VMX (Vision Matrix) Documentation

Vision Matrix Guide

Contents: Overview • Workflow • Gates & Validation • Reference

1. Overview

What is VMX?

The VMX (Vision Matrix) module is the N4S platform's cost analysis engine. It translates your project's spatial program, quality tier, location, and site conditions into a structured budget trajectory using a 7-category elemental cost model based on ASTM UniFormat II.

VMX provides two modes: Lite for a streamlined client-facing summary, and Pro for full matrix control, benchmark editing, and detailed cost engineering. Both modes draw from the same engine and produce consistent results.

The 7-Category Cost Model

#	Category	What It Covers
1	Site Prep & Infrastructure	Demolition, earthworks, utilities, site access, temporary works
2	Substructure	Foundations, basement construction, retaining walls, waterproofing
3	Shell	Structural frame, exterior envelope, roofing, windows, exterior doors
4	Interiors	Interior finishes, millwork, flooring, wall treatments, ceilings, doors
5	Equipment & Furnishings	FF&E, appliances, built-in equipment, audio/visual, specialty items
6	Services (MEP)	Mechanical, electrical, plumbing, fire protection, controls, low voltage
7	Exterior Improvements	Landscaping, pools, hardscape, exterior lighting, fencing, outbuildings

Quality Tiers

Tier	KYC Mapping	Character
Select	Standard	High-quality residential — well-appointed but cost-conscious
Reserve	Premium	Elevated luxury — curated materials, considered detailing
Signature	Luxury	Bespoke luxury — custom everything, artisan-level finishes
Legacy	Ultra	Generational estate — museum-grade materials, no compromise

Lite Mode vs Pro Mode

Mode	Best For	Key Features
Lite	Clients, initial presentations	KPI summary cards, category allocation, key drivers, budget watchouts
Pro	Advisors, cost consultants	Interactive cost matrix, benchmark editing, construction indirects, soft costs, cashflow, delta heat analysis

N4S Integration — Where VMX Gets Its Data

VMX Field	Source	Behavior
Client Name	KYC (Portfolio Context)	Always Synced — display only
Target Area (SF)	KYC targetGSF FYI fallback	Seed Once — editable after load
Quality Tier	KYC (P1.A.4)	Always Synced — locked when set
Location Preset	KYC (Property Location)	Seed Once — advisor can change
Site Typology	KYS (Selected Site)	Seed Once — advisor can change
Land Cost	KYC KYS fallback	Always Synced from KYC
Program Bias	FYI (Zone SF totals)	Always Synced — auto-calculated
Budget Framework	KYC (P1.A.4)	Always Synced — read-only reference

2. Workflow

VMX Workflow

Lite Mode — Client Dashboard

Step 1: Review Project Context

Check auto-populated fields. Set Scenario A parameters: Benchmark Set, Location, Typology, Land Cost.

Step 2: KYC Budget Reference

Review gold-accented card showing client's stated budget, interior budget, flexibility, derived $/SF tier.

Step 3: Read KPI Summary

Six KPIs: Direct Hard Costs, Construction Contract, Owner Soft + Escalation, Land, Grand Total, All-in $/SF.

Step 4: Allocation Snapshot

Table breaking down Direct Hard Costs across 7 categories with cost and percentage.

Step 5: Key Cost Drivers

Typology Impact (site type vs Suburban baseline) and Location Impact (location vs National Average).

Step 6: Budget Watchouts

Flags where category allocation falls outside target range.

Step 7: Compare Mode

Optional. Add Scenario B with independent parameters for side-by-side comparison.

Step 8: Export

PDF Report (print-optimized) or Client Pack (.zip with CSV, summaries, metadata).

Pro Mode — Full Matrix Control

Step 1: Pro Controls

Benchmark Editor Target selection. Interiors + FF&E; Package 4-tier override.

Step 2: Cost Matrix

All 7 categories with Low/Medium/High bands. Click to select. Real-time totals.

Step 3: Delta Heat Analysis

Compare Mode. Category-level B−A comparison with heat classification.

Step 4: Advisory Readout

Narrative summary of scenario differences and implications.

Step 5: Benchmark Library Admin

Edit $/SF values per region/tier. Reset to Demo option.

Step 6: Guardrails & Provenance

Dataset metadata, delta heat thresholds, driver rules configuration.

Step 7: Construction Indirects

General Conditions, GL Insurance, Contingency, GC Fee (O&P;).

Step 8: Soft Costs & Cashflow

Professional fees, escalation (6% default), cashflow schedule.

Step 9: Key Drivers

Location and Typology impact analysis with configurable baselines.

Step 10: Grand Total

Direct Hard + Indirects + Land + Soft + Escalation = All-in Project Cost.

3. Gates & Validation

Guardrails & Validation Logic

Location Multiplier Logic

Location presets apply a global multiplier. For high-cost locations (>1.10), damping is applied to Categories 4 (Interiors) and 5 (FF&E;): damped = 1 + ((globalFactor – 1) × 0.5).

Location	Global Factor	Cat 4/5 (Damped)
National Average	1.00×	1.00× (no damping)
Florida	1.18×	1.09×
Colorado (Aspen/Vail)	1.50×	1.25×
New York (NYC/Hamptons)	1.42×	1.21×

Typology Category Factors

Typology	Categories Affected	Key Impact
Suburban	None (baseline)	All factors = 1.0×
Hillside	Site ×1.30, Substructure ×1.75, Shell ×1.15, Exterior ×1.50	Deep foundations, retaining walls
Waterfront	Site ×1.20, Substructure ×1.40, Shell ×1.10, Exterior ×1.25	Marine conditions, flood protection
Urban	Site ×1.25, Exterior ×0.50	Tight logistics, less exterior
Rural	Site ×1.75, Exterior ×1.10	Infrastructure bring-in, long haul
Desert	Site ×1.10, Shell ×1.10, MEP ×1.15, Exterior ×1.20	Thermal envelope, cooling

Program Bias (FYI Zone Weighting)

Interiors + FF&E; Boost: When FOH zones exceed 26% of total, Categories 4 and 5 boosted up to +12%.

Services (MEP) Boost: When MEP-driver zones exceed 18% of total, Category 6 boosted up to +12%.

Delta Heat Thresholds

Heat Level	Threshold	Meaning
Low	< 1.5%	Negligible — noise level
Medium	1.5%	Material — worth discussing
High	3.0%	Significant — requires attention

4. Reference

VMX Reference

Glossary

Direct Hard Costs

Sum of 7 elemental categories — construction cost before markups.

Construction Indirects

GC overhead: General Conditions, GL Insurance, Contingency, GC Fee.

Soft Costs

Owner-side fees: architect, interior design, landscape, permits, PM, legal.

Escalation

Cost inflation over construction duration. Default 6% annually.

Grand Total

All-in: Direct Hard + Indirects + Land + Soft + Escalation.

Heat Band

LOW / MEDIUM / HIGH benchmark tiers for each cost category.

Target Range

Expected allocation percentage range for each category.

Location Factor

Geographic cost multiplier. 1.00× to 1.50×.

Damping

Reduced location factor for Interiors/FF&E; in high-cost locations.

Typology

Site classification: Suburban, Hillside, Waterfront, Urban, Rural, Desert.

Program Bias

Auto-adjustment from FYI zone allocations.

Interior Tier Override

Pro mode: separate quality tier for Interiors and FF&E.;

Provenance

Benchmark dataset metadata for audit trail.

Location Presets

Preset	Label	Factor
national	National Average	1.00×
florida	Florida (Miami/Palm Beach)	1.18×
co_denver	Colorado (Denver)	1.10×
co_aspen	Colorado (Aspen/Vail)	1.50×
ca_la	California (LA/OC)	1.30×
ny_hamptons	New York (NYC/Hamptons)	1.42×
custom	Custom...	User-defined

Default Construction Indirect Rates by Tier

Line Item	Select	Reserve	Signature	Legacy
General Conditions	6%	8%	10%	12%
GL Insurance	1.0%	1.0%	1.25%	1.5%
Contingency	5%	5%	8%	10%
GC Fee (O&P)	10%	12%	14%	16%

Default Soft Cost Rates

Line Item	Basis	Default Rate
Architect Fee	Hard Costs	6%
Interior Design Fee	Hard Costs	6%
Landscape Design Fee	Hard Costs	3%
Permits & Entitlements	Hard Costs	2%
Project Management	Hard Costs	4%
Legal & Accounting	Hard Costs	1%
Owner's Contingency	Hard Costs	5%