Transforming 4,600 Municipal Buildings:

Saudi Arabia's New Efficiency Guidelines

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Abstract

In alignment with Vision 2030, Saudi Arabia has launched a comprehensive national initiative to modernize over 4,600 municipal buildings under the guidance of the Ministry of Municipalities and Housing (MOMAH). The new efficiency guidelines aim to transform aging municipal infrastructure into high-performing, sustainable, and citizen-centric facilities. The framework encompasses advanced energy efficiency interventions, modernized spatial layouts, and financial sustainability through Public-Private Partnerships (PPP). A Building Performance Certificate (BPC) has been introduced to benchmark performance across functional, environmental, economic, and management dimensions, integrated within the Balady digital platform for real-time monitoring and decision-making. Emphasizing adaptive reuse and local architectural identity, the initiative targets a 20–30% reduction in operating costs and the reclamation of over 2 million m^2 of idle space. Through phased implementation and capacity-building programs, this strategy sets a new national standard for public asset optimization, blending cultural heritage with international best practices in energy, design, and asset management.

As part of Vision 2030, Saudi Arabia has launched a national initiative to modernize over 4,600 municipal buildings, spearheaded by the Ministry of Municipalities and Housing (MOMAH). This ambitious framework aims to transform aging government assets into efficient, adaptive, and sustainable public service hubs that align with contemporary urban planning and operational efficiency goals.

The initiative aligns with national priorities around energy conservation, service delivery, and long-term financial resilience. The guidelines were developed based on a baseline evaluation of existing assets, highlighting key inefficiencies such as spatial underutilization, energy waste, and maintenance gaps. Addressing these challenges requires an integrated policy and technical response, including performance-based standards, governance frameworks, and digital tools for measurement and accountability.

1. Advanced Energy Efficiency Interventions

The new guidelines introduce a tiered approach to energy efficiency, classifying buildings based on current energy performance and retrofitting needs. Audits are mandated for all buildings over 500 m^2 to establish a baseline Energy Use Intensity (EUI) benchmark, following international norms (e.g., ASHRAE 100 and ISO 50001).

Prescriptive measures include installing LED lighting with motion and daylight sensors, upgrading HVAC systems with variable-speed drives, and sealing building envelopes using high-performance insulation materials. Facilities in hot zones are also required to adopt solar-reflective roofing materials and consider photovoltaic integration for supplementary energy production.

The performance monitoring strategy includes the use of smart energy meters connected to centralized dashboards through the Balady platform, enabling data aggregation, anomaly detection, and comparative benchmarking across building types and regions.

2. Optimizing Office Layouts for Efficiency and Accessibility

Many municipal buildings are characterized by rigid, legacy spatial layouts that do not support modern administrative workflows. The guidelines propose modular interior redesigns that reduce spatial redundancies, create zones for citizen services, and enable co-working among departments.

Designs are required to comply with universal accessibility standards (aligned with Saudi Building Code Chapter M100), including tactile paths, accessible counters, and emergency egress modifications. Buildings serving over 50 occupants are mandated to include quiet rooms, breastfeeding facilities, and digital kiosks for public services.

Beyond physical layout, the initiative promotes digitalization of workflows—introducing cloud-based case management, e-signatures, and AI-based service queue systems—to reduce citizen wait times and enhance internal efficiency.

3. Financial Sustainability through Public-Private Partnerships (PPP)

MOMAH's guidelines recognize the importance of diversified funding streams to reduce reliance on direct government expenditure. Public-Private Partnerships (PPP) are therefore promoted as a mechanism for financing and operating municipal upgrades.

Three PPP models are outlined: (1) Build-Operate-Transfer (BOT) for newly constructed facilities; (2) Energy Performance Contracting (EPC) for retrofits; and (3) Lease-to-Operate for underutilized buildings. Each model includes performance guarantees to ensure outcomes align with lifecycle cost targets.

PPP contracts must incorporate lifecycle costing analysis, net present value (NPV) assessments, and risk-sharing clauses, in accordance with the National Center for Privatization & PPP (NCP) guidelines. Special provisions also require social value impact indicators for community-serving assets.

4. Architectural Identity and Adaptive Reuse Strategies

To strengthen place-making and local cultural preservation, the guidelines emphasize integrating regional architectural identity into all renovation projects. Architectural elements such as Najdi mashrabiyas, Hijazi coral stonework, or Asiri painted motifs are encouraged where contextually appropriate.

This is not a superficial design add-on but a strategic tool to build civic engagement and visual harmony in cityscapes. Planners are also encouraged to align upgrades with local urban identity strategies under regional municipal charters.

In parallel, adaptive reuse is prioritized for maximizing asset value and minimizing embodied carbon. Buildings with low utilization are identified for conversion to new functions—such as digital hubs, youth innovation spaces, or training centers—based on community needs assessments.

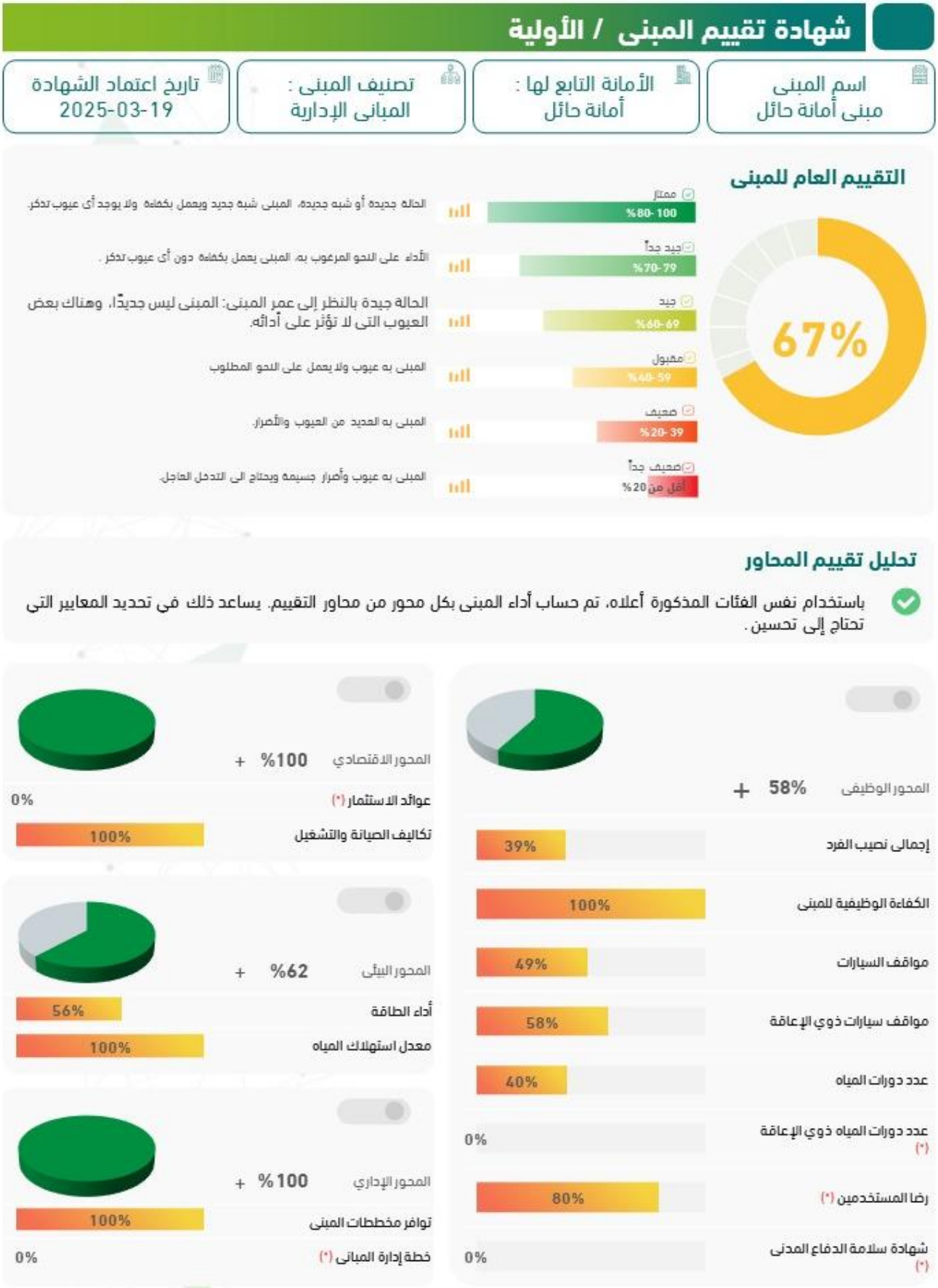
In Hail, pilot programs have already shown how empty town halls and office buildings can be reprogrammed into revenue-generating commercial zones without compromising public services. These transformations are supported by streamlined permitting through the Balady system and incentivized by temporary rent waivers to anchor new tenants.

5. The Building Performance Certificate (BPC): A Comprehensive Benchmarking Tool

The guidelines introduce the Building Performance Certificate (BPC) as a core accountability mechanism to assess and compare the condition and effectiveness of municipal buildings across four dimensions:

A	**Functional**	Measures layout efficiency, accessibility, user experience, and service productivity	
B	**Environmental**	Includes metrics on energy and water use, indoor environmental quality, and compliance with sustainability regulations.	
C	**Economic**	Examines lifecycle cost, operational expenditures, ROI from reuse strategies, and long-term financial viability.	
D	**Management**	Evaluates strategic asset management practices, asset documentation, and operational reliability based on ISO 55001 principles.	

The BPC surpasses traditional certificates like the EU's EPC (Energy Performance Certificate) or the UK's DEC (Display Energy Certificate) by offering a more holistic profile that includes economic and management performance. Each building will be assigned a performance tier and a recommended action plan for improvement, renewed every three years or after significant modifications.



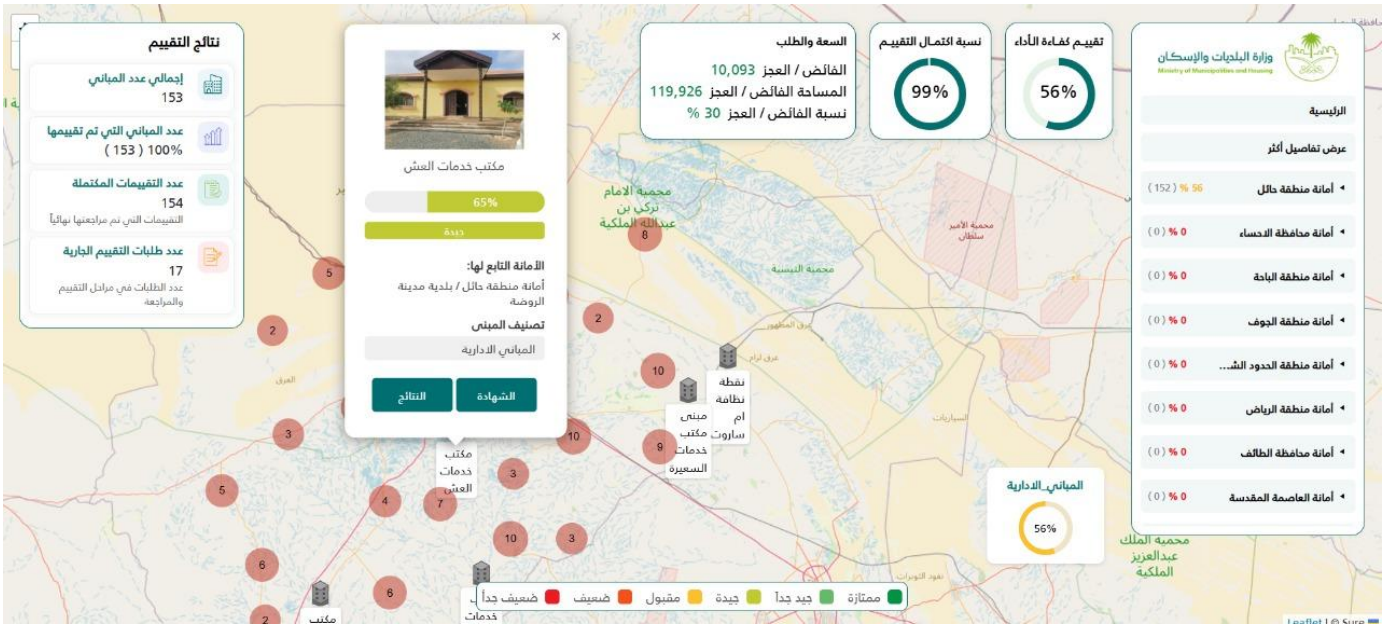
MOMAH's BPC displays various performance indicators related to functional, environmental, economic, and administrative metrics

6. Digital Integration through Balady Platform

The performance monitoring and certification process is fully integrated into the Balady platform. A dedicated Building Assessment module provides municipalities with powerful visualization and decision-making tools.

The module features an interactive geospatial map displaying building locations, certification status, and color-coded performance scores. Authorized users can access detailed dashboards on each facility's energy trends, occupancy metrics, and compliance gaps.

A structured workflow supports data entry at building level, verification by municipal teams, automated performance grading, and issuance of the BPC. Periodic reminders and review schedules help municipalities maintain certification validity and continuously improve building performance across all asset classes.



The MOMAH Building Assessment Tool dashboard displays buildings' information on an interactive map for decision makers

7. Anticipated Outcomes and Implementation Framework

The modernization strategy is expected to yield significant qualitative and quantitative benefits. Initial projections estimate a 20–30% reduction in operating costs across targeted municipal buildings, with up to 50% improvement in service response times due to improved workflows and accessibility.

Environmental benefits include measurable reductions in energy consumption and CO_2 emissions, aligning with national climate goals under the Saudi Green Initiative. Economically, adaptive reuse strategies are anticipated to reclaim over 2 million m^2 of idle space into revenue-generating or community-serving functions.

Socially, the upgrades aim to foster higher user satisfaction, civic pride, and inclusivity—especially in marginalized or underserved areas.

8. Phased Implementation Strategy

The rollout will proceed in phases, beginning with a pilot group of 1000 buildings in 5 pilot Amanah's. These pilots will test guideline adherence, certification workflows, and cost modeling. Subsequent phases will scale implementation nationally, prioritizing buildings based on usage intensity, energy performance, and strategic location.

Training programs are being developed to certify municipal staff in building evaluation, BPC processing, and digital system use. Capacity-building is a key pillar of the strategy, ensuring local teams can sustain performance over the long term.

9. Conclusion

Saudi Arabia's municipal building efficiency guidelines signal a paradigm shift in how public assets are planned, evaluated, and managed. With over **SAR 3.5 billion** spent annually on the renovation, operation, and maintenance of municipal buildings, the initiative introduces a strategic framework that aims not only to optimize expenditures but also to enhance public value and service delivery outcomes.

This transformation blends **local architectural identity with internationally recognized performance standards**, ensuring that upgrades respect cultural heritage while delivering measurable improvements in efficiency, functionality, and sustainability. The guidelines are designed to directly influence how each Riyal from the municipal building budget is spent—prioritizing lifecycle value, performance-based investments, and return on infrastructure.

Through the integration of **smart data tools, Building Performance Certificates (BPC), and centralized dashboards on the Balady platform**, municipalities will be able to shift from reactive maintenance to predictive asset management. This will enable more targeted capital planning, reduce wasteful spending on underperforming buildings, and ensure that resource allocation is driven by real-time performance data rather than routine or ad hoc decisions.

The initiative also introduces **financial safeguards and long-term savings mechanisms**, such as energy performance contracts, public-private partnerships, and adaptive reuse strategies that can reclaim thousands of square meters of idle space—reducing pressure on new construction budgets and turning municipal assets into active economic contributors.

By embedding **sustainability into everyday operational practices**, Saudi Arabia is laying the foundation for a **more adaptive, resource-efficient, and citizen-centred built environment.** In doing so, the Kingdom is not only improving the internal performance of its own municipalities but is also setting a **regional benchmark** for how governments can maximize the impact of public building budgets through smart policy, design, and data integration.

Dr. Amr El-Husseiny is a seasoned architect and project leader, celebrated for his strategic design acumen and deep expertise in building conservation. With more than 14 years of specialized experience in architectural design, concept development, and research within the built environment, he expertly bridges theoretical inquiry and practical application.

He earned his Ph.D. in Architecture from The Bartlett, UCL—where his scholarly focus on architectural theory and historic urban contexts in the Middle East distinguished him as a thought leader in combining rigorous research with culturally sensitive design.

Currently, Dr. El-Husseiny serves as a key driver of national-scale building efficiency initiatives within the Saudi Ministry of Municipalities and Housing (MOMAH). As Project Manager, he oversees major strategic programs including the enhancement of municipal facilities' buildings. Under his leadership, comprehensive design guidelines, sustainability playbooks, and advanced building-assessment tools are being authored and deployed nationwide to elevate performance standards across the built infrastructure.