

The New Era of Hospital Design

Arab Hospitals are proving climate resilience & sustainability aren't just compatible, they're inseparable

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Hospitals were never designed for a world of climate extremes. Yet that is exactly the world they must now survive in.

Across the Arab region, we face an uncomfortable truth: most healthcare facilities assume continuous external support—reliable power grids, predictable water supply, manageable temperatures. When those assumptions fail during heat waves, droughts, or infrastructure collapse, hospitals become vulnerable precisely when communities need them most.

But a transformation is underway. From the Gulf to the Mediterranean, Arab hospitals are proving that climate-intelligent design isn't a luxury—it's survival infrastructure. And they're demonstrating something even more powerful: facilities that reduce environmental impact while protecting patients from environmental threats deliver superior outcomes on every measure.

"Climate change demands we reimagine what a hospital must be: a facility that simultaneously reduces its environmental footprint while protecting patients from environmental threats."

› From Dependency to Independence

The fundamental shift is straightforward: traditional hospitals function as dependent nodes requiring continuous external support. Climate-intelligent hospitals operate as independent systems capable of sustained autonomous function.

This means generating renewable energy on-site, not just for backup but as primary infrastructure. Treating and recycling water comprehensively. Using artificial intelligence to predict demand, optimize resources, and maintain critical functions even as conditions change. Designing buildings with passive thermal management that protects patients during power disruptions. Creating modular spaces that adapt to evolving needs.

The result: hospitals that reduce environmental impact while increasing ability to protect patients during environmental stress. Sustainability and resilience, integrated from conception.

› Why CEOs Must Lead This Transformation

Climate-intelligent design cannot be delegated to facilities departments. It requires CEO-level commitment because it transforms institutional culture, operational priorities, and resource allocation.

Hospital leaders must establish sustainability as a core institutional value, embedded in mission statements and performance metrics. They must drive cultural transformation—ensuring clinicians, administrators, and support teams understand their role. They must commit resources, recognizing that climate-intelligent investments reduce operational costs, improve patient outcomes, and ensure long-term viability.

The hospitals achieving the most significant progress—Cleveland Clinic Abu Dhabi reducing emissions 11.3% while expanding services, Sharm El Sheikh International Hospital cutting energy 28% during rapid growth—share one characteristic: executive leadership made sustainability a strategic priority and sustained commitment through implementation.

"Without CEO-level leadership, sustainability remains aspiration. With it, transformation becomes achievable."

› The Regional Movement Taking Shape

This isn't isolated experimentation—it's emerging best practice across the Arab region. **Cleveland Clinic Abu Dhabi** achieved LEED Gold certification as the largest such facility in the GCC. Advanced building design reduces cooling requirements during extreme Gulf heat. AI-optimized systems delivered 10% energy reduction while maintaining surgical precision. Results: 11.3% greenhouse gas reduction, 30% water savings totaling 20 million gallons annually, first Gulf organization establishing Science Based Targets for emissions.

Sharm El Sheikh International Hospital proved existing facilities can transform. Egypt's first green hospital achieved 28% energy reduction and 50% water savings. Solar installation generates 60+ megawatt hours annually. During COP27, the facility showcased to global audiences that Arab hospitals lead sustainability transformation.

Multiple other Arab hospitals are advancing initiatives tailored to their contexts—water recycling in resource-scarce regions, renewable cooling in high-heat areas, comprehensive emissions programs, waste diversion, international certifications. This growing momentum represents the future of Arab healthcare.

Intelligence as Infrastructure

Artificial intelligence transforms static buildings into adaptive organisms. Recent research shows AI-driven hospital systems reducing operating room energy consumption by 25% while maintaining all clinical parameters—predicting demand, optimizing distribution, maintaining resilience.

The critical insight: AI systems must be integrated during design when costs are minimal. Retrofitting existing facilities costs exponentially more. Every hospital designed today without intelligent infrastructure is building for yesterday's requirements. Through the Arab Healthcare AI & Cybersecurity Center, we provide assessment tools and training enabling hospitals to implement and optimize AI-driven building systems.

WHAT THIS MEANS FOR HOSPITAL LEADERS

For CEOs: Make sustainability a strategic priority with board accountability. Set science-based targets, commit resources, report transparently.

For Architects: Integrate climate-intelligent principles from initial concept. Embed AI infrastructure during design. Create resource-independent facilities.

For Health Ministries: Establish climate-intelligent design as minimum standard. Update codes and procurement. Fund resilience and sustainability together.

Why the Arab Region Cannot Wait

The Eastern Mediterranean faces over 115 million people affected by conflicts and climate stress. Nearly 68 million internally displaced, with almost half in our region. These populations depend on healthcare facilities that function under sustained pressure.

Every hospital being designed today will operate through 2070 and beyond—decades during which climate conditions will deteriorate substantially. Facilities designed using traditional assumptions will face conditions they cannot handle. The choice is clear: design for the climate we are entering, or design for the climate we are leaving.

"The question is not whether climate-intelligent healthcare is possible—Arab hospitals have already answered that. The question is whether you will lead this transformation."

The Invitation

Arab hospitals are demonstrating that climate-intelligent design delivers measurable results across diverse contexts—new construction and retrofits, academic medical centers and community hospitals, resource-rich and resource-constrained settings.

The frameworks exist through the Arab Healthcare Sustainability Center and Arab Hospitals Federation. The Gold Initiative Certificate provides validation. Technical support is available through our AI & Cybersecurity Center and regional network connecting 1,700+ institutions across 22 countries.

The evidence is compelling: hospitals that integrate climate resilience and environmental sustainability achieve lower operational costs, enhanced institutional reputation, and superior patient outcomes. They prove this transformation is not only necessary—it's achievable now.

The regional movement is growing. The path is proven. Your leadership will determine whether your institution leads this transformation or follows after others have demonstrated the way. The choice—and the opportunity—is yours.

About the Author

Dr. Bassam Kaddissi is a healthcare architect with over 22 years of specialized experience in hospital design across the Middle East and North Africa. He is Chairman of the Arab Healthcare Sustainability Center and serves on the Executive Council of the Arab Hospitals Federation. www.ahfonline.net