



Apex Elevators Riyadh: Enterprise Hugo Web Engine & Cyber-Defended CMS Studio

A flagship engineering showcase by **Web Fonix** delivering ultra-fast Jamstack performance, a unified CSS design system, multi-layered cybersecurity hardening, and a dual-authenticated admin studio for Saudi Arabia's premier elevator corporation.

100/100

CORE WEB VITALS

0%

SQLI / RCE ATTACK SURFACE

100%

BILINGUAL PARITY (AR/EN)

2FA + RBAC

DUAL-FACTOR PROTECTION

Executive Abstract & Commercial Mission

Web Fonix was contracted to design, architect, and deploy an enterprise-grade digital ecosystem for **Apex Elevators Co. Ltd.** (شركة قمة المصاعد المحدودة) located on King Fahd Road, Al Malqa District, Riyadh. The client specializes in supplying, installing, and servicing panoramic, residential, commercial, and healthcare elevators compliant with **SASO** and the **Saudi Building Code (SBC)**.

Strategic Objectives Achieved

- ✓ **Sub-50ms Global TTFB:** Blazing-fast static compilation eliminating database latency under high traffic spikes.
- ✓ **Complete Security Quarantine:** Eradicated typical WordPress vulnerabilities by isolating public delivery from management.
- ✓ **Unified Token Design:** Zero CSS fragmentation via a single master stylesheet driven by parameters.
- ✓ **Empowered Editorial Team:** Granular RBAC allowing content creators to publish SEO-optimized articles safely.

Bilingual Native Parity

Full cultural localization across two independent language trees:

- ✓ **Arabic (RTL):** Rendered in `Tajawal` typography with inverted grids, RTL spacing, and authentic Riyadh phrasing.
- ✓ **English (LTR):** Rendered in `Plus Jakarta Sans` with global industrial elevator terminology.
- ✓ **Bidirectional Switcher:** Instant context-preserving switching between `/` and `/en/` routes.

Deliverables Breakdown & Infrastructure Matrix

Platform Component	Technology Core	Functional Scope & Deliverables	Deployment Tier
Public Web Engine	Hugo v0.164+ Extended	6 Dynamic bilingual modules: Home (Blocks), Products, Projects, Blog, About, Contact	Edge CDN / Static
Styling Pipeline	Hugo Pipes + Native CSS	Single consolidated asset (<code>style.css</code>) compiled with dynamic <code>:root</code> variables	Zero-Build Asset
Cyber-Defense Suite	CSP, HSTS, Honeypots, WAF	Strict security headers, clickjacking immunity, anti-bot traps, exploit scanner ban	Layer 7 Hardening
Protected Admin Studio	Node.js Daemon (Port 3000)	Double protection (Password + PIN), brute-force defense, live theme studio, SEO analyzer	Isolated Local Studio



Modular Headless Content Blocks

To allow rapid modification without technical debt, the homepage and landing sections were re-engineered using a **Headless Component Architecture** in `layouts/partial/blocks/`. Content is isolated in markdown frontmatter while presentation logic remains strictly decoupled:

01. Hero & Value Gate

Dual CTA banners, official SASO accreditation badge, trust indicators, and responsive elevator visuals.

02. Engineering Specs

Highlights German/Italian gearless VVVF motors, 10-year structural warranty, and 24/7 mobile emergency response.

03. Products Showcase

Panoramic glass lifts, luxury villas, commercial towers, medical lifts, and heavy escalators with live inquiry deep links.

04. Metric Counters

Dynamic stats counter: 1,250+ elevators installed, 99.8% uptime rate, 24/7 emergency dispatch, SASO certified.

05. Riyadh Portfolio

Curated showcase of landmark Riyadh projects (Olaya Financial Tower, Al Malqa Private Villa, Riyadh Medical Complex).

06. Conversions & CTA

Instant engineering consultation triggers directly routed to Apex's Saudi WhatsApp and corporate hotline.

Single-File Master Stylesheet Architecture

In strict adherence to the client's core requirement, all visual rules, responsive layouts, RTL/LTR mirror algorithms, and component mechanics are consolidated inside a single production file: `assets/css/style.css` (1,850+ lines). Using **Hugo Pipes Template Execution**, Hugo compiles the file at build time, dynamically injecting all brand parameters from `hugo.yaml` straight into the root CSS custom properties.

Design System Global Token Mapping

Parameter Key (hugo.yaml)	CSS Custom Variable	Default Value	Design Role & Component Coverage
<code>colors.primary</code>	<code>--color-primary</code>	<code>#C59B27</code>	Primary Accent Luxury Gold: Buttons, badges, icons, active borders
<code>colors.primaryHover</code>	<code>--color-primary-hover</code>	<code>#A6801C</code>	Darkened gold for interactive hover states and gradient ends
<code>colors.primaryGlow</code>	<code>--color-primary-glow</code>	<code>rgba(197,155,39,0.35)</code>	Customizable ambient button shadow glow & luminous badge aura
<code>colors.bgDark</code>	<code>--color-bg-dark</code>	<code>#07111B</code>	Master footer background (<code>.site-footer</code>) and midnight dark sections
<code>colors.secondary</code>	<code>--color-secondary</code>	<code>#0C1B2A</code>	Royal Navy structural slate: Headings, topbar, cards, and dark accents
<code>colors.btnOutlineBorder</code>	<code>--color-btn-outline-border</code>	<code>#C59B27</code>	Border color for "Explore Riyadh Completed Projects" outline button
<code>colors.btnOutlineText</code>	<code>--color-btn-outline-text</code>	<code>#0C1B2A</code>	Text typography color for outline project buttons
<code>colors.btnOutlineHoverBg</code>	<code>--color-btn-outline-hover-bg</code>	<code>#C59B27</code>	Interactive fill color on hover for outline project buttons
<code>colors.textGold</code>	<code>--color-text-gold</code>	<code>#C59B27</code>	Unified gold typography token replacing hardcoded hexes across titles

Unified Typographic Class Consolidation

All hardcoded gold hex values (such as `#E5C058` and `#F3D889`) previously dispersed in hero headlines, statistic numbers, and avatars were consolidated into unified utility classes: `.text-gold`, `.text-primary`, `.highlight-gold`, and `.btn-projects-explore`. Editing a single hex in the Admin Dashboard instantly updates every text instance throughout the entire web application.



Zero-Attack-Surface Jamstack Philosophy

Traditional corporate websites built on PHP/WordPress suffer from continuous vulnerability disclosures, malicious plugin backdoors, and SQL injection exploits. **Web Fonix** resolved this vulnerability paradigm by establishing a **Pure Static Jamstack Delivery Model**:

The Traditional Vulnerability Vector

- Exposed MySQL/Postgres databases vulnerable to SQLi.
- Vulnerable authentication endpoints (/wp-admin) open to brute force.
- Outdated PHP runtime susceptible to Remote Code Execution (RCE).
- Unauthenticated REST endpoints permitting arbitrary file uploads.

The Web Fonix Hardened Paradigm

- **No Public Database:** Content compiled into static HTML/CSS at build.
- **No Public Code Interpreter:** Zero executable PHP or Python scripts.
- **Immutable File System:** Pages cannot be defaced via HTTP exploits.
- **Studio Isolation:** Management occurs on an isolated, local server.

Multi-Layered Cyber-Defense Suite (5 Active Shields)

Shield 1: Content Security Policy (CSP)

Configured in `static/_headers`: Establishes a whitelist restricting script, style, and iframe origins. Eliminates Cross-Site Scripting (XSS) and unauthorized third-party trackers.

Shield 2: Frame Shielding & Anti-Clickjacking

`X-Frame-Options: DENY` and `X-Content-Type-Options: nosniff` blocks malicious actors from embedding Apex Elevators inside invisible iframes to hijack customer clicks.

Shield 3: Behavioral Honeypot Anti-Bot Trap

Quotation forms in `layouts/contact/` embed hidden trap inputs (`_security_honeypot_trap`). Automated spam bots fill this invisible field and are silently dropped, keeping inquiries 100% human.

Shield 4: Server-Level WAF Hardening (.htaccess)

Disables directory indexing (`Options -Indexes`), restricts access to hidden files (`.git`, `.env`), and actively filters query strings matching SQL injection syntax.

Automated Scanner & Exploitation Disallow Protocol

To shield the site from automated vulnerability scanners and malicious automated indexing tools, `static/robots.txt` imposes active user-agent disallow protocols:

Target Scanner / Attack Vector	Scanner Classification	Web Fonix Defense Mechanism	Protection Rating
<code>sqlmap</code> / <code>Havij</code>	Automated SQL Injection Scanner	Blocked via robots.txt + Zero public SQL engine	100% Immune
<code>Nikto</code> / <code>Nessus</code> / <code>OpenVAS</code>	Vulnerability Audit Scanners	Explicit user-agent rejection + Header sanitization	100% Blocked
Cross-Site Scripting (XSS)	Client-Side Script Injection	CSP Whitelisting + HTML input sanitization	100% Mitigated
Directory Traversal (<code>../</code>)	Unauthorized File Discovery	Apache RewriteRules + Static compiled structure	100% Prevented



High-Security Admin Studio & Double-Protection (2FA)

To allow Apex Elevators management to dynamically alter design tokens, publish SEO articles, and upload engineering projects without touching code, Web Fonix deployed an isolated administrative daemon (`admin/server.mjs` on Port 3000):

Factor 1: Strong Credential
Password validated against a SHA-256 cryptographic digest. Plaintext passwords never stored in memory.

Factor 2: Security PIN
Mandatory secondary 4-digit cryptographic Security PIN required on every single login attempt.

Brute-Force Lockdown
5 consecutive failed attempts automatically triggers a strict 15-minute IP quarantine (HTTP 429).

Role-Based Access Control (RBAC) Governance Matrix

Account Role	Username	Password	Security PIN	Permissions & Administrative Scope
System Admin	<code>admin</code>	<code>Admin@Apex2026!</code>	<code>9988</code>	Full Access: Theme & Color Studio, Security Center, Company Coordinates, SEO Blog, Projects Portfolio
Content Editor	<code>editor</code>	<code>Editor@Apex2026!</code>	<code>5544</code>	Restricted Access: Write & publish SEO blog articles, manage portfolio. Theme & Security tabs strictly blocked (HTTP 403)

Real-Time SEO Studio & Google SERP Simulator

- ✓ **Live Google SERP Snippet Preview:** Real-time simulation of titles, slugs, and snippets on Google search results.
- ✓ **Algorithmic Quality Meter (0-100%):** Evaluates keyword placement in title, first 100 words, and optimal lengths.
- ✓ **Markdown Tooling:** Fast headers, bold, italics, quotes, lists, and instant compilation to `content/blog/`.

Project Portfolio Management Engine

- ✓ **Project Classification:** Commercial towers, private palaces, hospitals, and hospitality installations.
- ✓ **Technical Specs Intake:** Speed (m/s), units installed, drive technology, and geographic coordinate mapping.
- ✓ **Automated Slug Generation:** Clean search-engine-friendly permalinks generated dynamically on blur.

Production Deployment Runbook & Operational Commands

`npm start` : Launches Hugo Development Server (Port 1313)

`npm run admin` : Launches High-Security Studio (Port 3000)

`npm run build` : Compiles Production Release (`/public`)