MCP SERVER | NO CODE | CLOUD HOSTED

Tile Floor Calculator MCP for AI Agents

Accurate Material Estimation for Complex Tiling Projects

The Tile Floor Calculator estimates everything you need for a tiling job: tiles, grout, adhesive, and the final cost. This specialized tool takes complex floor shapes—whether they're simple rectangles or irregular polygons—and calculates precise material quantities, accounting for specific patterns like herringbone or diagonal layouts. It provides detailed breakdowns of waste factors and total expenditures so you can budget accurately before laying a single tile.

A+ Quality Score 100/100

tiling | flooring | estimation | construction-tools | material-calculator

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vinkius.com/mcp/tile-floor-calculator

SCAN TO VIEW

The connectivity layer between AI and the world's software.

Vinkius sits between AI and every application. All communication passes through Vinkius Cloud via the Model Context Protocol (MCP) — with governance, observability, and security at every layer.

Your AI Connections Run Through Vinkius Cloud

The world's largest managed MCP catalog

Vinkius is the connectivity layer where AI connects to the software your business already runs. We handle the hosting, the security, the credentials, the uptime — you get agents that actually do things.

We operate the world's largest managed MCP catalog. Major SaaS platforms, CRMs, databases, and cloud providers — running, monitored, production-ready. This MCP server is hosted and maintained by the Vinkius Cloud for AI Agents.

> *The agent doesn't manage credentials, doesn't manage uptime, doesn't manage security. Vinkius does.*
>
> — Architecture principle

Four Pillars of the Vinkius Runtime

01 — Security by design

Credentials stay encrypted at rest via AES-256. The AI agent never touches raw keys — they're injected into a sandboxed V8 isolate at runtime. Actions are logged, and connections have an emergency kill switch.

02 — Built on MCP Fusion

This MCP server was built with **MCP Fusion**, the open-source framework (Apache 2.0) that powers the entire Vinkius catalog. Schema-as-firewall strips undeclared fields, compiled PII redaction runs at zero overhead, and cryptographic lockfiles produce git-diffable audit trails.

03 — Deterministic observability

Eight immutable metrics per endpoint: request volume, p95 latency, error rate, active connections, cost attribution. A live payload feed logs every tool call with mutation detection.

04 — Autonomous operations

Servers are deployed, monitored, and patched autonomously. New capabilities and security patches ship weekly. Zero-downtime deployments ensure continuous availability across all managed MCP servers.

AES-256	Ed25519	24h TTL	V8 Isolate
Encryption at rest	PKI vault signatures	Ephemeral session keys	Sandboxed execution

One Token. Instant Access.

Every MCP server on Vinkius is accessed through a **Connection Token**. Tokens are generated in the cloud dashboard and produce a unique MCP endpoint URL. Paste this URL into any MCP-compatible client — no SDK required.

A single token can serve **multiple AI clients simultaneously**, or you can issue separate tokens per client for granular access control. Each token tracks its own request count, last activity timestamp, and can be individually enabled or revoked.

MCP ENDPOINT

```
https://edge.vinkius.com/{token}/mcp
```

Claude · Cursor · VS Code · Windsurf · Grok · Gemini

Security Is the Architecture

Security in Vinkius is not a feature — it's the foundation of the runtime. The gateway enforces multiple independent protection layers between AI agents and third-party APIs.

01 — Ed25519 PKI Vault

Every workspace has an Ed25519 Master Key. Session keys are generated ephemerally (24h TTL) and signed by the Master Key. Credentials never leave the vault boundary.

02 — V8 Isolate Sandboxing

Tool code runs inside isolated-vm V8 isolates with 64 MB memory caps and per-request timeouts. No filesystem access, no network access except through the SSRF-guarded fetch bridge.

03 — SSRF Guard

All outbound HTTP requests are DNS-resolved and validated before execution. Private IP ranges (10.x, 172.16-31.x, 192.168.x, AWS metadata 169.254.x) are blocked at the network layer.

04 — DLP & PII Redaction

A ResponseGuard pipeline intercepts every tool response. Configurable redaction patterns strip sensitive fields (emails, SSNs, card numbers) before data reaches the AI agent.

05 — Cryptographic Audit Trail

Every request is signed into a SHA-256 hash chain with Ed25519 signatures. Events form a tamper-proof, SIEM-exportable forensic record.

06 — Honeytoken Trap System

Phantom credentials are injected into isolated environments. If a honeytoken is used outside Vinkius infrastructure, the server is quarantined instantly.

Emergency Kill Switch

EU AI Act Art. 14(1) Compliant

The kill switch is an **emergency halt** mechanism — not a simple toggle. When triggered, it executes three actions atomically:

01 — Server deactivated

The MCP server is immediately taken offline across the entire cluster.

02 — All tokens revoked

Every connection token is invalidated. Total lockout — reconnection blocked until new tokens are issued.

03 — WebSocket connections killed

Active connections terminated via Redis pubsub broadcast. Propagates to every runtime node in the cluster.

Full Visibility. Zero Guesswork.

The Vinkius cloud dashboard includes a full MCP Governance suite — real-time analytics and security controls for production AI operations.

Control Plane

KPI dashboard with request volume, latency, success rate, token consumption, and AI-generated operational briefings.

Agent Activity

Which AI clients are connecting, how often, and what they're doing — real-time session tracking.

FinOps

Cost tracking per tool, payload compression savings, budget optimization signals, and consumption trends.

Tool Health

Slowest and most error-prone tools, with actionable root-cause insights and performance baselines.

Firewall & DLP

PII redaction activity, sensitive data protection counters, and security event timeline.

Incident Log

Error trends, failure rates, status-code breakdowns, and forensic audit trail access.

> Get started at **cloud.vinkius.com** — connect your AI agent in under 60 seconds.

Tile Floor Calculator MCP

4 tools available
Cloud-hosted on Vinkius

Tiling projects require more than just knowing the square footage; you need to account for grout volume, adhesive requirements, and waste due to complex cuts. This MCP handles every variable in that equation. You feed it the boundary points of your room, and it calculates the exact surface area. From there, it estimates tile counts based on specific patterns—like diagonal or straight layouts—and determines how much joint material and edge trim you need. Finally, it takes all those materials and factors in unit prices to give you a firm project budget. By connecting this MCP through Vinkius, your AI agent can handle the math so you don't have to juggle multiple spreadsheets, giving you a single, complete picture of costs and materials.

Core Capabilities

01 — Determine room surface area

Calculates the precise surface area of any room defined by its boundary points.

02 — Estimate material counts for tiling

Determines the exact number of tiles and adhesive needed, adjusting calculations for pattern waste factors (Straight, Diagonal, Herringbone).

03 — Calculate grout and edge trim volume

Provides specific measurements for required grout volume and necessary length for perimeter edge strips.

04 — Finalize total project budget

Adds up all material requirements with your unit prices to generate a complete cost estimate.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/tile-floor-calculator** — connect your AI agent in three steps.

01 Define the room's layout by providing its boundary points. This tells the MCP the exact surface area you need to cover.

02 Specify your tile size, chosen pattern (e.g., diagonal), and material unit prices. The MCP then calculates required tiles, adhesive, grout volume, and edge trim length.

03 The final step combines all these materials with their costs to deliver a single, accurate total project budget.

The bottom line is you get an immediate, comprehensive cost breakdown for any tiling job, regardless of how complex the room's shape or pattern becomes.

Built For

Contractors who lose money on material waste, designers working on tight budgets, and advanced DIY homeowners tackling large-scale flooring projects. If your estimate misses a single variable—like the grout volume—you risk running out of materials mid-job.

General Contractor

Uses this MCP to generate material takeoffs for multiple rooms quickly, ensuring accurate bids and minimizing costly site delays due to insufficient supplies.

Interior Designer

Calculates precise tile counts and adhesive amounts for complex or curved spaces, presenting clients with highly reliable cost estimates early in the design phase.

Project Manager

Manages the supply chain by getting a single figure for total project costs, allowing them to track budgets against multiple material purchases simultaneously.

What Changes When You Connect

01 Stop guessing material quantities. Use `estimate_tile_requirements` to know exactly how many tiles you need, adjusting instantly for patterns like herringbone.

02 Eliminate budget overruns by using `sum_project_costs`. This MCP combines tile counts, adhesive costs, and grout prices into one final figure.

03 Handle weird room shapes without issue. The `calculate_room_area` tool accepts boundary points, ensuring your area measurement is precise for any layout.

04 Don't forget the little details. Use `calculate_joint_and_trim` to get accurate measurements for grout volume and perimeter edge strips—things that often trip up estimates.

05 Save time by combining calculations. Instead of using three different calculators, this MCP handles area calculation, material estimation, and cost totaling in one workflow.

Real-World Applications

Designing a kitchen with an irregular shape

A designer feeds the room's boundary points to calculate their surface area. They then run `estimate_tile_requirements` for a diagonal pattern, which provides the tile count and adhesive amount needed, ensuring the job is scoped correctly before ordering materials.

Calculating costs for a bathroom with tricky corners

A contractor uses this MCP to first calculate the room area using boundary points. Next, they use `calculate_joint_and_trim` to get grout and trim lengths, and finally run `sum_project_costs` to give the client a fixed, comprehensive price.

Comparing different tiling patterns on a large floor

The user runs `estimate_tile_requirements` three times: once for straight, once for diagonal, and once for herringbone. The MCP immediately shows the tile count difference and the resulting cost variation, helping the designer choose the best pattern.

Getting a final budget after material selection

After determining the area and materials, the user inputs all unit costs into `sum_project_costs`. This tool synthesizes everything to provide one single, actionable total project expenditure figure.

Patterns to Avoid

Estimating tile count only

✗ AVOID

A user calculates the square footage and then simply divides it by the tile size. This method ignores crucial waste factors for diagonal patterns and fails to account for adhesive or grout.

✓ INSTEAD

Always use `estimate_tile_requirements` because it includes pattern-specific waste percentages and determines required adhesive amounts, giving a much more realistic number.

Ignoring room geometry

✗ AVOID

Using simple linear measurements for an L-shaped or polygonal room. This always leads to underestimating the actual surface area needed.

✓ INSTEAD

For any non-rectangular space, you must first run `calculate_room_area` using all defined boundary points to get the true, precise surface area.

Calculating materials piecemeal

✗ AVOID

Running separate calculations for tile costs, grout costs, and trim lengths without a final summary. This requires manual addition of every line item.

✓ INSTEAD

Use `sum_project_costs` last. Feed it the output from all previous calculation steps to get one clean, total project budget figure.

The Right Fit

Use this MCP if you need a single source of truth for tiling costs and material requirements. Specifically, use it when your job involves complex geometry (requiring `calculate_room_area`) or patterned layouts (requiring `estimate_tile_requirements`). Don't use it if you are only calculating the cost of simple, non-floor items, like trim work that doesn't require grout calculation; for those, a simpler linear measurement tool is fine. If your project requires advanced structural engineering or plumbing estimates, this MCP won't help—it focuses purely on surface materials and finishing details.

Tile Floor Calculator: Bidding Accurate Costs for Complex Flooring Jobs

Manual tiling bids are a nightmare. You spend hours measuring rooms, drawing up sketches, and then cross-referencing multiple material guides to figure out the tile count, plus the waste factor for diagonal patterns, and then calculating grout volume separately. It’s an exercise in copy-pasting numbers between spreadsheets.

With this MCP, you simply define the room's boundaries once. The tool handles all that heavy math—from determining the surface area to estimating adhesive needs and final cost totals—and spits out a single, comprehensive material list. You get professional estimates instantly.

Tile Floor Calculator: Mastering Material Takeoffs for Custom Flooring

Before this MCP, figuring out the total cost meant running separate calculations for tiles, then a second one just for grout and trim pieces. You often missed the interconnected variables, leading to material shortages or budget padding.

Now, you can run the full sequence: Area -> Tile Estimates -> Joint/Trim Calculation -> Total Cost. It's a single workflow that guarantees your bid covers every necessary component, leaving nothing to chance.

Tile Floor Calculator: 4 Tools for Accurate Flooring Estimates

Use these four tools to define the room area, estimate tile counts for various patterns, calculate joint materials, and finalize your project budget.

#	TOOL	DESCRIPTION
01	`calculate_room_area`	Finds the surface area of a room by inputting its boundary points.
02	`sum_project_costs`	Finalizes a total material cost estimate using provided unit prices for all components.
03	`calculate_joint_and_trim`	Calculates the specific volume of grout needed and the required length of edge trim.
04	`estimate_tile_requirements`	Determines how many tiles and adhesive you need, factoring in waste for straight, diagonal, or herringbone patterns.

See It in Action

Real prompts you can use once this MCP is connected to your AI agent through Vinkius Cloud.

U I have an irregularly shaped basement floor defined by these 10 corner coordinates. What is the total area I need to tile?

Surface Area Calculation

The calculated surface area for this polygonal space is **245 square feet.**

Details: This figure accounts for all boundary points and assumes a standard level plane.

Next Step: Use this 245 sq ft number to estimate your tile requirements.

U I'm using 12×24 tiles in a herringbone pattern on a 300 sq ft area. How many tiles and how much adhesive do I need?

Tile Material Estimate

PATTERN	AREA (SQ FT)	TILES NEEDED	ADHESIVE REQUIRED
Herringbone	300	~425 tiles	1.5 gallons

Note: This estimate includes a standard 15% waste factor for complex patterns.

U What is the total project cost if I need 245 sq ft, and my tile costs $3/sq ft? Use diagonal pattern estimates.

Project Budget Summary

Based on a 245 sq ft area with a diagonal pattern:

- Tiles (incl. waste): $1,290
- Adhesive: $280
- Grout & Trim: $110
- **TOTAL ESTIMATED COST: $1,680**

Frequently Asked Questions

01 **How does the Tile Floor Calculator handle rooms with non-standard or curved shapes?**

It doesn't need you to measure curves; just provide the key boundary points. The tool calculates the true surface area of any complex, polygonal space, giving you an accurate starting point for materials.

02 **Does this MCP calculate waste factors for different tile patterns?**

Yes, it does. You can specify if your pattern is straight, diagonal, or herringbone. The tool automatically incorporates the necessary waste percentage into the final tile count and adhesive estimate.

03 **What do I need to provide besides dimensions for the cost calculation?**

For a full budget, you'll need the unit price for your tiles, the adhesive, and any other materials like grout or edge trim. The MCP combines those costs into one total.

04 **Can I calculate everything—area, material count, and cost—in one go with this tool?**

Yes, you can run the full workflow. It allows you to determine the room area first, then use that area to estimate materials (tiles/grout), and finally sum up all those costs into a single budget.

05 **If I change my tile pattern, how quickly can I adjust my material count?**

You can run the `estimate_tile_requirements` tool instantly with a new pattern input. The MCP recalculates both the tile count and necessary adhesive volume immediately.

Go Live in 60 Seconds

Get your connection token from **cloud.vinkius.com**, then paste the endpoint URL into any MCP-compatible client.

YOUR MCP ENDPOINT

```
https://edge.vinkius.com/[TOKEN]/mcp
```

CLIENT	WHERE TO CONFIGURE
Claude AI	Profile → Customize → Connectors → "+" → Add custom connector → Paste endpoint
Cursor	Settings → Features → MCP Servers → "+ Add New MCP Server" → Type: SSE → Paste endpoint
VS Code	Ctrl/Cmd+Shift+P → "MCP: Add Server" → add `"tile-floor-calculator": { "url": "…" }`
Windsurf	MCP Settings → `mcp_settings.json` → Add endpoint URL
ChatGPT	Settings → Tools & plugins → Add MCP server → Paste endpoint
Gemini	Extensions → Add MCP Server → Paste endpoint URL

ASK AN AI ABOUT THIS

Let your preferred AI explain this MCP server

- Ask ChatGPT
- Ask Claude
- Ask Perplexity
- Ask Gemini
- Ask Grok

READY TO CONNECT

Tile Floor Calculator is live on Vinkius Cloud.

Get your connection token, paste it into your AI agent, and start building. No SDK. No deployment. Just results.

Start at cloud.vinkius.com →

vinkius.com · support@vinkius.com

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