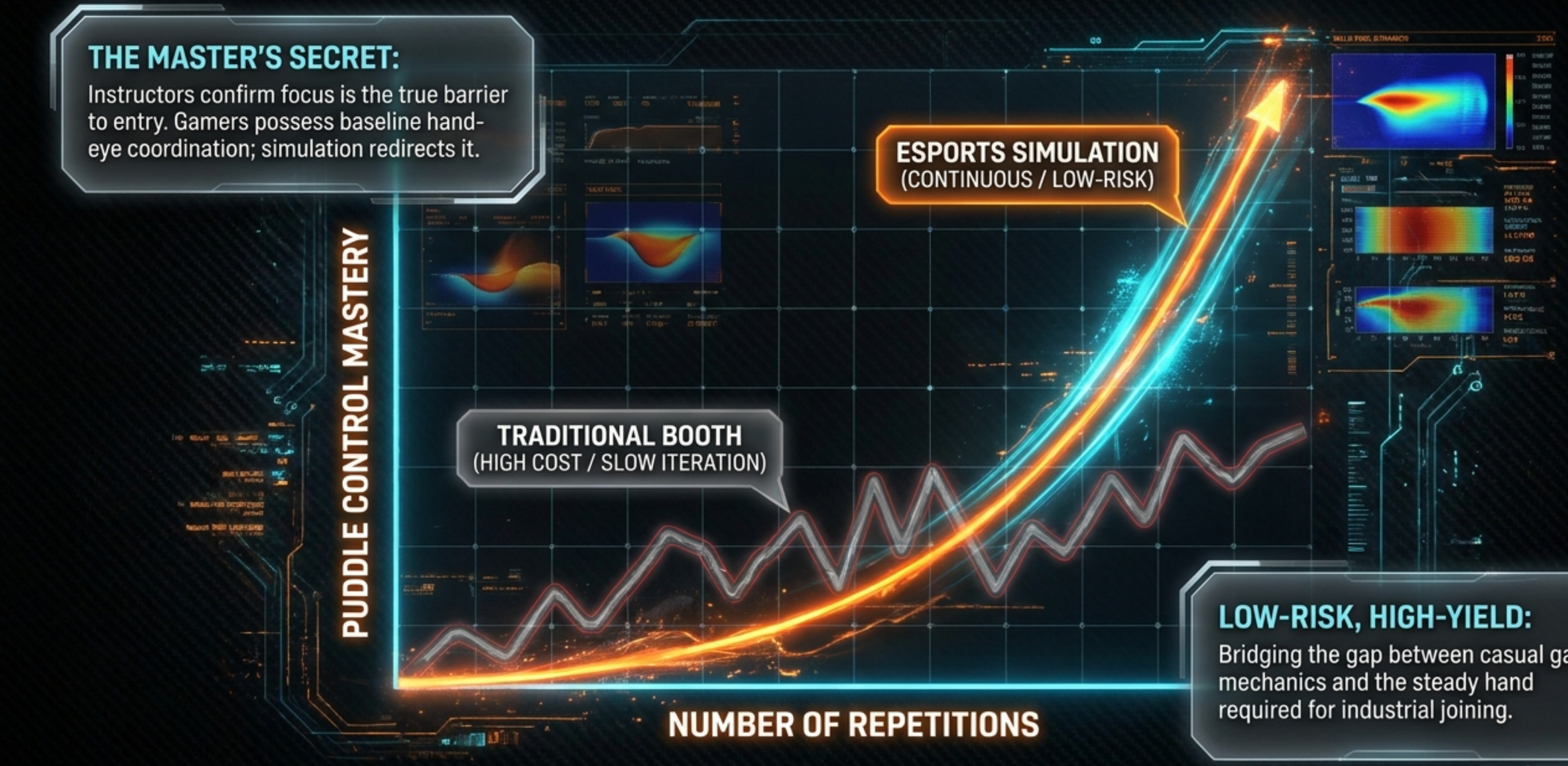
Game 0: Puddle Control and the Foundation of Welder Esports



Gemini Notebook

HIGH-FREQUENCY REPETITION BUILDS PHYSICAL REALITY

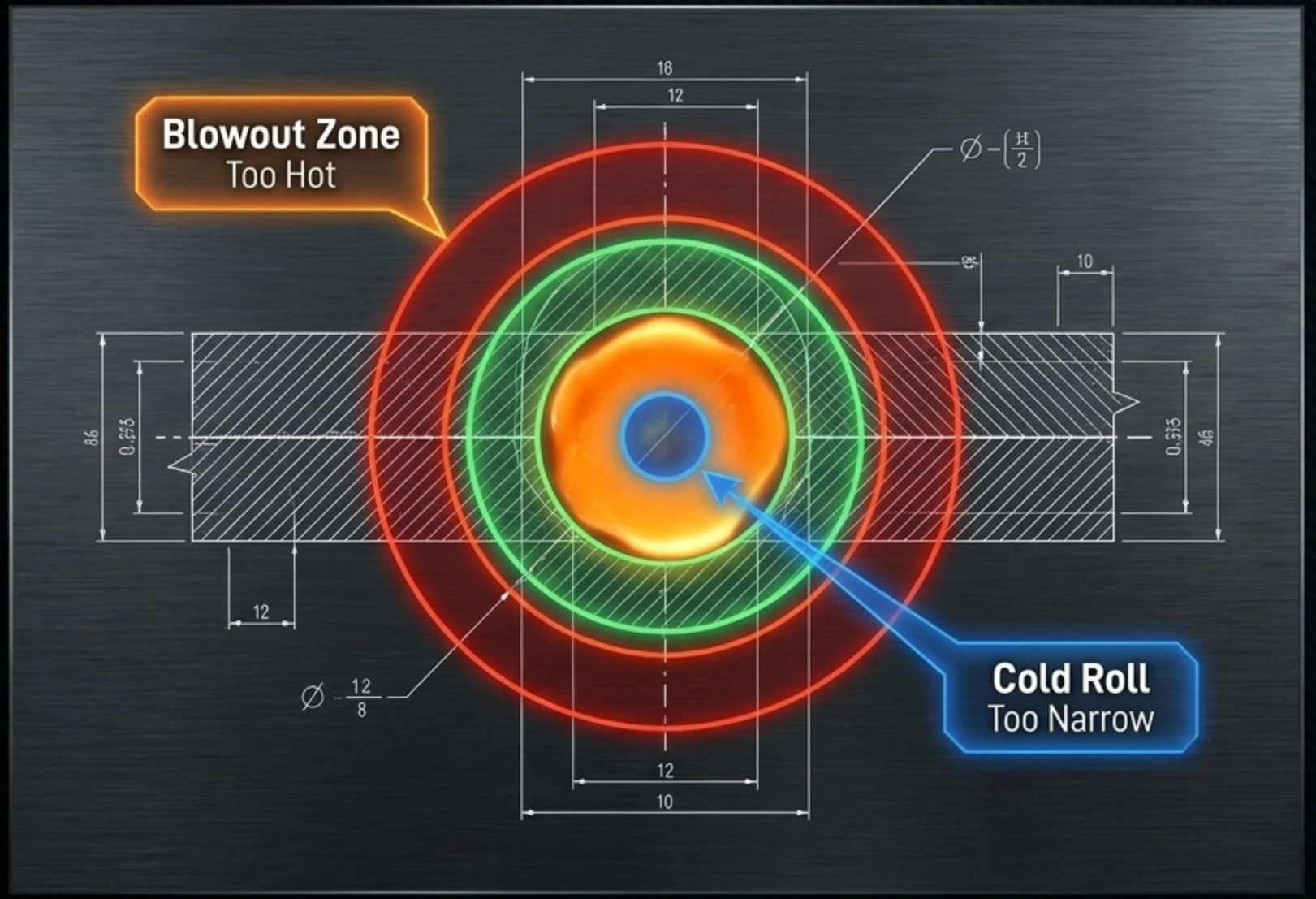
THE MASTER'S SECRET:
Instructors confirm focus is the true barrier to entry. Gamers possess baseline hand-eye coordination; simulation redirects it.



LOW-RISK, HIGH-YIELD:
Bridging the gap between casual gamer mechanics and the steady hand required for industrial joining.

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The Core Objective is the 5mm Target



Target Size:
5mm diameter continuous molten puddle.

Tolerance:
+/- 0.5mm variance allowed during torch travel.

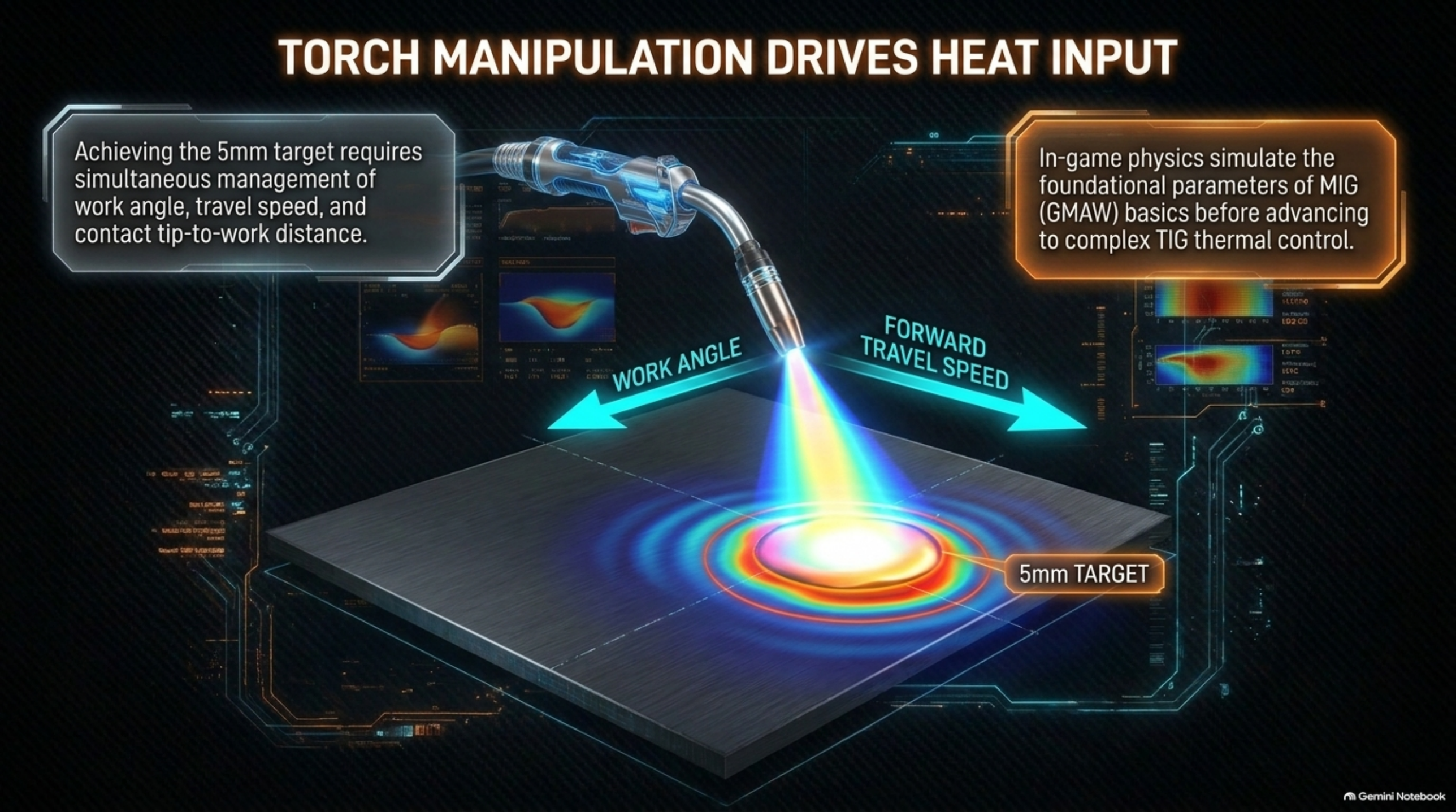
Objective:
Keep the puddle size completely consistent from arc strike to crater fill.

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TORCH MANIPULATION DRIVES HEAT INPUT

Achieving the 5mm target requires simultaneous management of work angle, travel speed, and contact tip-to-work distance.

In-game physics simulate the foundational parameters of MIG (GMAW) basics before advancing to complex TIG thermal control.



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First-Person Diagnostic Interface



Safety Gate Icon:
OSHA compliance checklist indicator.

Aim Telemetry:
Dynamic crosshairs that track exact joint positioning.

Parameter Readouts:
Simulated live amperage and voltage feeds mimicking physical welding equipment displays.

Live Puddle Diagnostics:
Real-time diameter readout.

Size: 4.8mm → Size: 5.1mm



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Physical Translation via Haptic Resistance

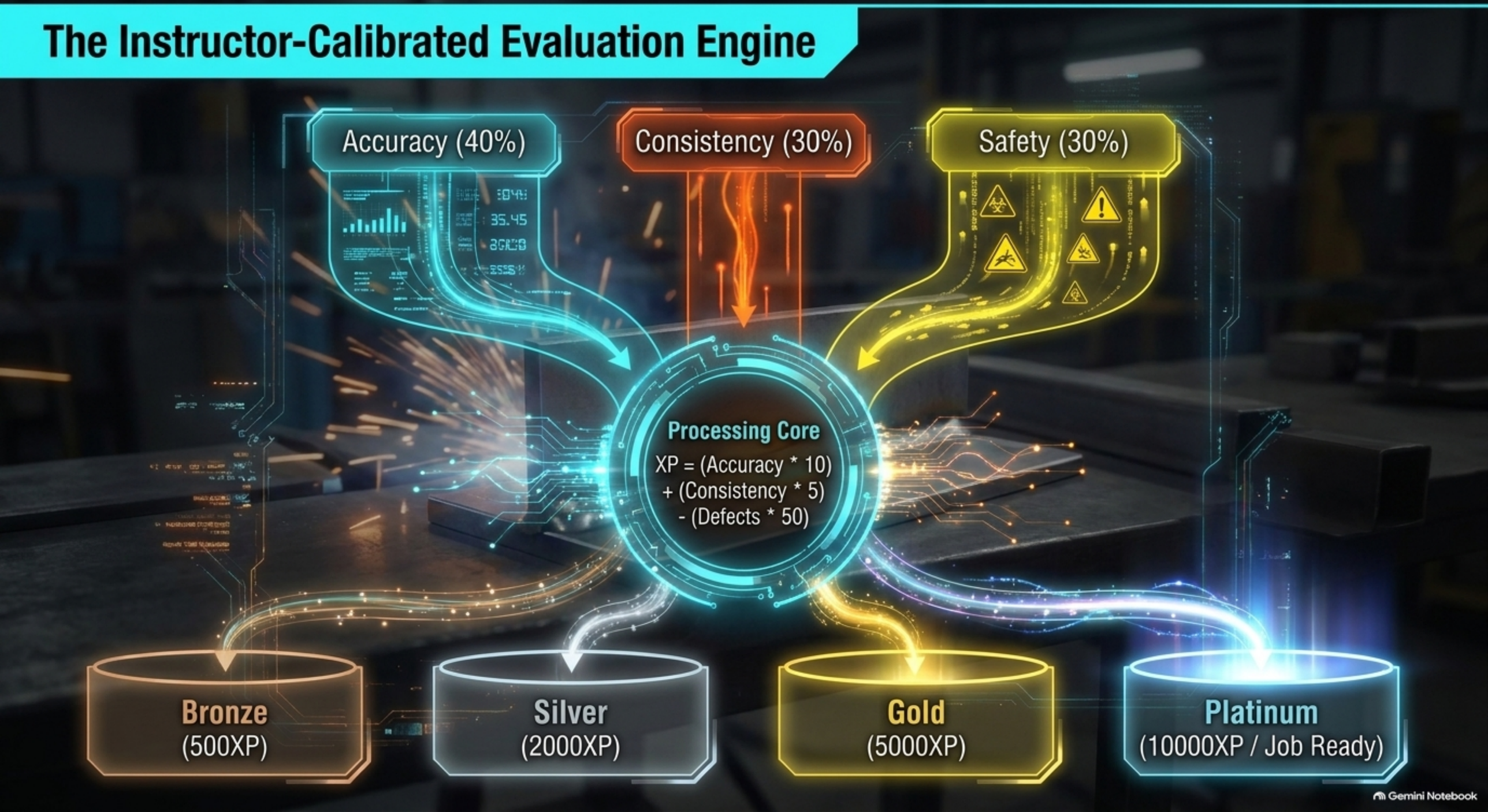


The Physical Bridge: Controller feedback provides immediate physical resistance and vibration corresponding to the 5mm visual tolerance zone.

Muscle Memory: Forces players to instinctively correct work angle and travel speed without relying solely on visual UI cues.

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The Instructor-Calibrated Evaluation Engine



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Precision Tracking Defines Accuracy



Weight: 40% of Final Score.

Metric: Maintaining the precise 5mm puddle target and optimal torch work angle throughout the entirety of the joint.

Penalty: Deviations permanently degrade the accuracy yield for the session.

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Rhythm and Continuous Travel Speed



High Consistency Score: Fluid Travel Speed across 200mm

Low Consistency Score: Stuttering movement & inconsistent heat application

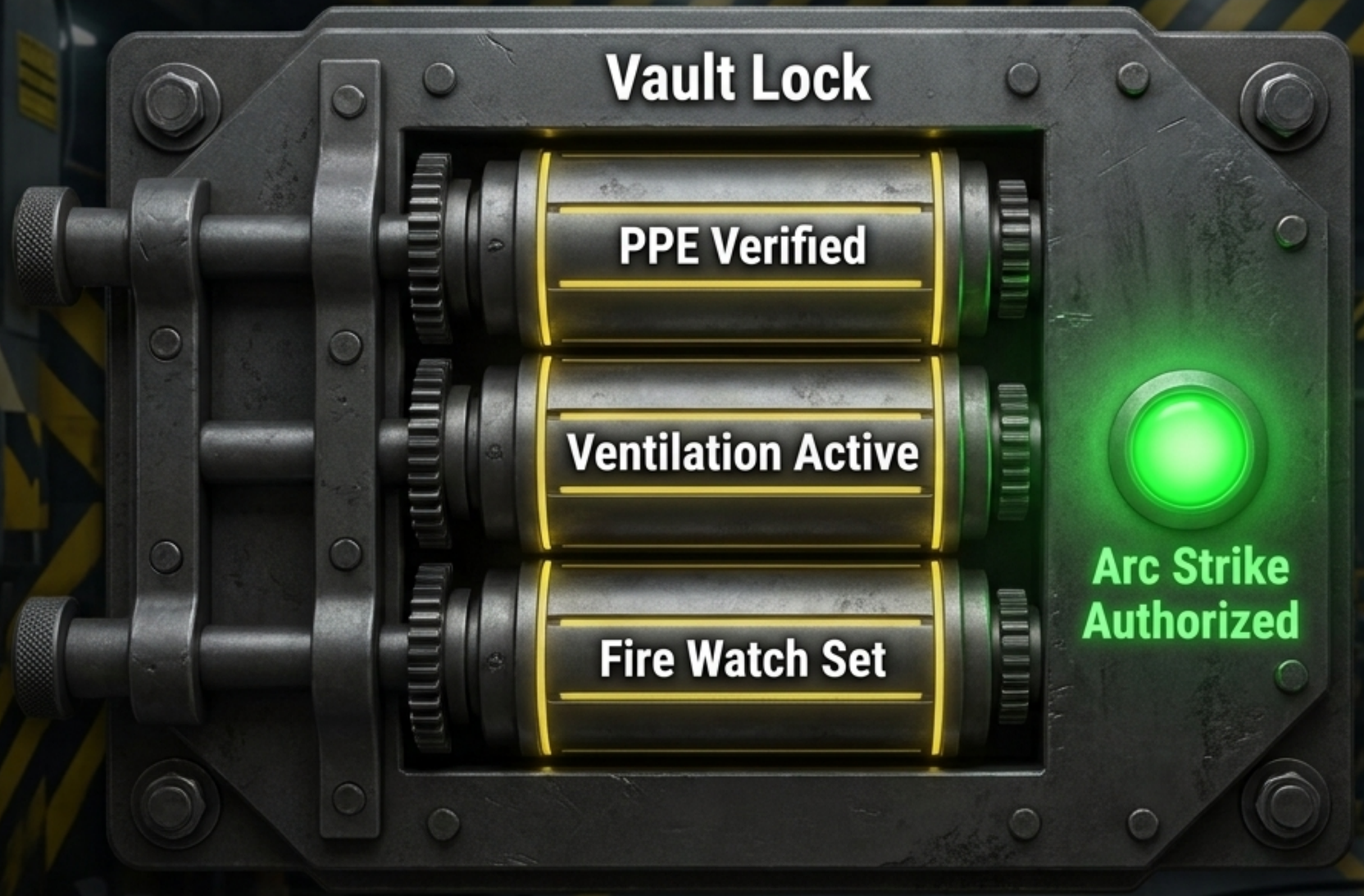
Weight: 30% of Final Score.

Metric: Travel speed fluidity.

Outcome: Eradicating the stop-start habits of amateurs to ensure consistent heat input and prevent structural weaknesses.

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Procedural Safety is Uncompromisable



Weight: 30% of Final Score (Base requirement).

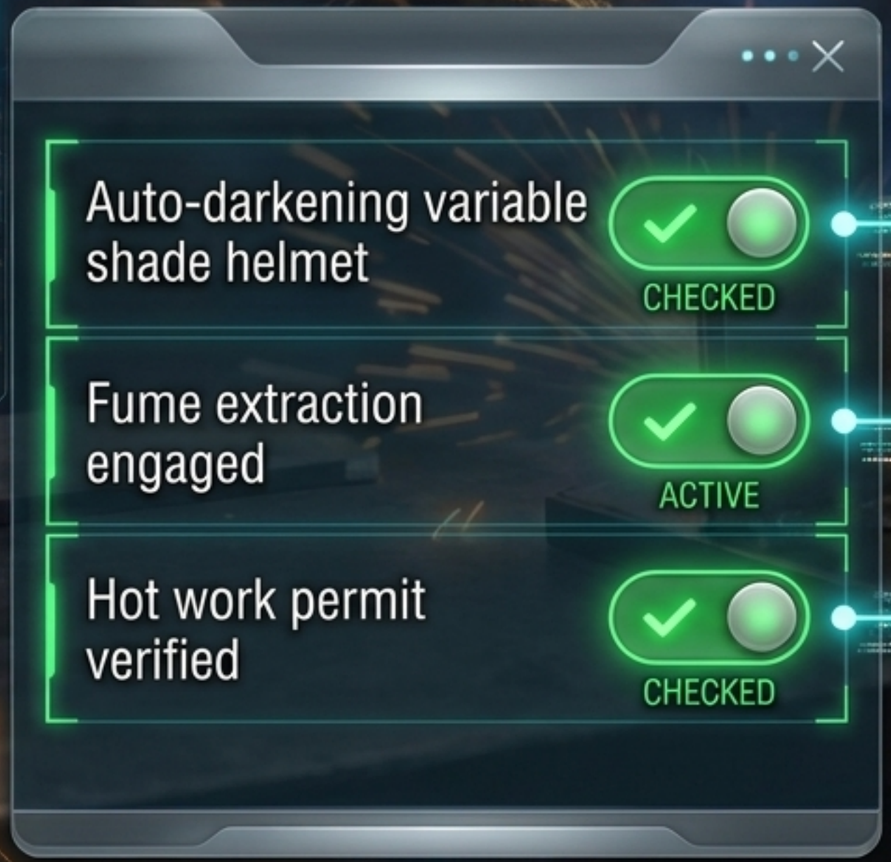
Metric: Critical safety checks must be cleared prior to arc ignition.

Penalty: Unsafe procedural decisions trigger instant remediation or completely void the competitive run.

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Federal Safety Integration and Compliance

The Virtual Environment



Federal Law

OSHA 29 CFR 1910.252(d): Detailed training in safe operation and hazards.

OSHA 29 CFR 1910.255(a)(3): Operators instructed and judged competent.

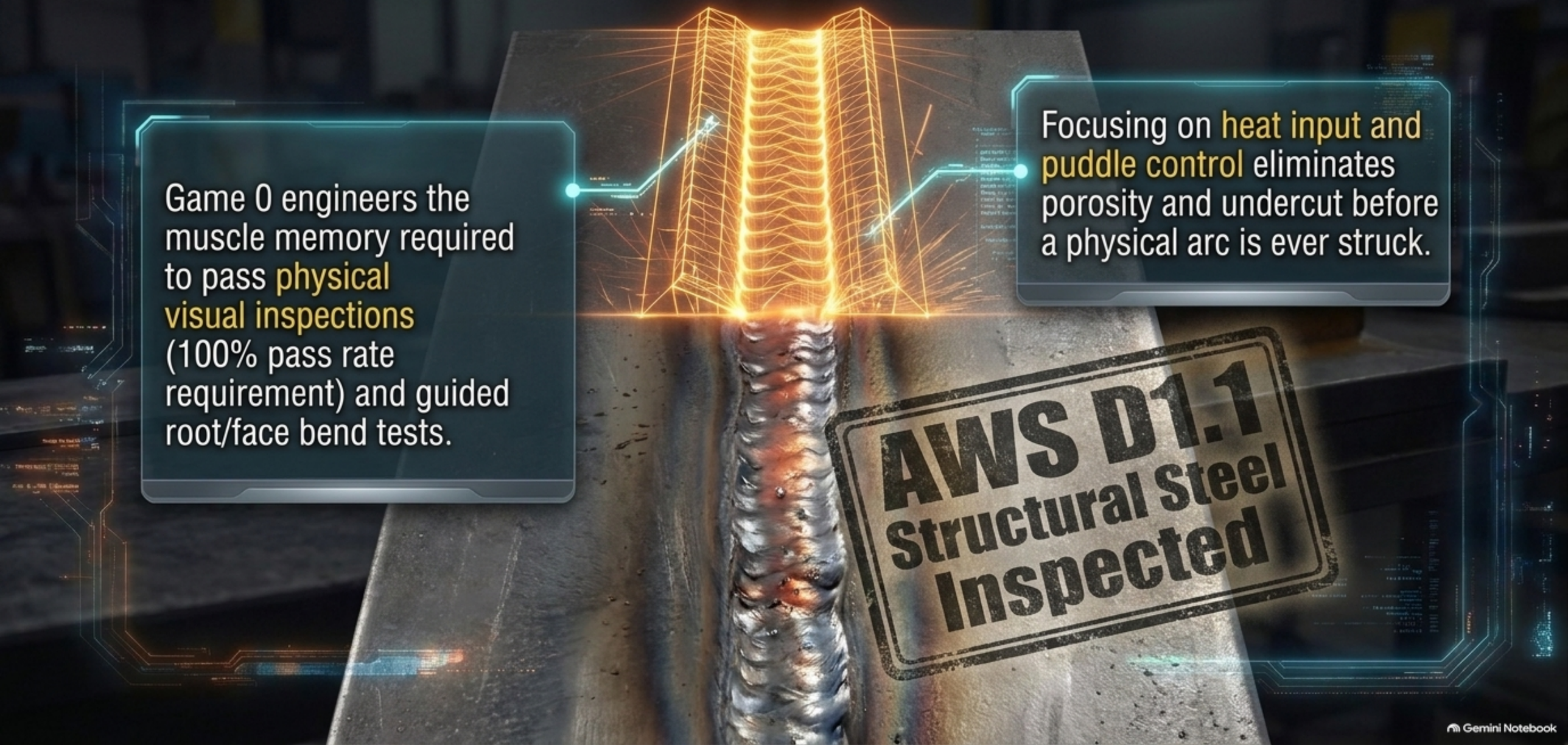
OSHA 29 CFR 1926 Subpart J: Mandatory gas welding/cutting safety protocols.

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Anchored in AWS D1.1 Structural Codes

Game 0 engineers the muscle memory required to pass physical visual inspections (100% pass rate requirement) and guided root/face bend tests.

Focusing on heat input and puddle control eliminates porosity and undercut before a physical arc is ever struck.



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Synthesis: Digital Mechanics to Physical Verification

Game Mechanic	Physical Skill	Standard
5mm Target (+/- 0.5mm)	Heat Input Control	AWS D1.1 Visual 100%
Haptic Rumble Zones	Porosity & Undercut Prevention	AWS D1.1 Guided Bend Validation
30% Hard Safety Score	Shop Protocol & PPE Validation	OSHA 1910.252(d) & 1926 Subpart J

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The Foundation of the 120-Day Curriculum

Days 91-120: Platinum Tier: Job Ready / Remote Teleoperation (100-400ms latency)

Remote Ops, Safety, Final Qualification

Days 61-90: 6G Pipe Master / Overhead Chaos (Gold Tier)

Positions 2G/3G, 4G overhead, 6G pipe

Days 31-60: Stick / TIG Foot Pedal / Blueprint Blitz (Silver Tier)



Travel speed, Arc length, Control

Game 0: Puddle Control - Rookie Bootcamp (MIG Basics) [Days 1-30]

Focus on heat input, puddle consistency



Mastering the 5mm puddle is the absolute prerequisite to advancing through the ranks.

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From Virtual Tier to Physical Lab



XP recorded to the Esports League Hub.

MODULE PASSED: SAFETY & PRECISION VERIFIED

Player cleared for advanced module progression and physical booth verification.

LOAD GAME 1: BEAD LINE

Outputting telemetry to GoHighLevel CRM for employer placement pipeline.

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