

Technical Specifications & Infrastructure

Tile Mart Digital Platform — Engineering Requirements v1.0

This document defines the infrastructure, hardware, and media standards required to ensure the high-performance operation of the Tile Mart platform. These specifications are optimized for high-fidelity architectural rendering and seamless user experience.

1. Production Infrastructure

The platform utilizes Next.js for dynamic rendering. To maintain optimal "Cinematic" performance and high availability, the hosting environment should meet or exceed the following specifications:

Architecture:	Modern 64-bit Virtual Private Server (VPS) or Managed Cloud
Processor:	2+ vCPUs (High-frequency recommended)
Memory:	4GB RAM (Minimum 2GB for isolated runtime)
Storage:	50GB SSD / NVMe (High-speed I/O for asset caching)
OS:	Linux-based (Ubuntu 22.04 LTS or equivalent)

2. Data Management

The system leverages a relational database architecture optimized for metadata-heavy catalogs and high-speed indexing.

Engine:	PostgreSQL 16
Storage:	10GB+ initial allocation (Scalable)
Concurrency:	Support for 100+ simultaneous connections
Security:	Encrypted-at-rest and automated daily backups

3. Media & Asset Standards

To ensure rapid page loads while maintaining high visual fidelity, all creative assets must adhere to the following pre-upload compression standards.

Asset Category	Format	Max File Size	Resolution
Hero Backgrounds	WebP / MP4	< 800 KB	1920 x 1080 (HD)
Product Catalog	WebP	< 200 KB	1200 x 1200 (1:1)
Project Portfolios	WebP	< 400 KB	1600 x 2000 (Portrait)
Video Content	Embed	N/A	1080p+ (Streamed)

4. Security & Availability

- **SSL/TLS:** Mandatory 256-bit encryption via Let's Encrypt or Cloudflare.
- **Content Delivery:** Edge caching enabled via Global CDN for low-latency media delivery.
- **Optimization:** Incremental Static Regeneration (ISR) ensures data is fresh without sacrificing load speed.
- **Environment:** All sensitive credentials and API keys are managed via secure, encrypted environment variables.

Confidential Document — Prepared for Tile Mart Stakeholders. All specifications are subject to review based on traffic scaling requirements.