Embedding Accessibility into National Building Regulations: The Omani Building Code Experience

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Abstract - **Accessibility in the built environment is widely recognized as a fundamental component of inclusive, safe, and sustainable environments. However, in many national contexts, accessibility principles are still not translated into enforceable regulatory frameworks. This paper examines how accessibility has been embedded within the recently adopted Omani Building Code (OBC) as part of a unified national regulatory system. Using a qualitative, policy-oriented case study approach, the analysis focuses on the structure of the accessibility framework, its integration across related regulatory provisions, and the phased enforcement strategy supporting implementation. The paper argues that the OBC represents a structured regulatory model that transforms accessibility from voluntary design consideration into a legal obligation. It identifies three key features of this model: a dedicated accessibility chapter, alignment with international technical standards, and a gradual transition toward mandatory enforcement. The Omani experience offers transferable policy insights for Gulf countries and other developing contexts seeking to institutionalize accessibility through clear, enforceable, and adaptable building regulations.**

Keywords - Accessibility; Universal Design; Building Regulations; Policy Framework; Built Environment; Phased Implementation; Gulf Countries.

I. INTRODUCTION

Accessibility in the built environment is widely recognized as a foundational element of inclusive and sustainable development. It enables persons with disabilities, older persons, and individuals with diverse mobility needs to access buildings, public spaces, and services safely and independently [1][2]. Beyond its social dimension, accessibility also contributes to usability, safety, and resilience of the built environment for all users [1]. Despite this broad recognition, accessibility remains unevenly realized across many national contexts, particularly where regulatory frameworks lack clear, enforceable requirements and consistent implementation mechanisms [3].

At the urban scale, universal design is increasingly framed as a guiding principle for inclusive cities, where access to the built environment is understood not as a specialized feature, but as a core requirement for equitable participation in daily life [4].

However, in many countries, accessibility has traditionally been addressed through voluntary guidelines, design manuals, or sector-specific policies. While such instruments play an important role in raising awareness and providing technical guidance, they often lack the legal authority necessary to ensure consistent application [3]. As a result, accessibility may be treated as an optional design consideration, vulnerable to budget constraints, time pressures, or subjective interpretation during project delivery. This gap between policy intent and regulatory enforcement continues to limit the effectiveness of accessibility initiatives worldwide [3].

Building regulations offer a powerful mechanism for translating accessibility principles into enforceable practice. As legally binding instruments, building codes shape design decisions, approval processes, and construction outcomes across both public and private sectors. When accessibility is embedded within a national building code, it becomes an institutional obligation rather than an act of goodwill. This regulatory positioning is particularly significant in rapidly urbanizing and developing contexts, where large-scale construction provides a critical opportunity to mainstream inclusive design from the outset [3].

The Sultanate of Oman has recently adopted a unified national building code that explicitly addresses accessibility within its regulatory framework. The Omani Building Code (OBC) introduces a dedicated accessibility chapter, integrates accessibility across multiple regulatory provisions, and is supported by a structured phased enforcement strategy [5][6]. Rather than focusing on post-occupancy evaluation or technological interventions, the OBC emphasizes regulatory clarity, institutional coordination, and gradual enforcement as the basis for sustainable implementation.

This paper presents the Omani experience as a policy-oriented case study, examining how accessibility can be embedded within national building regulations through regulatory design rather than isolated technical measures. The paper argues that this approach provides a structured model for transforming accessibility from a voluntary design consideration into an enforceable regulatory requirement. It focuses on the structure of the accessibility framework within the OBC, its integration across related regulatory domains, and the rationale behind its phased enforcement strategy.

The remainder of this paper is organized as follows. Section II discusses the role of building regulations in accessibility governance. Section III outlines the methodological approach adopted in this study. Section IV presents an overview of the Omani Building Code. Sections V, VI, and VII examine the accessibility framework, regulatory–technical separation, and integrated accessibility.

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Section VIII discusses the phased enforcement strategy. Section IX presents the discussion, and Section X concludes the paper with future work.

II. Accessibility And Building Regulations

From a policy perspective, accessibility within the built environment is most effective when supported by clear and enforceable regulatory frameworks. While accessibility principles are widely promoted through international conventions, standards, and best practice guidelines, their impact depends largely on how they are institutionalized at the national level [3]. International standards, such as ISO 21542, provide technical guidance to support consistent accessibility implementation in the built environment [7]. In the absence of binding regulations, accessibility requirements are often applied inconsistently, resulting in uneven outcomes across regions, sectors, and building types [3].

Building regulations occupy a critical position in the governance of the built environment. As legally binding instruments, they establish minimum requirements that directly influence planning approvals, design decisions, construction practices, and compliance processes. When accessibility is incorporated into building regulations, it becomes a shared responsibility across the development chain, including policymakers, designers, developers, contractors, and regulatory authorities. This collective accountability distinguishes regulatory approaches from voluntary initiatives, which rely primarily on individual commitment and professional discretion. This highlights the importance of positioning accessibility within formal regulatory systems rather than relying solely on voluntary approaches.

An important challenge in regulating accessibility lies in balancing legal clarity with technical flexibility. To address this, many regulatory systems adopt a layered approach in which national building codes define the scope, applicability, and legal obligations of accessibility, while detailed technical requirements are provided through referenced standards that can be updated more frequently in line with international best practice [8]. In developing and rapidly urbanizing contexts, phased implementation strategies further support enforceability by enabling institutional adaptation, professional training, and market readiness while maintaining regulatory intent [6]. Within this policy context, the Omani Building Code provides an illustrative case of how accessibility can be embedded within national regulations through a structured combination of regulatory definition, technical alignment, and phased enforcement. This approach forms the basis of the analytical framework adopted in this study.

III. Methodology

This paper adopts a qualitative, policy-oriented case study approach to examine how accessibility has been embedded within the OBC. The case study method is particularly appropriate for analyzing regulatory frameworks at an early stage of implementation, where the primary interest lies in institutional design, governance structure, and policy logic rather than measurable performance outcomes. Rather than evaluating the effectiveness of accessibility measures in completed buildings, this study focuses on how accessibility is structured, positioned, and operationalized within national regulation.

The analysis is grounded in a document-based review of official regulatory and policy materials. Primary sources include the accessibility chapter of the Omani Building Code (Chapter 11), the international technical standard referenced by the code (ICC A117.1: Accessible and Usable Buildings and Facilities), and the officially issued phased enforcement plan outlining the gradual implementation of the building code [8][5][6]. These documents were examined to identify the regulatory scope of accessibility, the relationship between national regulations and international standards, and the mechanisms used to integrate accessibility across different code provisions. The analysis is guided by three qualitative criteria: regulatory clarity, referring to how clearly accessibility obligations are defined; technical alignment, referring to the relationship between the national code and international standards; and implementation support, referring to how the transition toward enforceable application is structured through phased enforcement.

This methodology emphasizes regulatory architecture rather than detailed technical assessment. It does not evaluate specific dimensional requirements or compliance measurements. Instead, it focuses on how accessibility is framed as a legal obligation, how responsibilities are distributed across regulatory instruments, and how implementation is structured over time.

The case study is presented as an illustrative example rather than a prescriptive model. While Oman's regulatory context reflects its specific institutional and legal conditions, the analysis aims to identify transferable policy principles that may inform similar efforts in other Gulf countries and developing contexts.

As illustrated in Figure 1, the analysis is structured around three main criteria guiding the evaluation of the OBC. This approach is applied in the following sections to examine the structure of the OBC and its phased enforcement strategy.

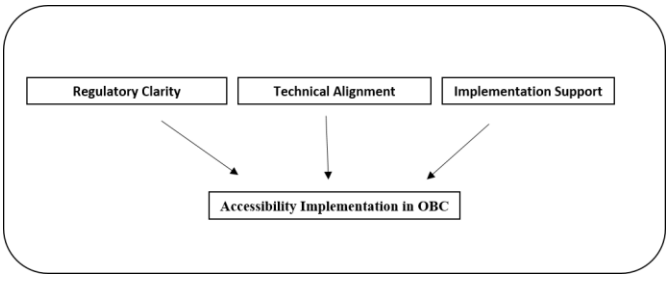

Figure 1. Analytical framework for embedding accessibility within the OBC.

IV. Omani Building Code Overview

The OBC represents a significant step toward establishing a unified national regulatory framework governing the design, construction, and use of buildings across the Sultanate of

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Oman. Developed to address previously fragmented regulatory practices, the code consolidates requirements related to safety, health, usability, and accessibility within a coherent structure. This integration enhances regulatory clarity by providing a single authoritative reference for stakeholders involved in design, approval, and enforcement processes [5].

The adoption of a unified building code reflects a strategic policy shift toward standardization and regulatory clarity. By providing a single reference for building requirements, the OBC supports consistency in interpretation, approval, and enforcement processes, reducing ambiguity for designers, developers, and regulatory authorities. This is particularly important in rapidly urbanizing contexts, where increasing construction activity requires consistent and enforceable regulatory guidance to ensure uniform implementation of accessibility requirements [5].

Within the structure of the OBC, accessibility is not treated as a supplementary or optional consideration but is positioned as an integral component of the broader regulatory system. It is embedded alongside core domains such as fire safety, circulation, and usability, reflecting its role as a cross-cutting element that directly influences both safety and functional performance of the built environment. This positioning reinforces accessibility as a fundamental regulatory requirement rather than a specialized design feature.

The OBC adopts a modular structure, with distinct chapters addressing specific regulatory themes while maintaining coherence across the overall framework. This structure allows accessibility provisions to be defined centrally while being reinforced across related technical domains, thereby improving regulatory consistency and supporting coordination between different regulatory domains [5].

Importantly, the OBC is supported by an officially defined phased enforcement strategy that enables a gradual transition from voluntary adoption to mandatory compliance. This phased approach supports institutional readiness, professional capacity building, and market adaptation, thereby strengthening the implementation support dimension of the regulatory framework. By structuring enforcement over time, the OBC enhances the feasibility and sustainability of accessibility implementation within the built environment.

V. Accessibility Framework

Accessibility within the OBC is formally addressed through a dedicated chapter that establishes the regulatory foundation for accessible buildings, sites, and associated facilities. Chapter 11 defines accessibility as a mandatory requirement within the national regulatory framework, reinforcing its status as a legal obligation rather than a discretionary design feature. This positioning enhances regulatory clarity by clearly defining the scope and applicability of accessibility requirements across building types and facilities [5].

Rather than functioning as a purely technical manual, Chapter 11 defines the regulatory scope of accessibility by specifying where it is required and the obligations placed on stakeholders. This approach ensures that accessibility is treated as a compliance requirement embedded within the regulatory system rather than an optional design consideration.

A key feature of the accessibility framework is its reliance on internationally recognized technical standards to guide implementation. While Chapter 11 establishes regulatory obligations at the national level, detailed technical requirements are not fully embedded within the code itself. Instead, the OBC references ICC A117.1 as the primary technical benchmark for accessibility design [8][5]. This approach reflects a clear separation between regulatory requirements and technical specifications, ensuring alignment with international best practices while maintaining flexibility within the national regulatory framework.

The framework also reflects an understanding of accessibility as a condition that benefits a wide range of users beyond persons with disabilities. While the chapter explicitly addresses accessibility for persons with physical disabilities, its provisions contribute more broadly to usability and safety within the built environment. This reinforces the integration of accessibility within mainstream regulatory practice rather than isolating it as a specialized concern.

By defining accessibility requirements at the level of regulatory principle and scope, Chapter 11 provides a stable foundation for implementation while allowing flexibility in technical application. This structure supports future updates to technical standards without requiring major revisions to the national regulatory framework, thereby enhancing the long-term adaptability and resilience of accessibility provisions within the OBC.

VI. Regulatory And Technical Separation

A defining characteristic of the accessibility framework within the OBC is the clear separation between regulatory obligations and technical implementation. This separation reflects a deliberate policy design that distinguishes between defining legal requirements and specifying how they are achieved in practice. Within this approach, the OBC establishes when and where accessibility is required, while technical standards define how accessibility is implemented [5][8].

The regulatory role of the OBC lies in establishing accessibility as a binding legal requirement within the national framework. Through Chapter 11, the code defines the scope of application, identifies the buildings and facilities subject to accessibility provisions, and sets enforceable obligations through approval and inspection processes. This ensures that accessibility is treated as an integral component of regulatory compliance rather than a discretionary design consideration [5].

In contrast, ICC A117.1 functions as the primary technical reference for accessibility design, providing detailed specifications related to dimensions, clearances, and configurations required to achieve accessible environments [8]. By referencing this standard rather than embedding detailed technical requirements within the code itself, the

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OBC avoids duplication and reduces the risk of technical obsolescence.

This regulatory–technical separation offers several policy advantages. It enables the regulatory framework to remain stable while allowing technical standards to evolve independently. It also supports alignment with international best practices and provides clarity for practitioners by distinguishing between legal obligations and technical solutions. This approach enhances both regulatory clarity and technical flexibility within the accessibility framework.

From an implementation perspective, this separation improves transparency and consistency in regulatory enforcement. Authorities can focus on verifying compliance with defined obligations, while designers and engineers rely on technical standards for detailed design decisions. This reduces ambiguity in interpretation and supports more effective application of accessibility requirements across projects [5][8].

Overall, the regulatory–technical separation embedded within the OBC represents a structured and adaptable approach to accessibility regulation, offering a model that may inform similar regulatory efforts in other jurisdictions.

VII. Integrated Accessibility

Accessibility within the OBC is not confined to the dedicated accessibility chapter. While Chapter 11 establishes the regulatory scope and legal obligations, accessibility-related requirements are integrated across other code provisions addressing circulation, means of egress, and life safety [5]. This integrated structure reflects an understanding of accessibility as a cross-cutting regulatory principle rather than an isolated technical requirement.

By embedding accessibility-related elements within relevant technical domains, the OBC aligns accessibility with broader objectives of safety, usability, and functional performance. Features such as accessible circulation routes, ramps, and visual alarm systems contribute to safer and more inclusive environments for all users, including people with disabilities, older people, and occupants in emergency situations [5][8]. This approach strengthens regulatory coherence and reinforces accessibility as an integral component of mainstream building regulation.

VIII. Phased Enforcement Strategy

The implementation of accessibility requirements under the OBC is guided by a structured, multi-year phased enforcement strategy that facilitates a gradual transition from voluntary application to mandatory compliance [6]. This phased approach reflects a policy decision to balance regulatory ambition with practical feasibility, particularly in contexts where new regulatory frameworks require institutional and professional adaptation.

Phased enforcement supports implementation by enabling capacity building among regulatory authorities, designers, and practitioners, while also allowing the construction sector to gradually align with new requirements. This reduces the risk of non-compliance and enhances the overall effectiveness of accessibility provisions over time.

By sequencing enforcement and prioritizing specific building categories, the strategy provides a controlled pathway toward full regulatory implementation. This approach strengthens the implementation support dimension of the framework by ensuring that accessibility requirements are not only defined but also realistically applied within the built environment.

IX. Discussion

The Omani experience demonstrates how accessibility can be effectively embedded within national building regulations through a structured combination of regulatory clarity, technical alignment, and phased implementation [5][6][8]. Rather than treating accessibility as a supplementary design consideration, the OBC positions it as a fundamental component of the regulatory system governing the built environment.

This approach highlights the importance of integrating accessibility within formal regulatory frameworks to ensure consistent and enforceable implementation. It suggests that accessibility outcomes can be significantly improved when supported by clear legal obligations, alignment with international technical standards, and structured enforcement mechanisms. These elements are particularly relevant for Gulf countries and other developing contexts, where accessibility commitments often exist but lack effective regulatory enforcement.

At a broader level, the findings of this study indicate that accessibility should not be addressed solely through technical design guidance, but through comprehensive regulatory design that integrates policy, technical standards, and implementation strategies. This perspective contributes to the growing body of research emphasizing the role of governance and institutional frameworks in achieving inclusive built environments [9].

However, the effectiveness of this approach depends on several contextual factors, including institutional capacity, professional awareness, and enforcement mechanisms. While the OBC provides a strong regulatory foundation, its long-term impact will depend on the extent to which these supporting conditions are realized in practice.

X. Conclusion And Future Work

This paper has examined how accessibility can be embedded within national building regulations through the case of the Omani Building Code. The analysis demonstrates that accessibility can be more effectively institutionalized when supported by a structured regulatory framework that integrates legal obligations, technical standards, and phased implementation strategies.

The findings highlight that positioning accessibility as a regulatory requirement, rather than a voluntary design consideration, enhances consistency, enforceability, and long-term sustainability of accessibility outcomes within the built

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environment. The separation between regulatory scope and technical implementation further contributes to flexibility and alignment with international best practices.

This study also underscores the importance of implementation support mechanisms, particularly phased enforcement, in enabling institutional readiness, professional capacity building, and gradual adaptation within the construction sector. These elements collectively strengthen the effectiveness of accessibility provisions in practice.

While the Omani experience reflects its specific regulatory context, the principles identified in this study offer transferable insights for other Gulf countries and developing contexts seeking to advance accessibility through national building regulations.

Future research may examine the practical application of the OBC in completed projects, evaluate compliance levels across different building types, and assess user experiences of accessibility within the built environment to further validate the effectiveness of the regulatory approach.

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