

City block level:

- Unified courtyards within each block.
- Interconnected and programmed flat roofs.
- Shared circulation networks and services rather than individual ones in each building.
- Specialised spaces for fitness and interaction, such as pools and gyms.

Apartment building level:

- Interconnected spaces within one or adjacent buildings so as to achieve enabling spaces.
- Lift installation as additions or within existing shafts.
- Disabled parking on accessible ground floors and basements in buildings.
- Fully accessible entrances through modifications of apartment buildings.

- Landings accommodating wheelchairs and elderly seating.
- New social spaces in lobbies, on roofs, and in added rooms.
- Enhanced stairs through high-contrast materials and markings.
- Changing the floor plan to install a lift because the majority of the elevators in the city blocks' buildings do not have enough space to comply with the required dimensions for wheelchair users.

Apartment level:

- Redesigned layouts for proximity, accessibility, adaptability, and easy care for the disabled and the elderly – including divisions or merging of apartment units.
- Redesigned circulation through the transformation of existing space syntaxes from fan- to ring-like.
- Replacement of dysfunctional building elements such as swinging doors and bathtubs.
- Removal of potential hazards – such as overhangs (for the visually impaired) and slippery surfaces.
- Provision of private spaces for helping personnel.

All of the above invite creative design responses and call for improved aesthetics.

5. Conclusions

The exclusion of disabled individuals from many facets of the built environment is an urgent problem in Athens. Spatial components are major determinants of whether the mobility of people with temporary or permanent disabilities is enabled or restricted; and, as demonstrated by this research, these spatial components are not yet recognised as also enhancing or threatening their dignity.

In terms of urban components at the scales of apartment, building, city block, and neighbourhood, this research has examined factors in Athens that promote dignity and access for all people: adaptability, aesthetics, autonomy, efficiency, equitability, flexibility, perception, privacy, safety and social interaction. Still, it is evident that a large-scale transformation of public space is not yet taking place. A product of architectural modernism that addressed only the needs of the 'average user', the polykatoikia model is flexible enough to have evolved according to these users' needs – regardless of social status or economic and political fluctuations – so it is now time to serve the city's disabled population.

The methods and findings of this research can be used by planners, designers, developers, and policy makers – in cooperation with disability medical experts and activists – to analyse, evaluate, design, and regenerate new and existing disability concepts, strategies, and projects. In this way, the urban form of Athens can develop into an enabling environment where people with diverse bodies and abilities can live in dignity. It is time for urban planning, and design theory and practice, to creatively ascribe to considerations of dignity and access in all urban forms regardless of scale and status. In the pursuit of access-knowledge, finer scales (furniture and appliances), and coarser ones (city, region, state) should also be explored, with a consideration of the cultural, legal, political, societal, and economic dimensions of cities.

Deterministic architectural assumptions about how spatial transformations relate to the behaviour of the disabled population are hereby challenged. Architecture and changes to the built environment cannot fully transcend or override conditions or mental or emotional states; but it is imperative that research and access-knowledge re-aligns spatial design and technological innovations in response to the needs of this under-considered community. Indeed, smart technologies have attempted to provide comfort and ensure community participation. Smart glasses, for example, help blind people navigate through space in real-time, smart bracelets help the visually impaired to keep track of personal objects. However, wheelchairs still cannot fully deploy their potential in most environments due to a lack of physical capacity. Beyond accessibility standards, it is urgent that spatial designers incorporate or build into the built environment a compatibility with assistive technologies and home automation.

This paper frames design for disability as fundamentally a dignity issue. Just as alphabet systems for the blind were based on raised Roman letters – an alphabet for the sighted – design for accessibility is presently

configured as merely adapting the spaces of the 'universal user' for the disabled. Instead, design for dignity requires a new paradigm which is not about accommodating but actually designing spaces for disabled people. In future, our biggest challenge is to design solutions that are user-centred (for those physically and otherwise challenged), instead of using the non-disabled population as a baseline for what is acceptable or normal, and adapting it. The current discourse, knowledge, and practice of architecture and urban design should be re-directed towards a just and noble mission: the transformation of Athens, and the world at large, into a dignified place for all.

Acknowledgments

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