

Case Study: Bespoke Illuminated Mirror

LaHeq Wellness Hotel, KSA • Red Sea Global • Lumos Mirrors



A detailed exploration of how concept, design, and technical expertise converged to create a unique lighting fixture that embodies the wellness philosophy of the LaHeq Hotel development.

Design Intent

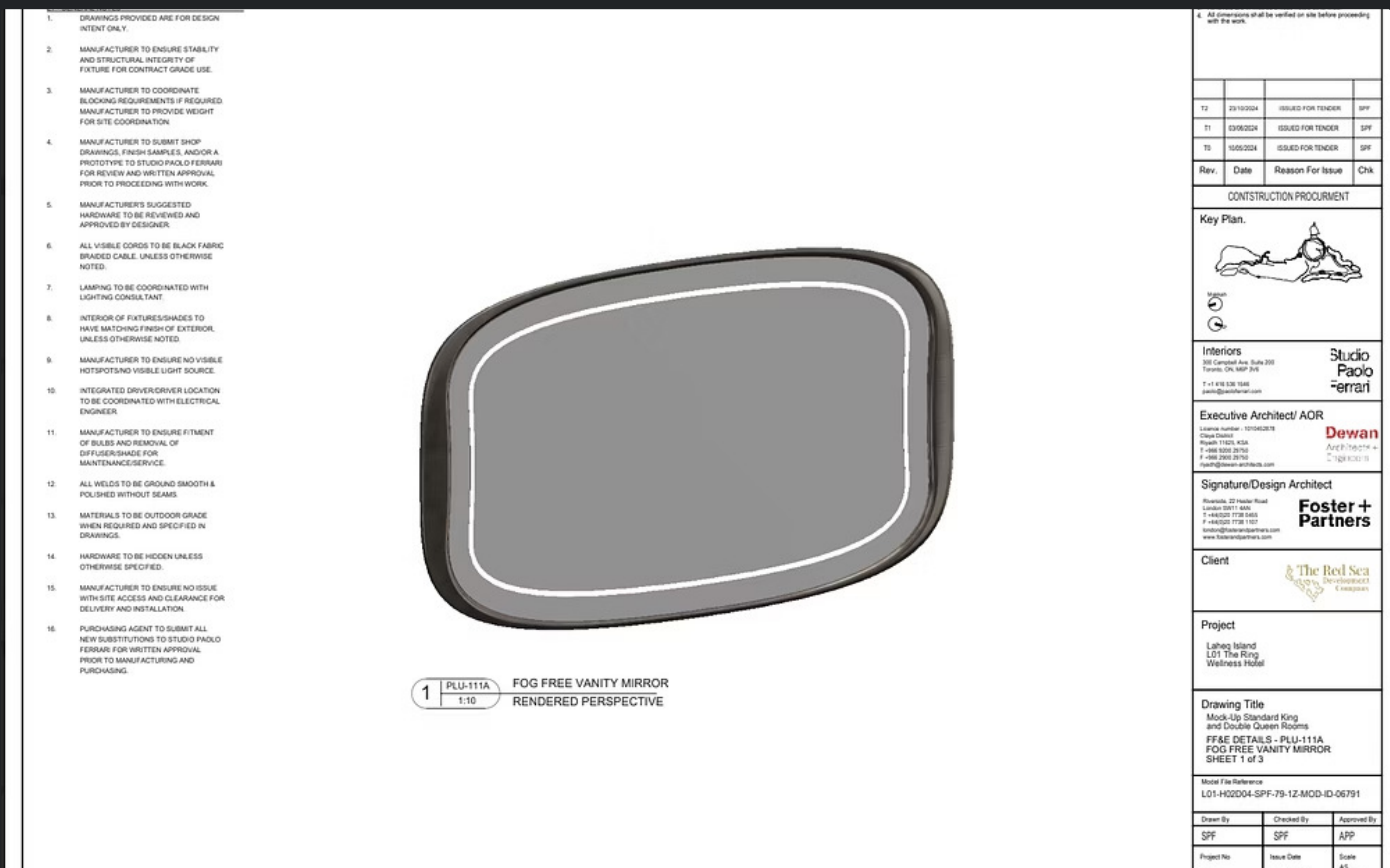
The LaHeq Wellness Hotel project required a signature illuminated mirror that would:

- Embody the resort's connection to natural elements through organic, erosion-inspired forms
- Function as both practical bathroom fixture and sculptural art piece
- Support wellness objectives through adaptable lighting qualities
- Integrate seamlessly with the suite's sophisticated design language
- Feature a premium mineral-inspired finish that complements the Red Sea environment

The granite effect die cast aluminium frame provides durability while echoing the region's geological features, creating a narrative connection to place.



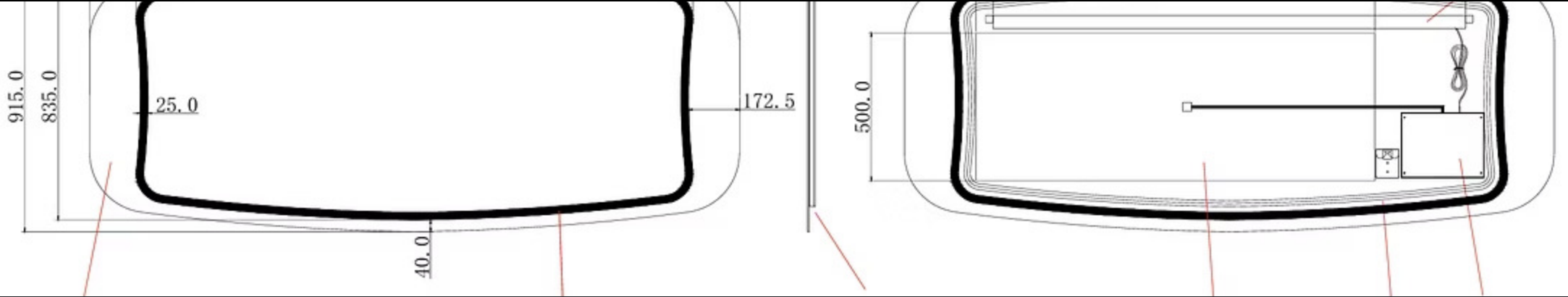
Original Concept Rendering



Fluid Design Language

The asymmetrical, organic shape draws inspiration from wind-eroded rock formations found in the Saudi Arabian desert, creating a signature silhouette that stands apart from conventional rectangular mirrors.

The design team developed this concept to balance aesthetic distinction with practical requirements for a luxury hotel bathroom. The flowing forms reference natural elements while providing optimal lighting for guest activities.



Technical Development

Engineering Challenges

Lumos engineers had to solve complex issues including: uniform light distribution around irregular contours, creating structural rigidity in an organic shape, and developing mountings that would be invisible to hotel guests.

Technical Specifications

The detailed shop drawings established precise dimensions, material thicknesses, light placement, and electrical requirements. Every curve and connection point was meticulously planned to ensure manufacturability.

Material Selection

Die-cast aluminium was chosen for its combination of lightweight properties and structural strength, allowing the mirror to maintain its form while supporting the glass and lighting components without visible fasteners.

3D Printed Full-Scale Prototype

Before committing to expensive tooling and molds, Lumos created a full-scale prototype using advanced 3D printing technology to:

- Verify the design's proportions in real space
- Test the mounting system against actual wall conditions
- Evaluate the visual impact of the illumination pattern
- Make final refinements to the form and technical details
- Gain client approval on the physical experience of the piece

This critical step eliminated potential costly revisions during production and ensured the final mirror would meet all design requirements.





Final Production Plan



Materials & Finish

Die-cast aluminum frame provides the ideal balance of durability and precise detail. The mineral-inspired textured finish requires a multi-step process including base coating, specialized texture application, and protective sealing to withstand hotel cleaning protocols.



Lighting Technology

Tunable-white LED lighting (2700K-5000K) with dimming capability allows guests to adjust from warm relaxing ambiance to bright task lighting. The lighting system is IP44-rated for bathroom safety while maintaining a sleek, integrated appearance.



Manufacturing Process

Custom tooling will be created for the die-casting process, ensuring precision and consistency across all units. Each mirror undergoes rigorous quality control including light distribution testing, finish inspection, and operational verification before shipping.

Raw Die-Cast Frame: Unfinished Form

Witnessing the die-cast aluminum frame in its raw state highlights the organic, flowing lines inspired by natural erosion. This material was chosen for its exceptional strength and ability to be cast into complex, precise shapes, perfectly capturing the mirror's unique silhouette.

This unfinished piece represents the foundation of the bespoke mirror, ready to undergo the multi-step finishing process that will transform its surface into the mineral-inspired texture specified for the LaHeq Wellness Hotel.



Erosion-Inspired Finish Application

The raw die-cast aluminum frame undergoes a meticulous multi-stage finishing process to achieve its unique, erosion-inspired aesthetic and specific mineral coloration:

01

Controlled Acid Corrosion

Frames are treated with a precise sulfuric acid bath. This controlled chemical process etches the surface, creating a subtle, organic texture that mimics the natural erosion patterns found in Red Sea geological formations.

02

Neutralisation & Preparation

Following corrosion, the frames are thoroughly neutralized and cleaned, ensuring the surface is perfectly prepared for the subsequent colour application and preventing any long-term material degradation.

03

Bespoke Mineral Coloring

A specialized, client-specified coating is applied, infused with pigments to achieve the desired mineral-inspired colour and texture, perfectly complementing the LaHeq Hotel's design palette.



Final Illuminated Mirror: Realised Vision



The culmination of meticulous design and advanced engineering, the finished illuminated mirror stands as a testament to the project's vision. Its erosion-inspired surface seamlessly blends with the resort's natural aesthetic, while the integrated, tuneable LED lighting provides both ambient glow and functional brilliance. This piece not only reflects but enhances the wellness experience, delivering on its promise as a sculptural art piece for the LaHeq Hotel.

Conclusion: From Concept to Reality

Project Achievements

- Successfully translated an abstract design concept into a manufacturable, hotel-grade fixture
- Maintained design integrity while solving complex technical challenges
- Developed custom tooling and processes specific to this unique form
- Created a signature element that enhances the guest experience and property brand
- Demonstrated Lumos Mirrors' capability to execute high-end bespoke solutions

Applications for Future Projects

This case study demonstrates a proven methodology for developing custom illuminated elements that can be applied to:

- Luxury hospitality developments seeking differentiation
- Wellness-focused properties requiring specialized lighting
- Heritage or culturally-significant projects needing bespoke detailing
- High-end residential developments with custom requirements