





AUGUST 29, 2026 · CLARB ANNUAL MEETING KEYNOTE ADDRESS · ROOTED IN STRENGTH 2026

AI in Design Practice and Education: Opportunities, Risks, and Responsibilities

Jenn Becker

Digital Technology Strategist · Colead of Research & Development · AI Subject Matter Expert at Confluence

IN PRACTICE AT

CONFLUENCE

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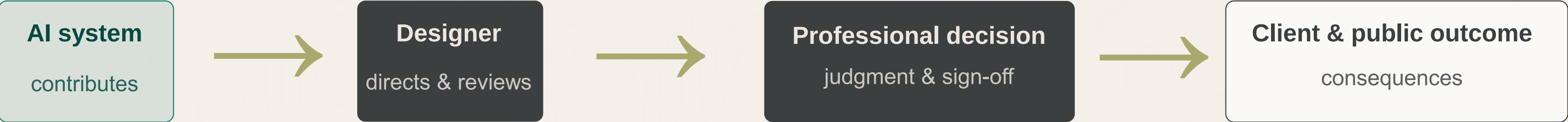
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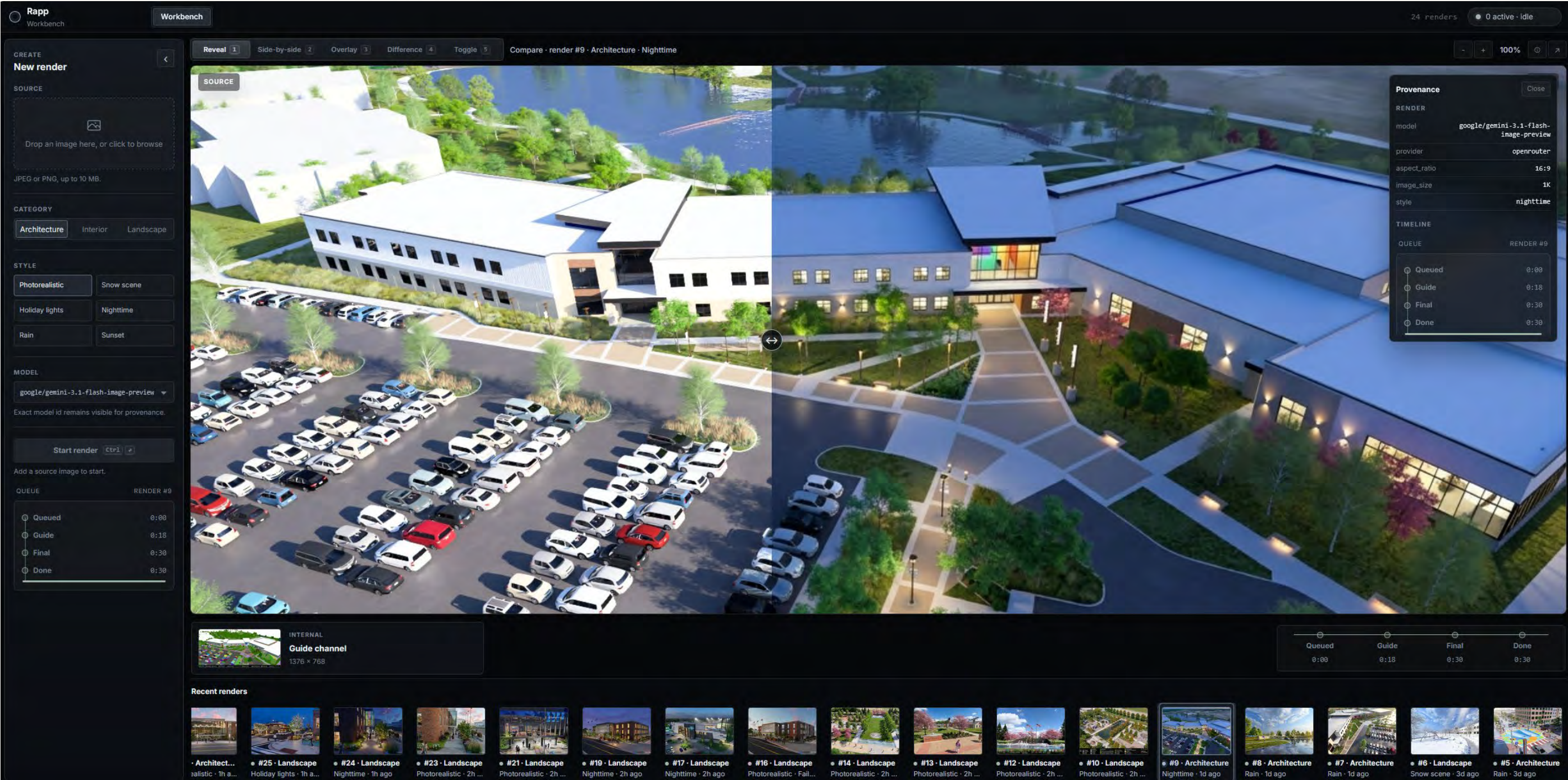
If AI contributes to the work, who is responsible for **the result?**



Contribution moves left to right. **Accountability does not travel with it.**

Where has AI already entered landscape architecture?

- Writing
- Administration
- Documentation
- Visualization
- Software automation
- Coding & scripting
- Research



AI adoption is not a future event.

It already threads through the phases of an ordinary project — as many small touchpoints, not one system.

Research
& discovery

- Literature & precedent search
- Data organization
- Summarizing input

Communication
& delivery

- Drafting & translation
- Stakeholder materials
- Task automation

Concept
& design

- Option generation
- Early visualization
- Rendering setup

Documentation
& modeling

- 3D model management
- Applications
- Repetitive setup



AI use exists on a spectrum.



ASSISTIVE

Suggests or organizes

Drafts text, sorts information, offers options. You stay in the loop for every step.

GENERATIVE

Creates new content

Produces images, text, or geometry from a prompt. Output is new, not retrieved.

AUTOMATED

Executes a defined process

Runs a fixed, repeatable sequence you specified in advance.

AGENTIC

Chooses & performs steps

Selects and takes actions within boundaries you set — the most autonomy.

MORE AUTONOMY · MORE CONTROLS NEEDED



LESS AUTONOMY · LIGHTER CONTROLS

The question is not whether AI will be used. It is **how it will be used responsibly.**

01

Professional Practice

Where AI already helps — and where it must not lead.

02

Education

Teaching the tools without losing the foundations.

03

Risk & Responsibility

Polished, persuasive, and sometimes wrong.

04

Regulation & Licensure

Extending duties we already have.

Augment

Use AI to **extend** human capability — not replace professional judgment.

Verify

Review output by the **likelihood and consequence** of an error.

Disclose

Be transparent when AI **materially affects** a decision or deliverable.

Own

Keep clear **human accountability** for the work and its consequences.

AI can participate in the work. **It cannot be responsible for the result.**

SECTION 01

AI in Professional Practice

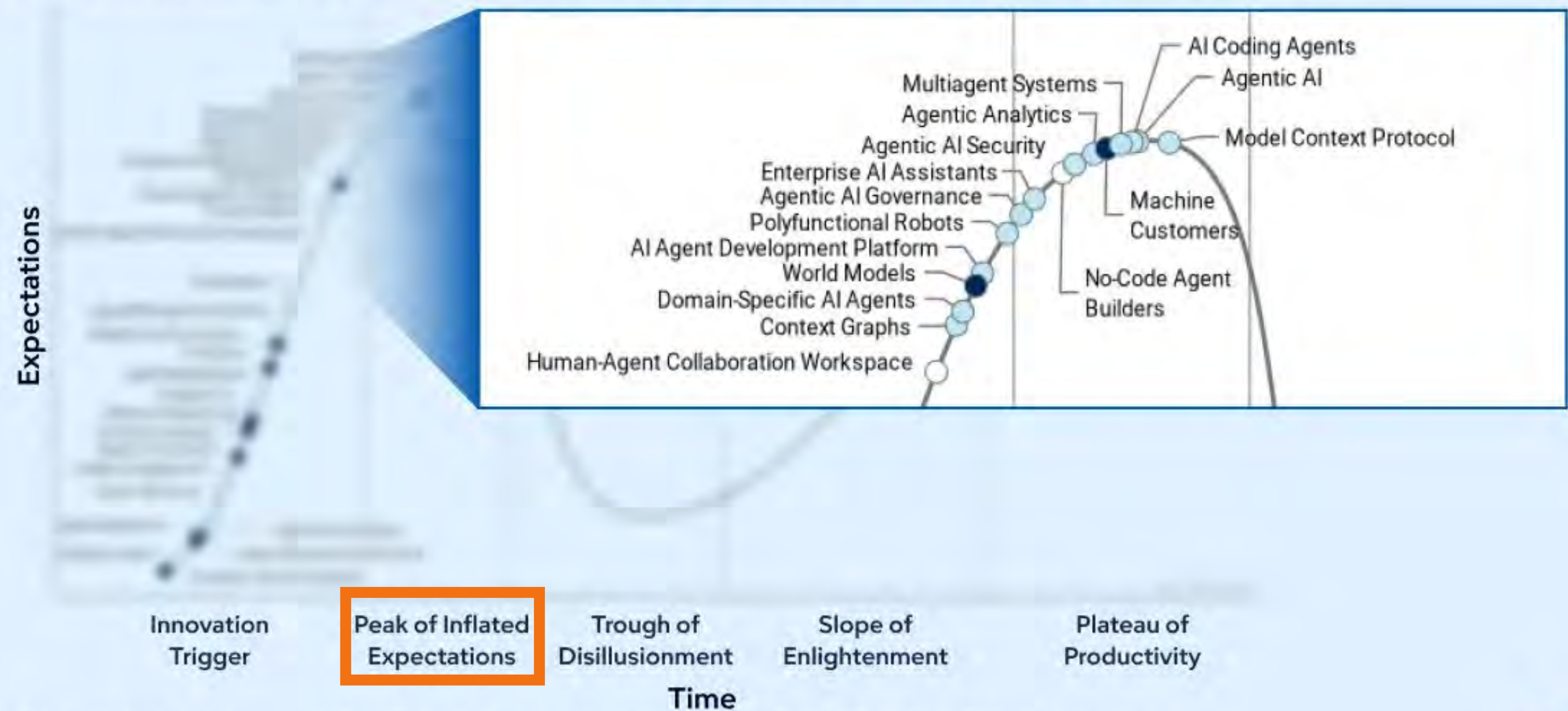
AUGMENT — from isolated tools to connected workflows.

2026 Hype Cycle – Agentic Ai

- Inflated Expectations
- Governance, Security and Cost Management
- Agentic Ai
- Physical Ai

Hype Cycle for Agentic AI

Plateau will be reached ○ < 2 years ○ 2 – 5 years ● 5 – 10 years ▲ >10 years ⊗ Obsolete before plateau



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Work Force Trends in AEC and Ai

Who is using Ai and Who is being sought out to run Ai Dev in AEC?

- New roles emerging in the Workforce centered around Ai Research and Implementation
- Tech/coding backgrounds
- 3d modeling and thinking backgrounds
- Drone and remote sensing backgrounds

Those AI leaders are necessary to help firms integrate the use of AI throughout the firm rather than in isolated locations, Becker says. “We’re researching AI development from a holistic approach; we’re not just looking at things that can help from like a business model development side or a generative process design.”

AI will create new positions at landscape architecture firms, Tal says. “We’re in the Wild West with all this—what Jenn and I actually represent is what the new workforce is going to look like.”

AI Assist Project Manager

Visualization Manager

Systems Modernization and Tech Delivery-Solution Architect-Manager

Digital Practice Manager

Virtual Design & Construction (VDC) Manager

Strategy& Consulting Manager - Technology Sector

Manager, Graphics - 3D Visualization

Director of Applied Research, Technology, AI

Design Technology Support Specialist

Director, Artificial Intelligence

Digital Twin Technical Consultant

Senior Digital Design Specialist (BIM)

Data Centers and Public Welfare

AI data centers’ “infrasound” pollution linked to nausea, insomnia in nearby residents

The unseen threat: When silence becomes dangerous

Artificial intelligence data centers are generating a new form of pollution that residents cannot hear but can feel in their bodies, triggering symptoms from migraines to vomiting and raising questions about whether technology’s rapid expansion has outpaced basic public health protections.

Noise emitted by data centers—the humming of cooling systems, the rumbling of diesel generators and the whirring of thousands of fans—can be heard and felt hundreds of feet away. According to the Environmental and Energy Study Institute (EESI), noise levels can reach 96 decibels for 24 hours a day, seven days a week. Sound exceeding 85 decibels is considered dangerous to human hearing.

But the more insidious threat may be what residents cannot hear at all: infrasound.

- AI data centers emit noise up to 96 decibels 24/7, with low-frequency “infrasound” that humans feel as pressure but cannot hear.
- Residents report dizziness, nausea, vertigo, insomnia, headaches and anxiety they attribute to data center noise pollution.
- Infrasound at high volumes can affect the central nervous system and heart function, according to McGill University researchers.
- 70% of U.S. adults oppose having a data center in their area, a March Gallup poll found.
- At least 11 states have proposed legislation since late 2025 to restrict or ban data center development.



Data Centers and Public Welfare



Zoo officials and conservationists warn that the 24/7 industrial facility would sit a mere 50 yards from animal habitats, threatening more than 3,000 animals with disruptive electrical humming, mechanical noise, and artificial light pollution.

There are critical concerns that these constant disturbances will severely disrupt the life cycles and breeding programs of highly sensitive and endangered species, such as the zoo's clouded leopards.

Use AI to support the practice — not perform the **profession**.

Communication

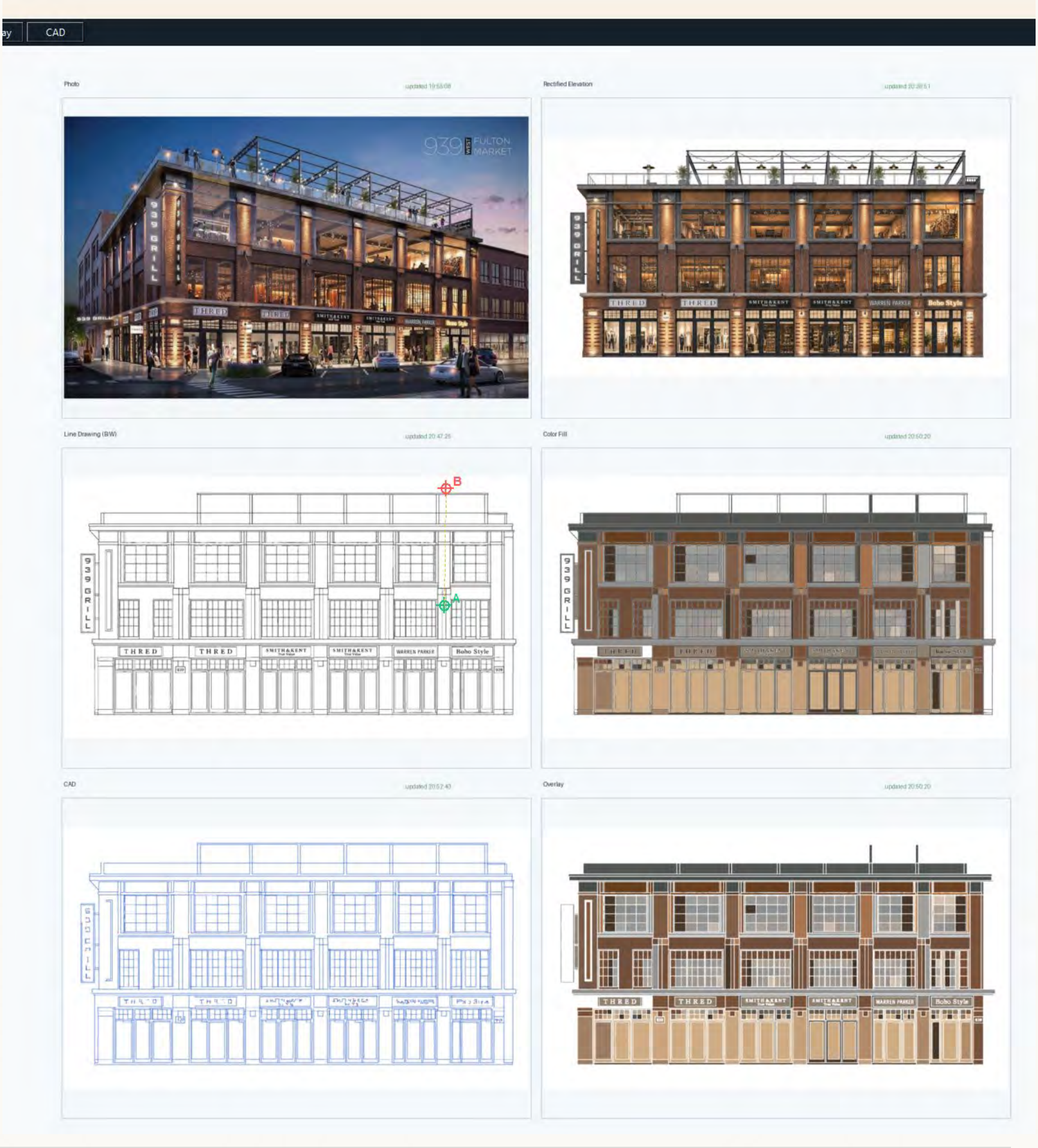
Customization

Experimentation

Workflow development

Repetitive-task reduction

Designer support



Two of AI's highest-value roles are **communication** and **customization**.

COMMUNICATION

Helping people understand — information, options, intent, and feedback.

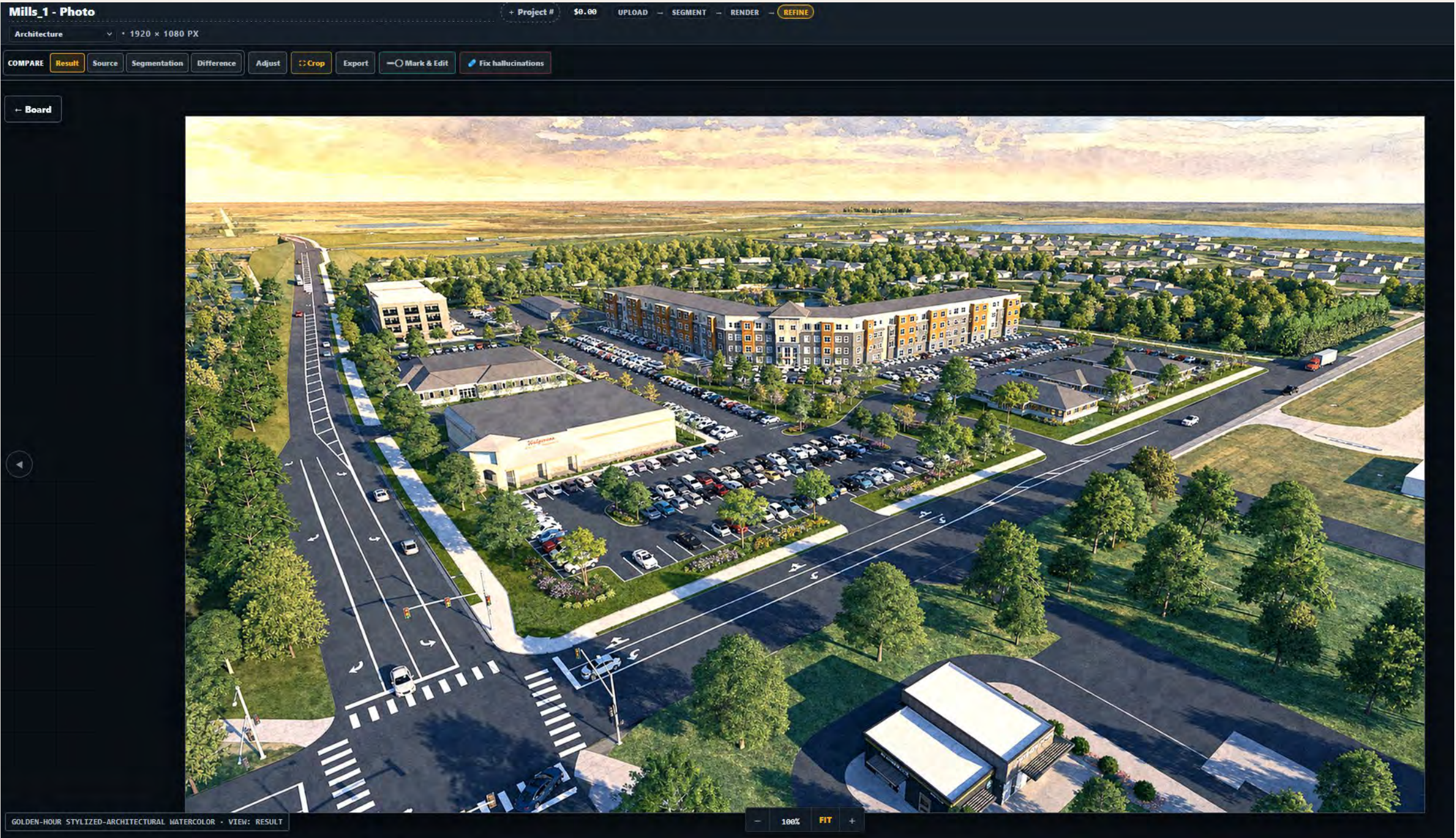
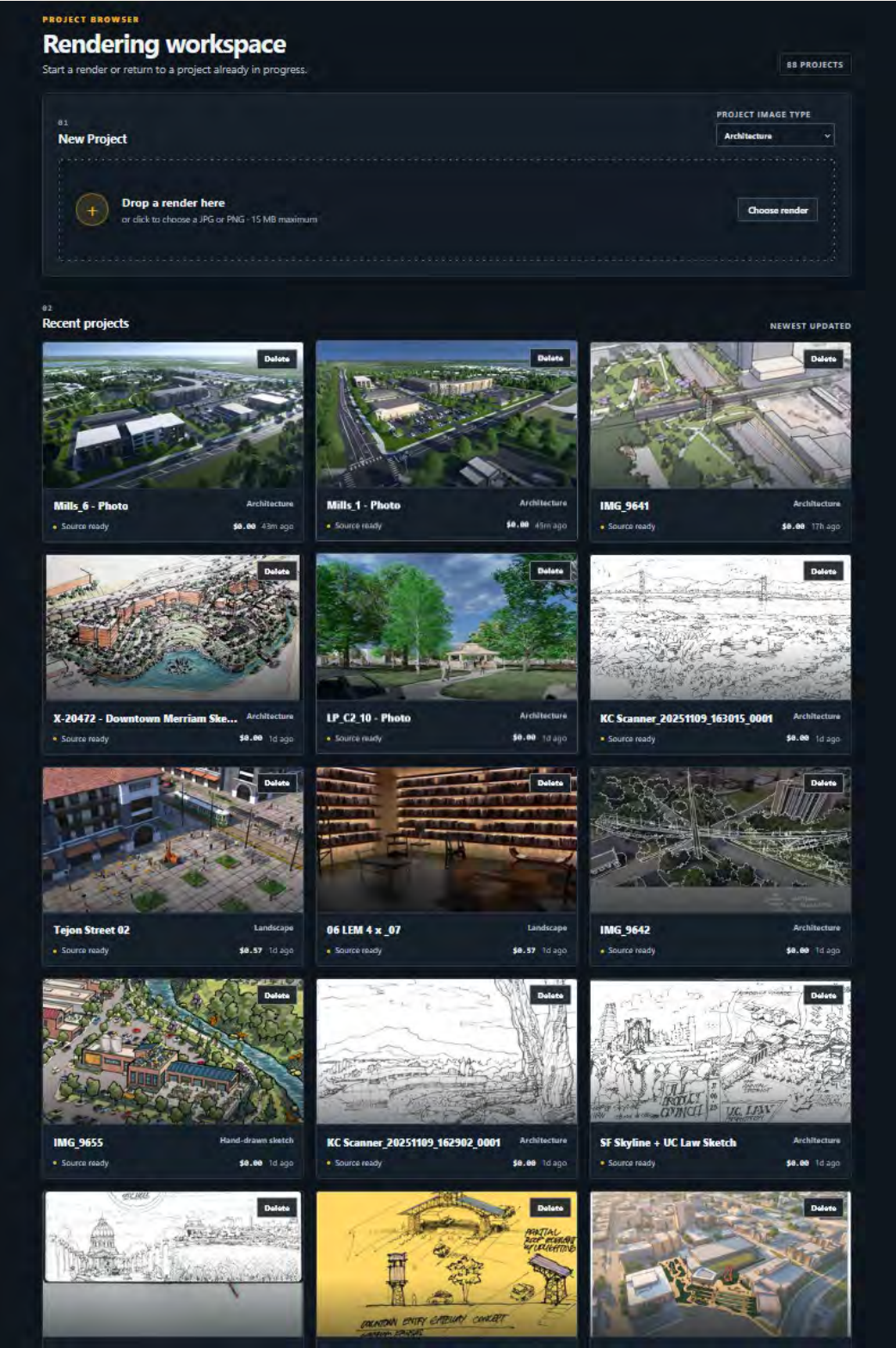
- Between consultants — visual & written
- Between designers & clients
- Between designers & technology

CUSTOMIZATION

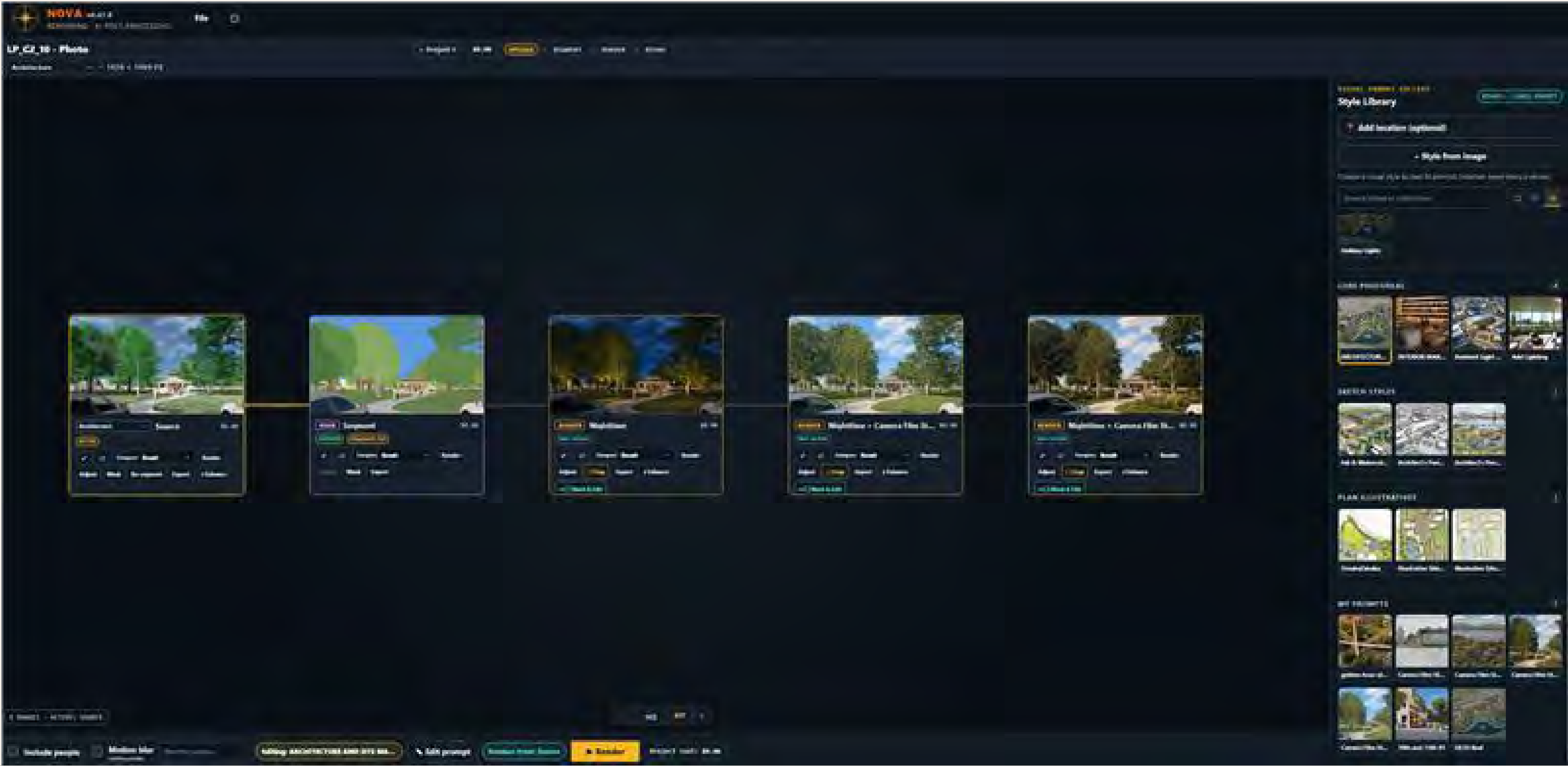
Shaping tools & processes fitted to each scale of the practice.

- Project level
- Team level
- Firm level
- Profession level

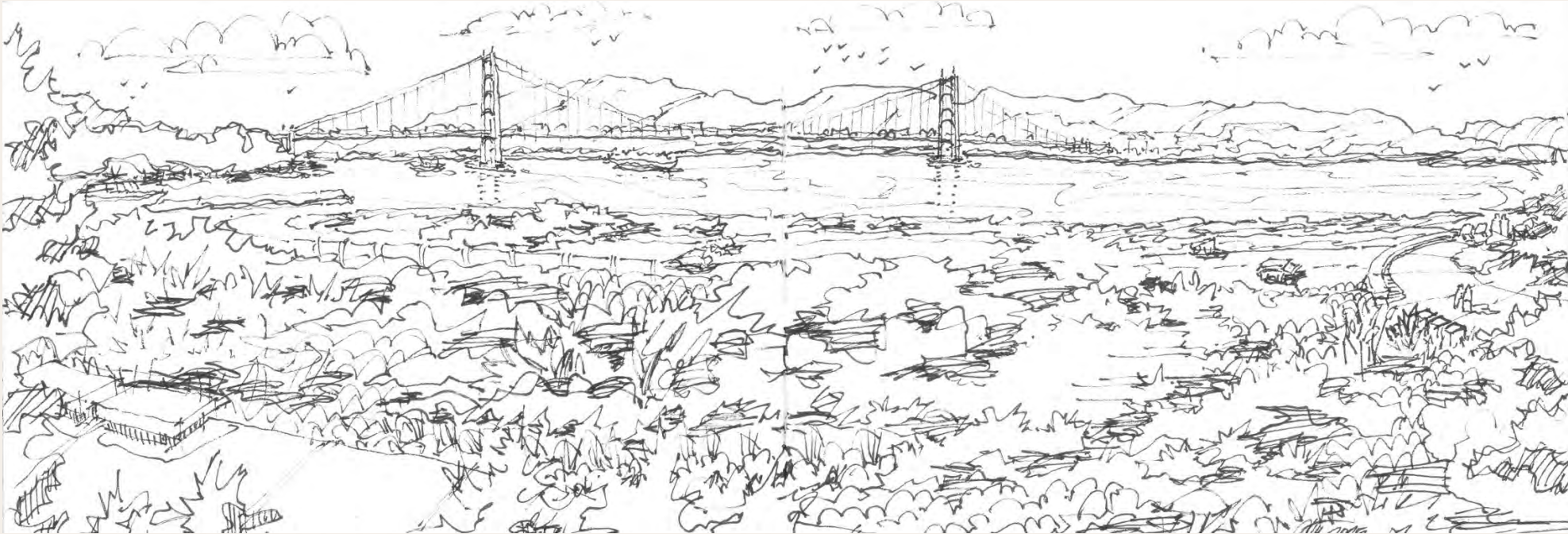
Nova Render - a communication and customization tool



Nova Render Pipeline



Nova Render Pipeline

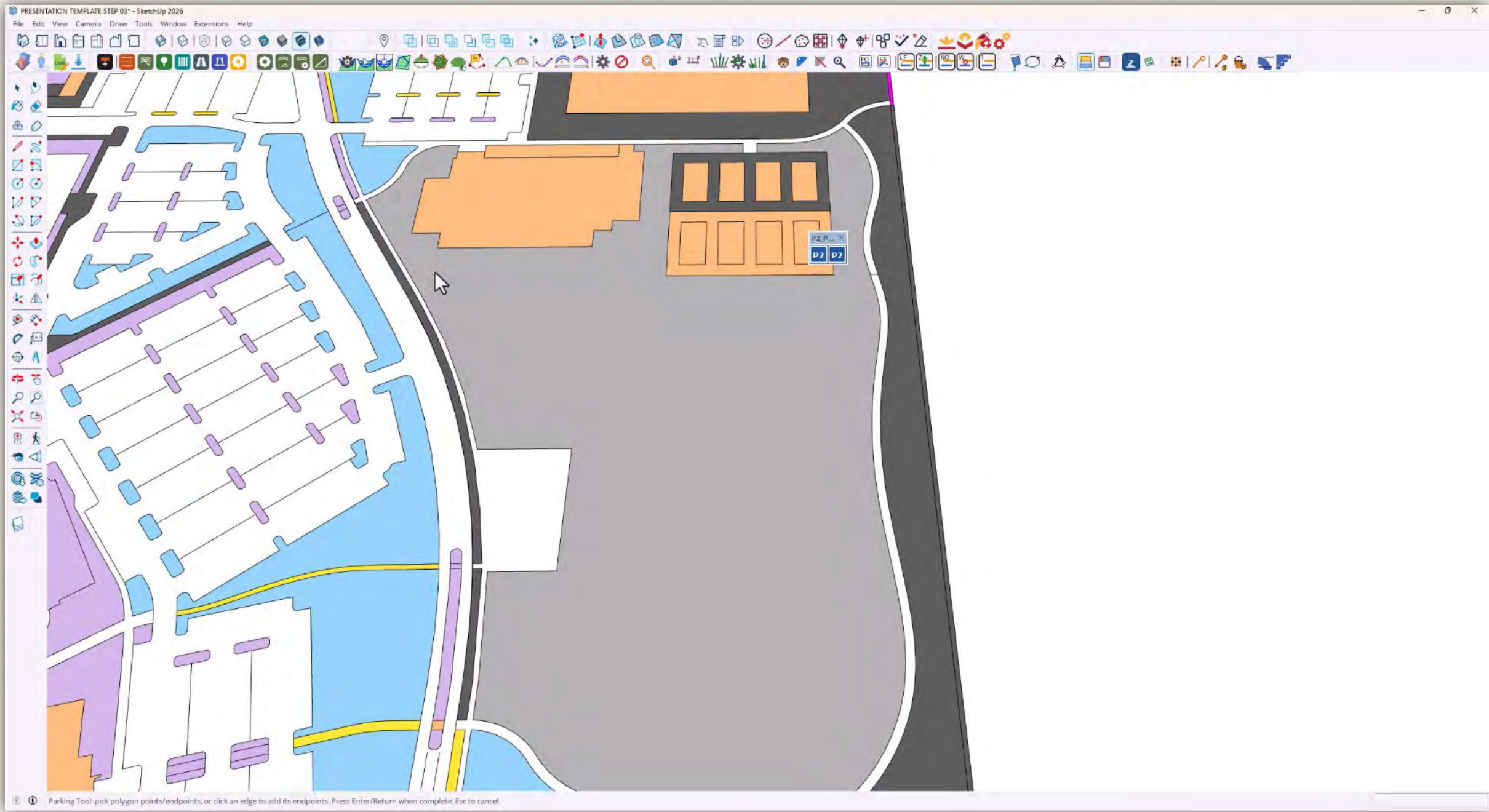


AI makes small, project-specific tools more accessible.



A toolkit around the team — not one universal platform.

Not every problem needs a platform.

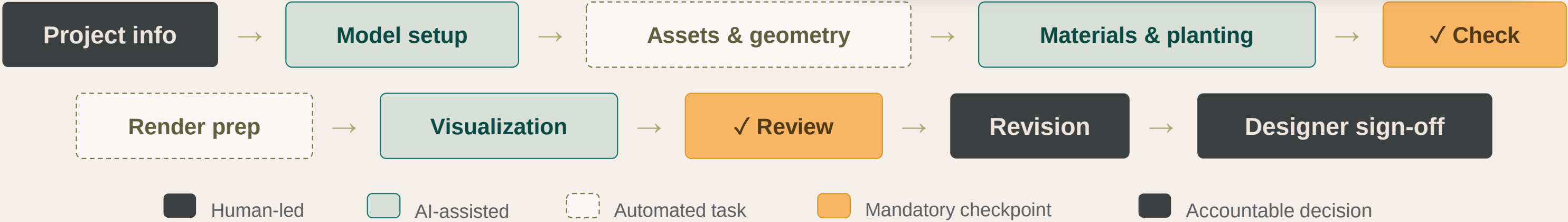
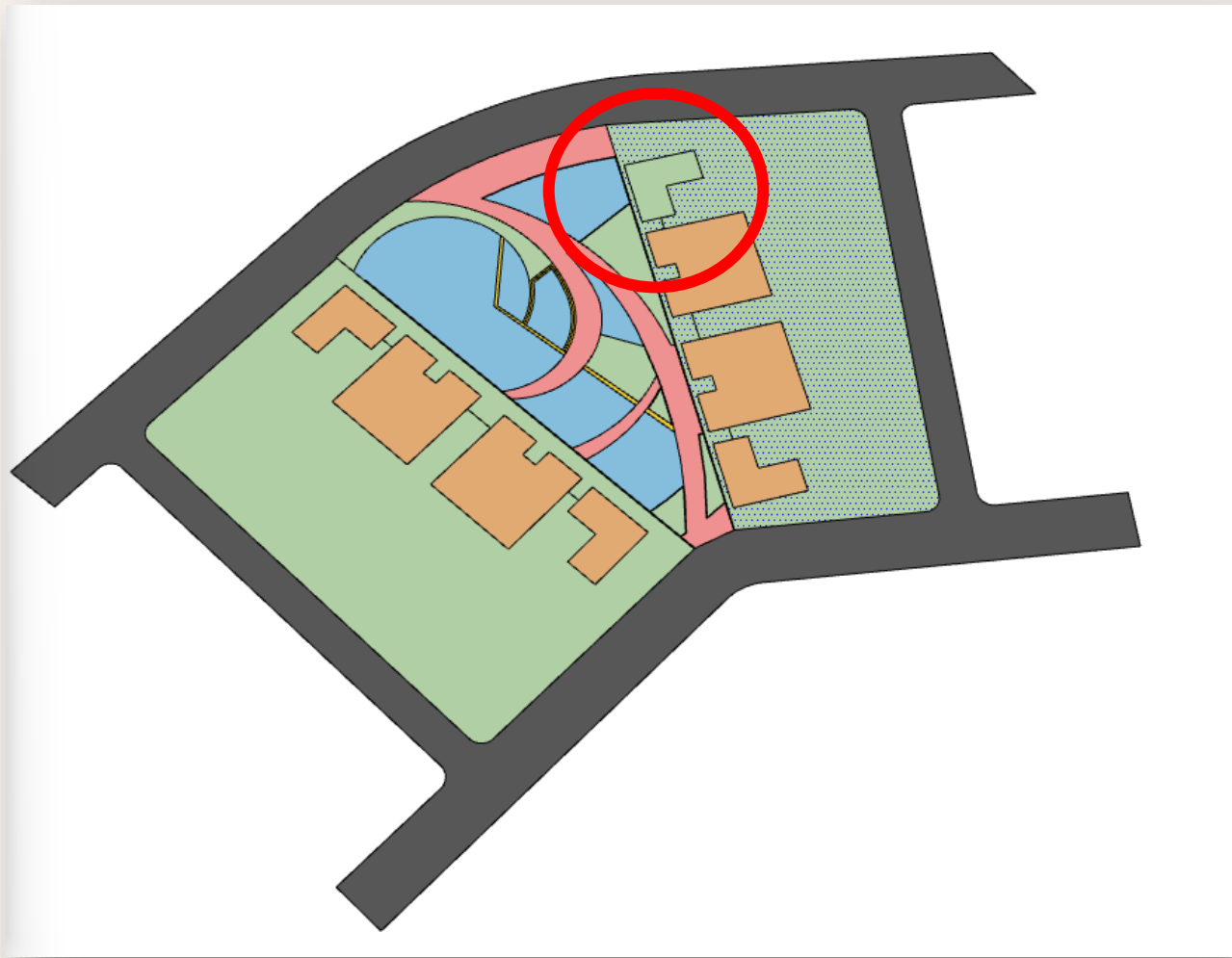
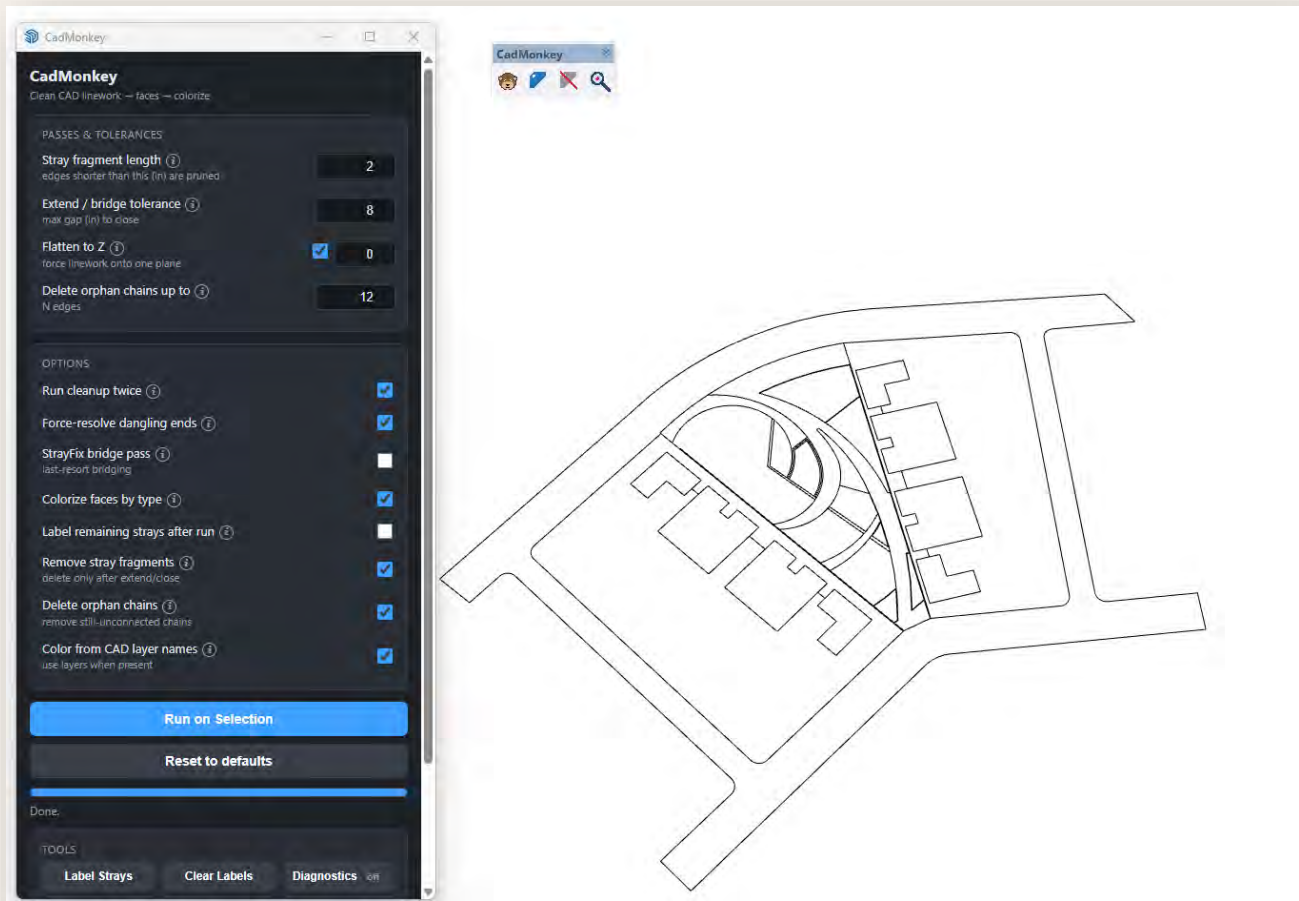


A collection of small tools can create a large workflow advantage.



Value comes from connecting **simple, reliable tasks** — not from one autonomous system that tries to do everything.

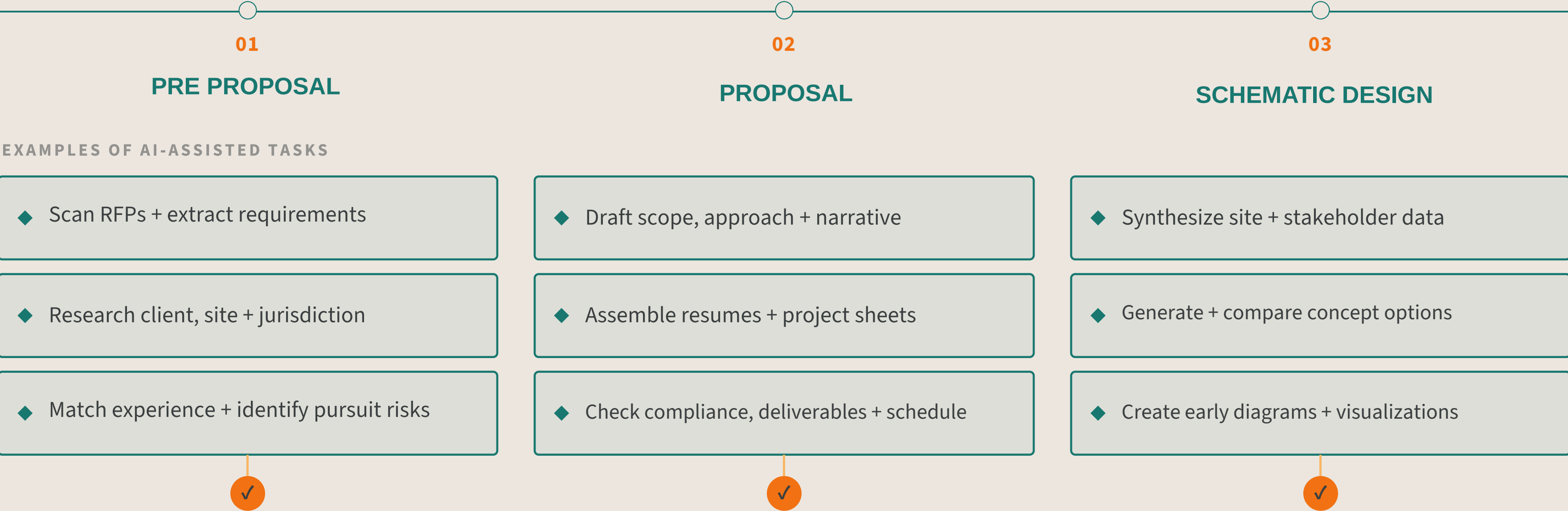
The opportunity is not one tool. It is the **connection** between tools.



Illustrative workflow. Human-led, AI-assisted, automated, and checkpoint treatments are used consistently throughout this presentation.

AI can accelerate every phase. Human judgment remains the throughline.

Many narrow, verifiable tasks—not one universal “AI button.”



HUMAN JUDGMENT + PROFESSIONAL ACCOUNTABILITY
Client commitments · Health, safety + welfare · Final QA/QC · Approval + accountability

AI can accelerate every phase. Human judgment remains the throughline.

The assistance changes across the project. Professional responsibility does not.



HUMAN JUDGMENT + PROFESSIONAL ACCOUNTABILITY
Client commitments · Health, safety + welfare · Final QA/QC · Approval + accountability

A checkpoint is not an inefficiency. It is a **control**.

Identifying hallucinations in real time

INPUTS & SCOPE

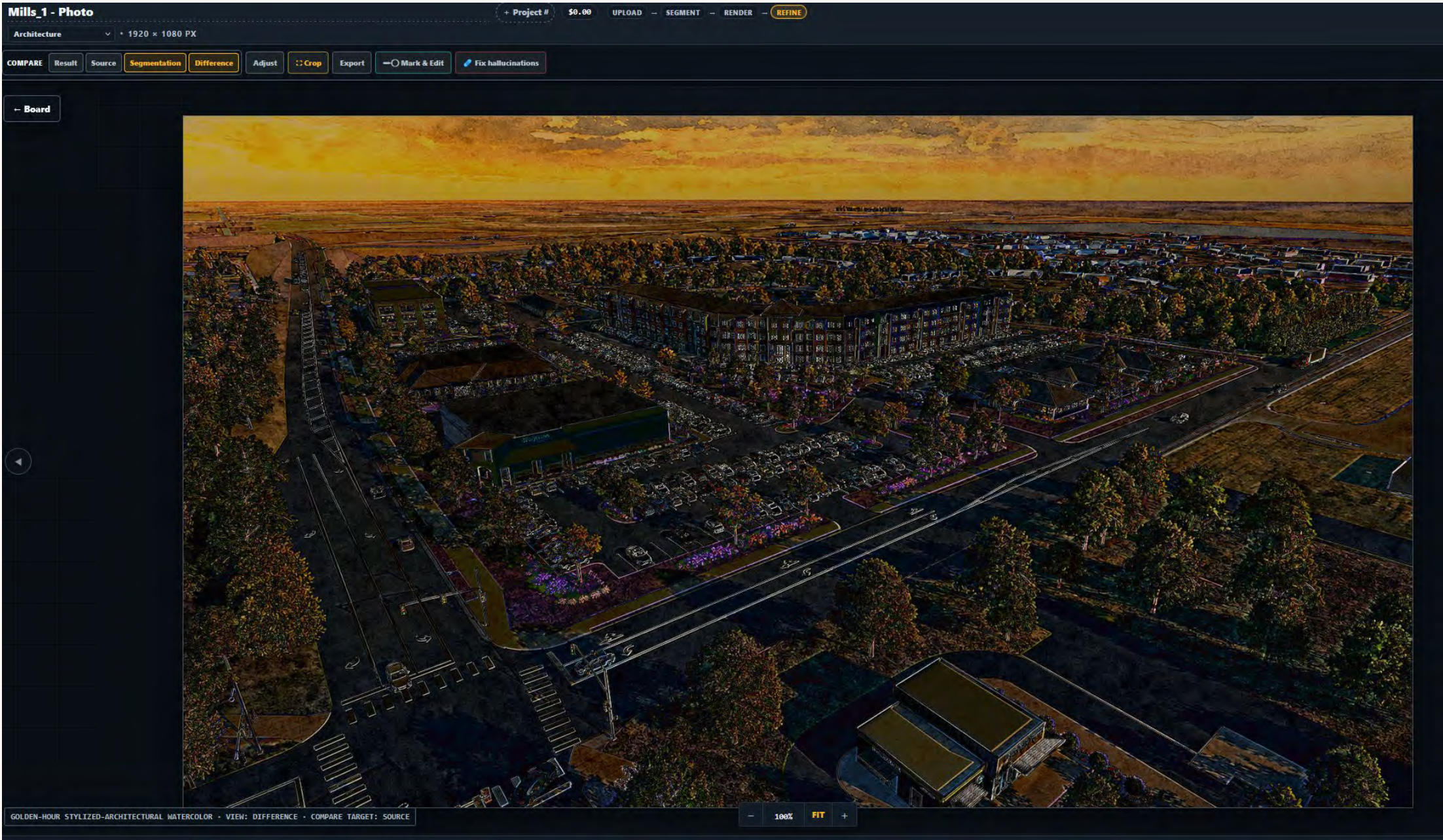
Defined inputs
Explicit scope

VERIFICATION & GATES

Verification points
Approval gates

ACCOUNTABILITY

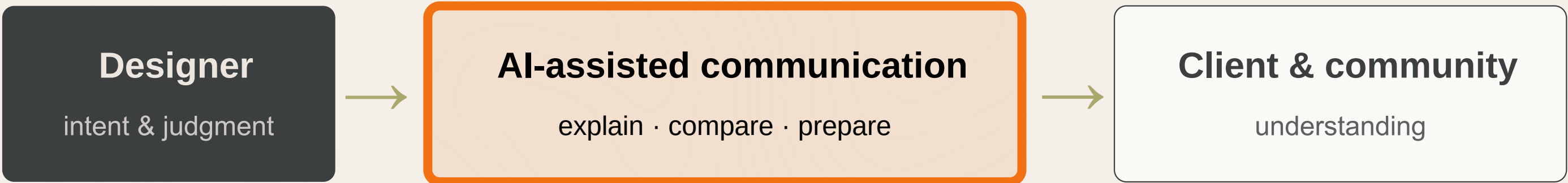
Logs or records
Named responsibility
A stop mechanism



A responsible workflow is **intentionally designed** — the checkpoints are part of the system, not an interruption to it.

AI can help **translate** design — not just generate it.

Communicating between designers and clients



- Explain complex ideas
- Translate technical language
- Organize feedback
- Compare alternatives
- Prepare stakeholder materials
- Visualize early possibilities

A polished image may be interpreted as a **promise.**

EXPLORATION

Early & provisional

Conceptual, iterative
Testing possibilities
Internal thinking

REPRESENTATION

Client-facing & relied upon

Persuasive, polished — may shape expectations
Needs labeling & context



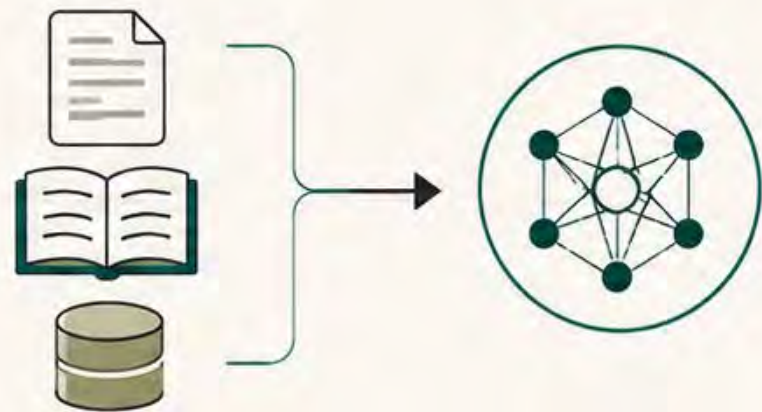
The same image can be exploration or representation depending on how it is labeled and explained.

Natural language is becoming a new **software interface**.

How LLMs Work

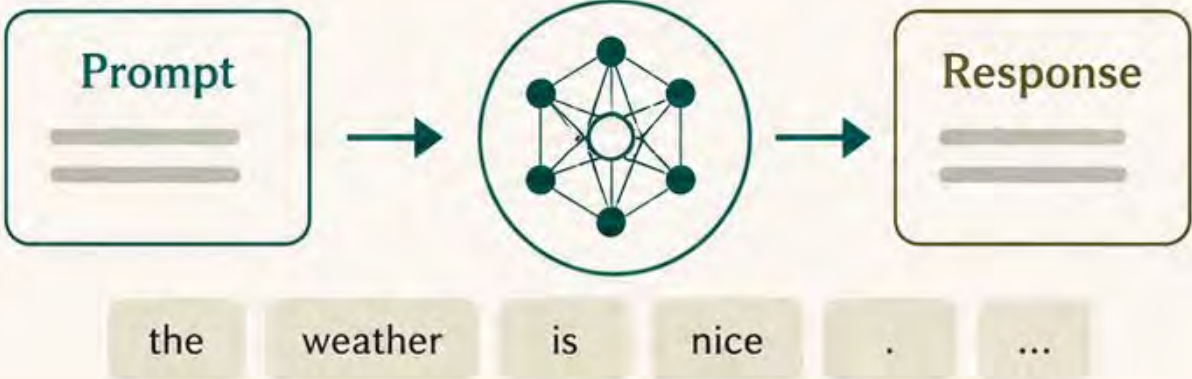
★ Very simply

1 1. Trained on data



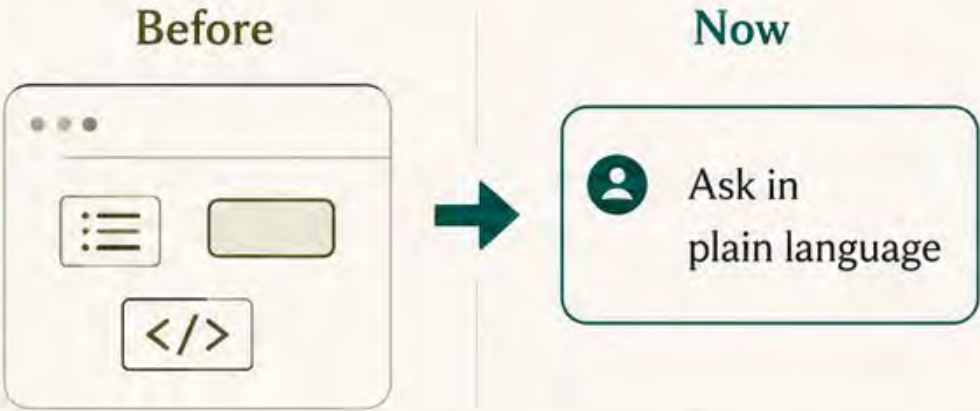
Learns patterns from lots of text.

2 2. Predicts the next pattern



Builds answers by predicting likely next words.

3 3. Changes how we use software



We can tell software what we want in natural language.

★ Key idea: LLMs are prediction tools, not human thinkers.

Natural language is becoming a new software interface.

Creating scripts	Debugging code
Performing tasks via Chatbot	Querying model info
Automating commands	Translating intent to actions

"Designers no longer need to communicate with software only through menus, buttons, and code."

“Claude writes a significant proportion of Anthropic's code. As of May 2026, more than 80% of the code we merge into Anthropic's codebase was authored by Claude.” anthropic

“Jensen Huang, the CEO of a GPU company, stated earlier this year that ‘English is the new programming language,’ with tools such as Codex and Claude Code generating applications and addressing issues on GitHub.” forbes July 2025

Autonomy should have boundaries.

MANUAL WORK

A person performs each step.

AI ASSISTANCE

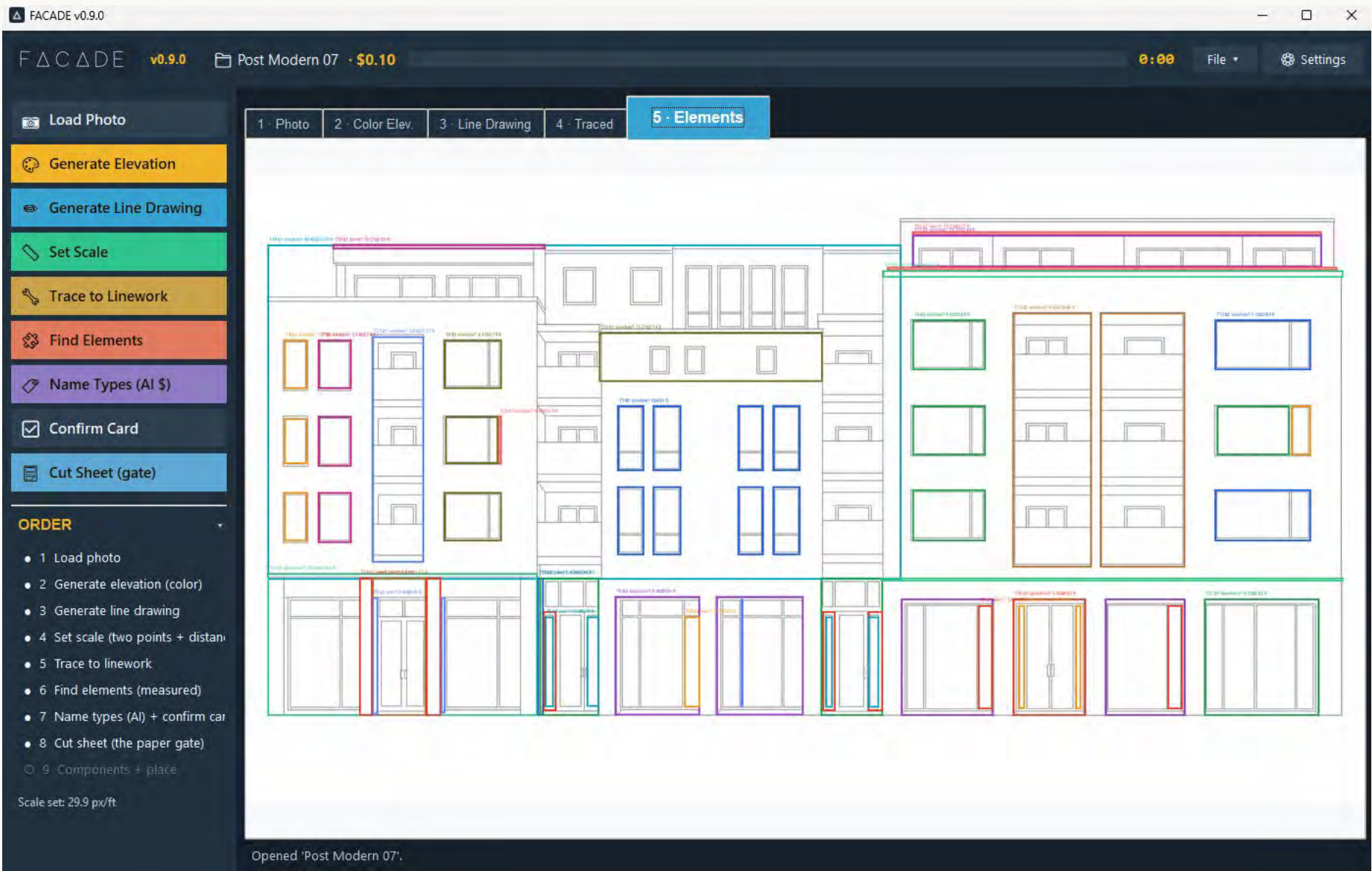
A system proposes or generates.

AUTOMATION

A predefined process executes.

BOUNDED AUTONOMY

A system selects and performs steps within explicit limits.



Bounded autonomy requires

- Defined scope
- Clear permissions
- Checkpoints
- Logs
- Human approval
- A stop condition

AI may reduce some barriers without creating **equal conditions**.

SMALLER FIRMS MAY GAIN

- Advanced visualization
- Custom scripts and tools
- Repetitive-task automation
- Capabilities that once required larger teams

LARGER FIRMS MAY RETAIN

- Dedicated R&D staff · greater computing resources
- Proprietary systems and datasets
- More formal governance & capacity to experiment



AI can accelerate a good decision — and accelerate a **mistake.**

Speed

Accuracy

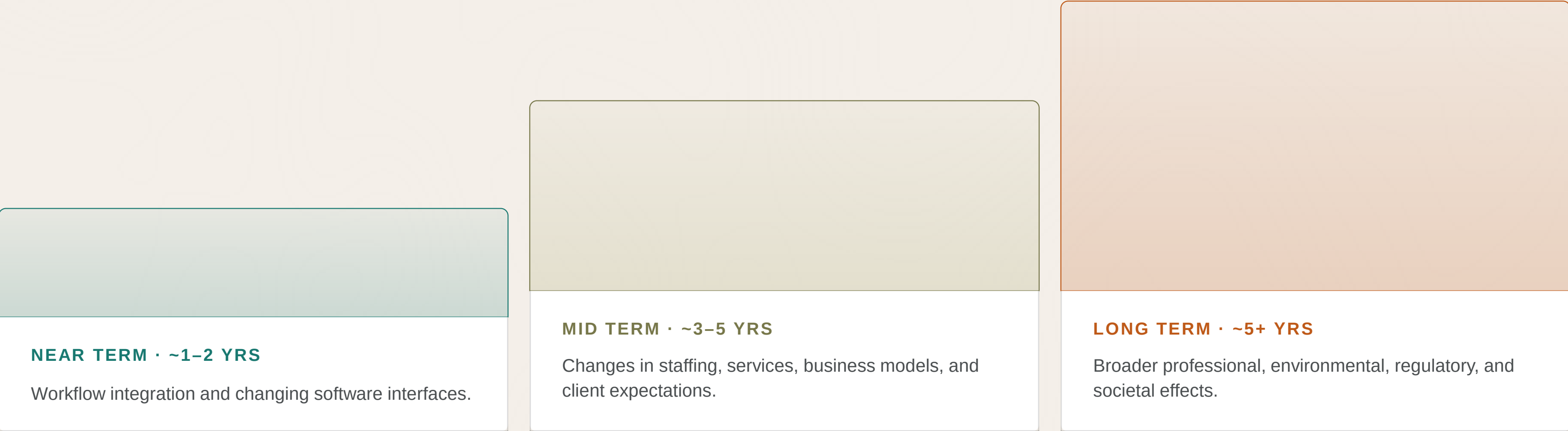
Design quality

Risk

Efficiency is **one component** of professional value — not a substitute for quality, judgment, or accountability.



The farther we look ahead, the less precise our predictions become.



Illustrative planning horizons — not predictions · widening uncertainty →

SECTION 02

AI in Education

VERIFY — teaching new tools without losing foundational skills.

A practice–classroom collaboration.

CONTEXT

Colorado State University
Summer 2026 Semester
Land 357 Omnibus Field Studies
3rd year Students
Designing Relationships with a Weathered Landscape

WHAT WAS TRIED

Ai Speculative Ideation
Generative Image Models Introduction
Prompting Coursework
Iterative Process
Precedent Studies
Ideation Studies

WHAT WAS LEARNED

What does Ai do well?
What feels unrealistic?
What is misunderstood by Ai?
What should be carried forward?
When and how does Ai help in the design process?

The people



Kelly Curl
Professor



Steven Meloche
Student



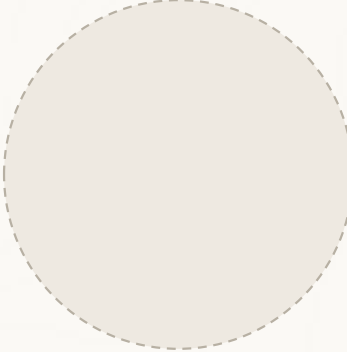
Gabrielle
Shaughnessy
Student



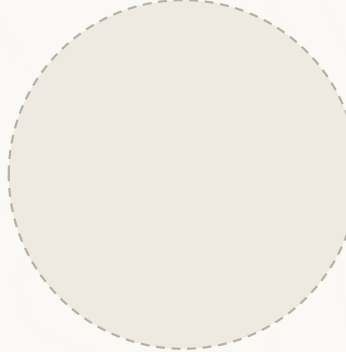
Chanel Villia
Student



Tevon Soltero
Student



Ethan Werling
Student



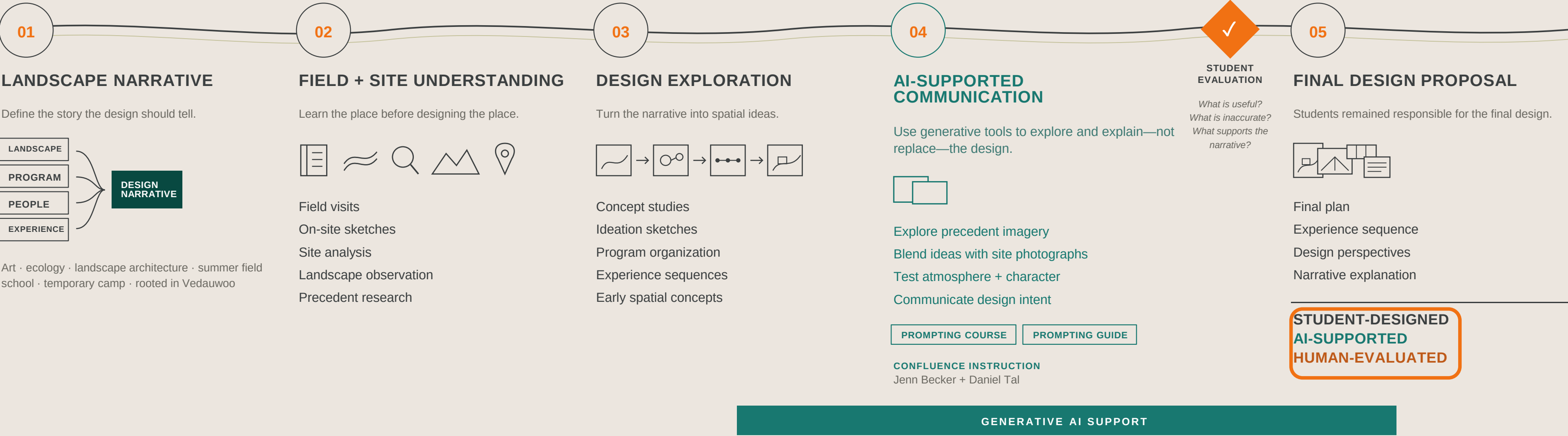
Kate Guest
Student



AI entered the studio after the design thinking had begun.

A Confluence—Colorado State University collaboration at Vedauwoo, Wyoming

The tool helped students communicate their ideas.
It did not create the design responsibility.



Students cannot evaluate AI output without the knowledge required to recognize when it is wrong.

Foundational abilities are the structure that supports AI

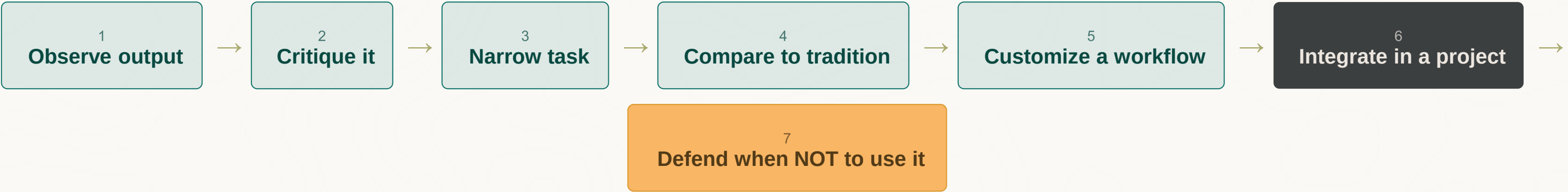


AI use sits on top

- Observation
- Site analysis
- Drawing
- Spatial reasoning
- Grading & drainage
- Plant & material knowledge
- Community engagement
- Iteration
- Critique
- Ethics
- Health, safety & welfare



Critique should come before dependence.



Use AI for specific tasks — and require students to document the decision.

INTENTIONAL USES

- Organizing research
- Generating questions
- Comparing alternatives
- Testing representation
- Supporting iteration
- Evaluating visualizations



DOCUMENT EVERY TIME

- What tool was used
- What input was provided
- What was accepted / rejected
- How output was evaluated
- What stayed the student's own decision



Students should compare **processes** — not only final images.

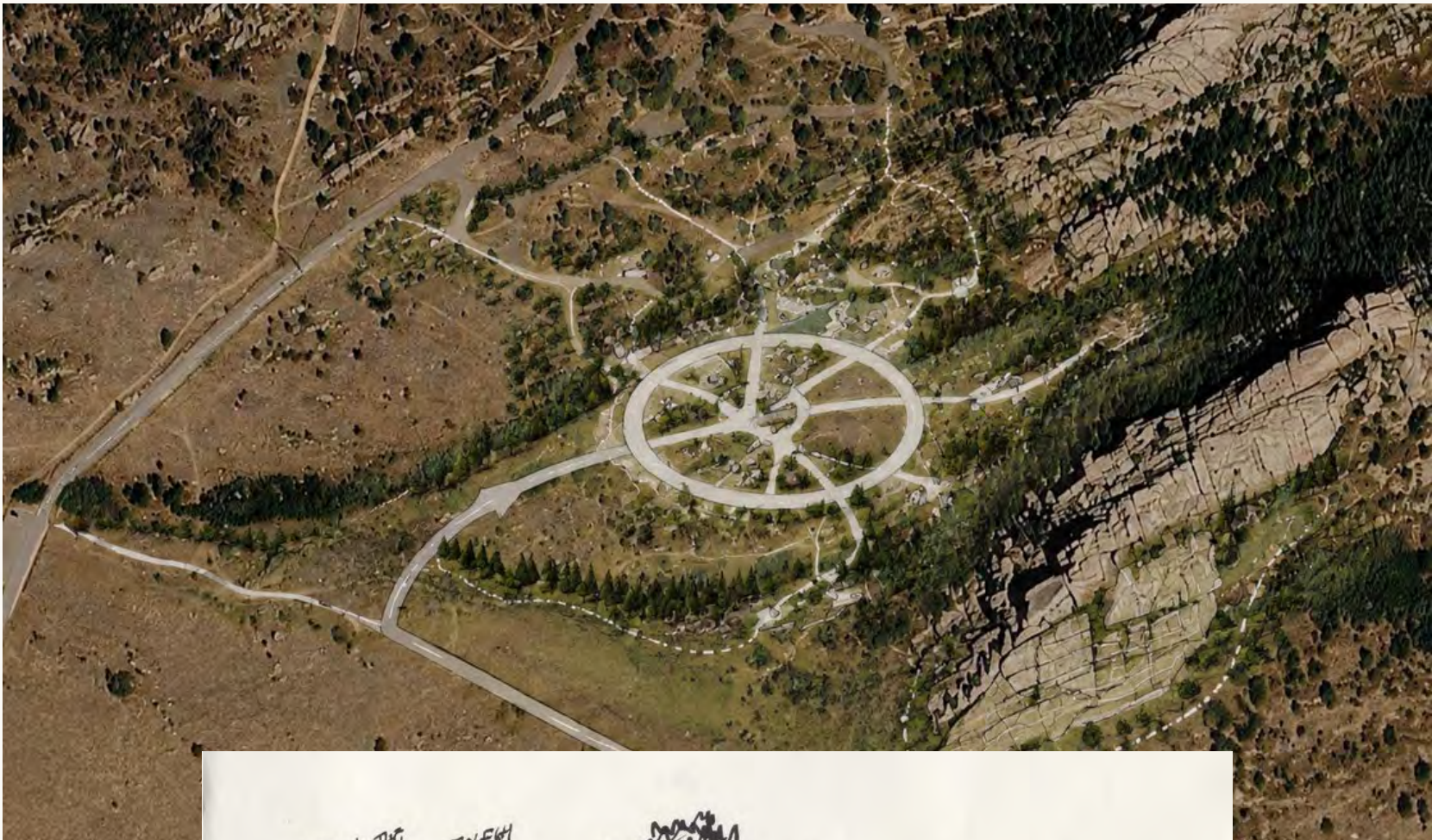
COMPARE PROCESSES

TRADITIONAL METHOD

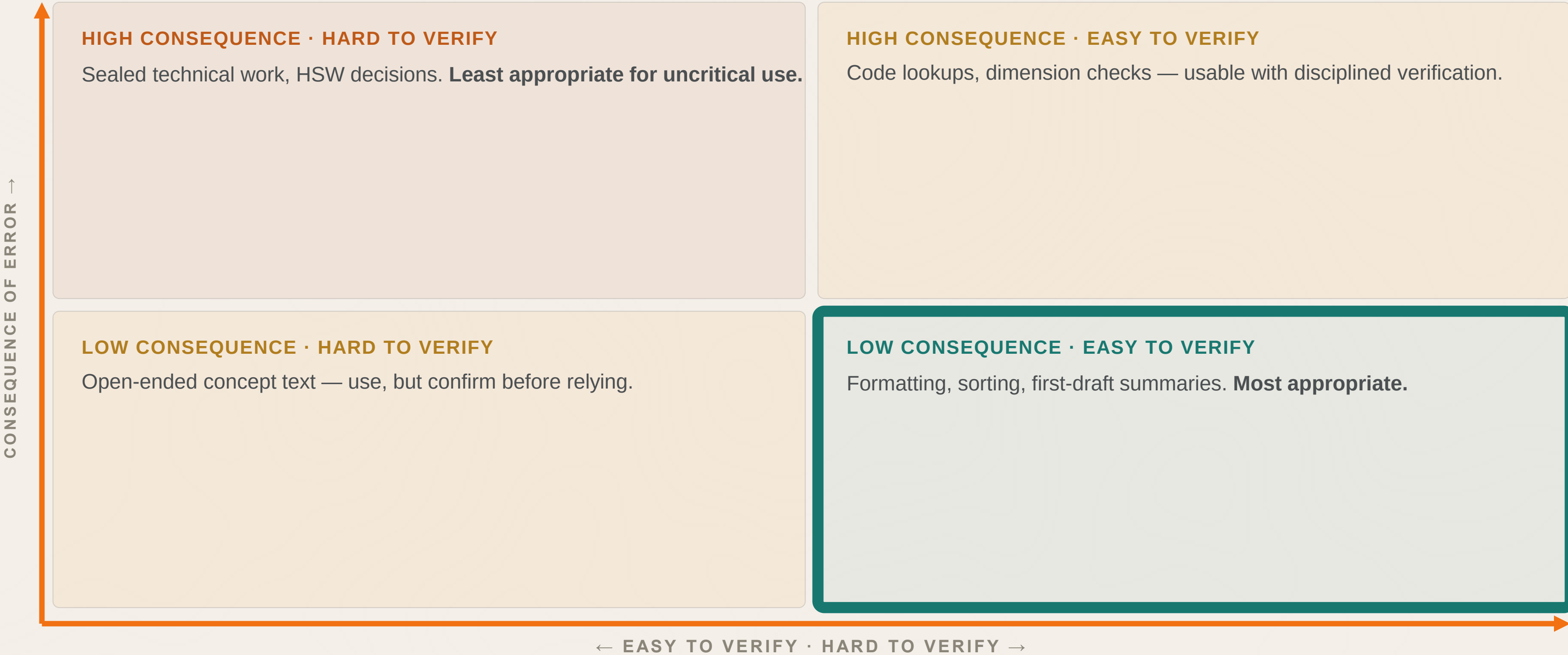
- Process & time
- Strengths
- Limitations
- Learning value

AI-ASSISTED METHOD

- Process & time
- Strengths
- Limitations
- Verification requirements



When is AI appropriate? Match the use to consequence and verifiability.



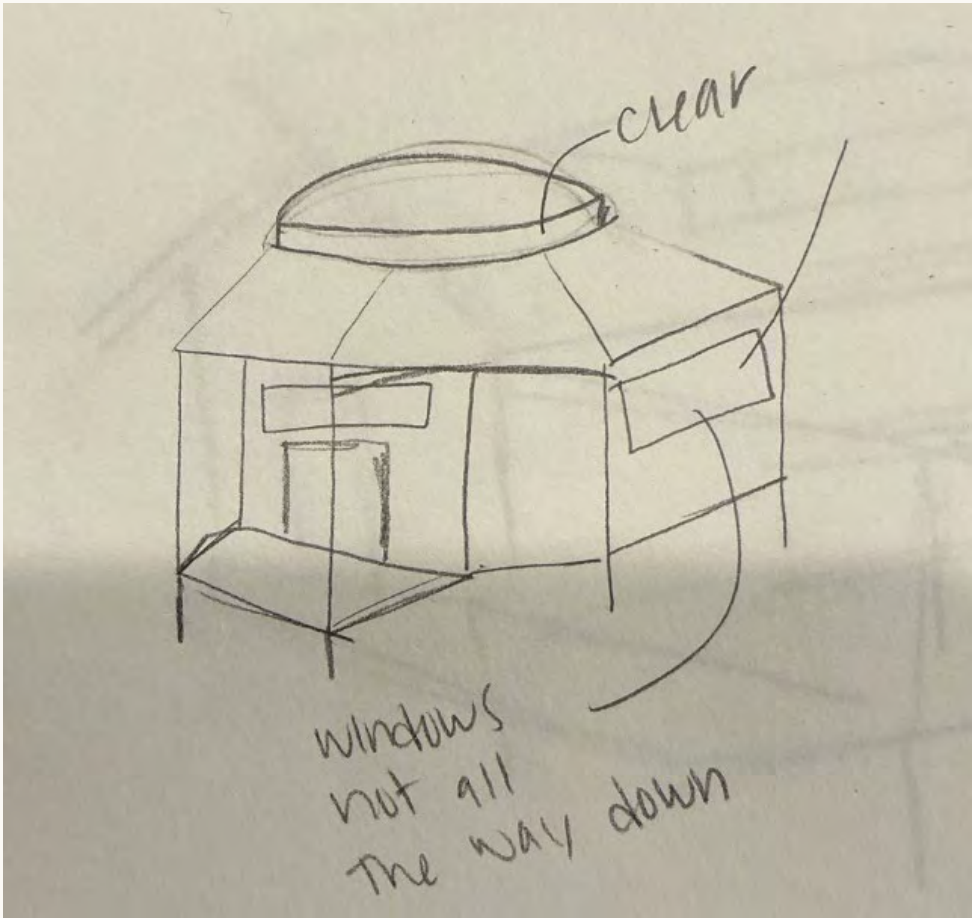
The more consequential and difficult to verify the output, the less appropriate it is for uncritical AI use.



Student hesitation is useful information — not ignorance.

- Authorship
- Academic integrity
- Loss of foundational skills
- Job displacement
- Privacy
- Environmental impact
- Copyright
- Unequal access
- Distrust of generated information
- Unclear expectations

Each concern points to an **unresolved educational or professional question** — worth naming, not dismissing.





A polished result should not hide an **unexamined process.**

THROUGHOUT THE PROCESS

- Design reasoning
- Process documentation
- Source evaluation

AT EACH DECISION POINT

- Error recognition
- Tool selection
- Critical comparison

AT DELIVERY & DISCLOSURE

- Disclosure
- Ability to reject AI output
- Explaining when AI should not be used



SECTION 03

Risks & Professional Responsibility

OWN — the most dangerous output may be the one that looks correct.

**AI can generate an option. It cannot
accept professional liability.**

Professional scopes and liability rules vary by jurisdiction. This presentation does not provide legal advice.

Responsibility does not disappear because **software participated.**



Accountable roles vary by jurisdiction, project, and contract. This presentation does not provide legal advice.

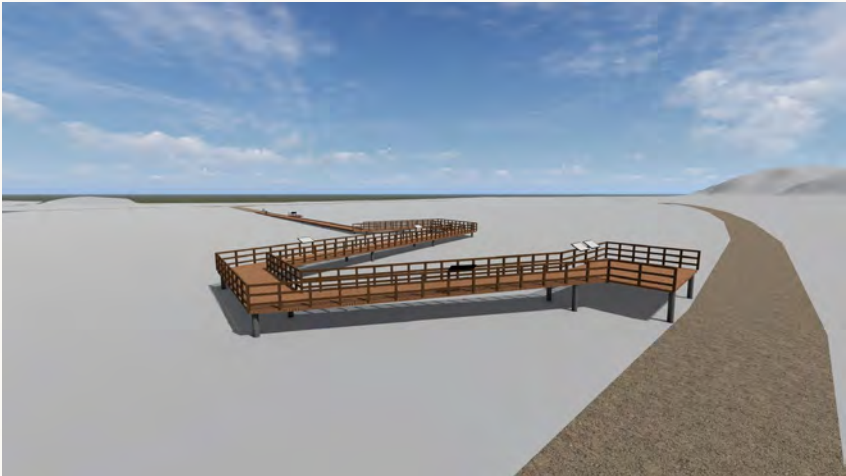
Visual confidence is not evidence of **technical reliability**.

WHAT AI CAN MAKE LOOK RIGHT

- Professional appearance
- Fluent, confident language
- Clean, persuasive graphics

WHAT STILL MUST BE TRUE

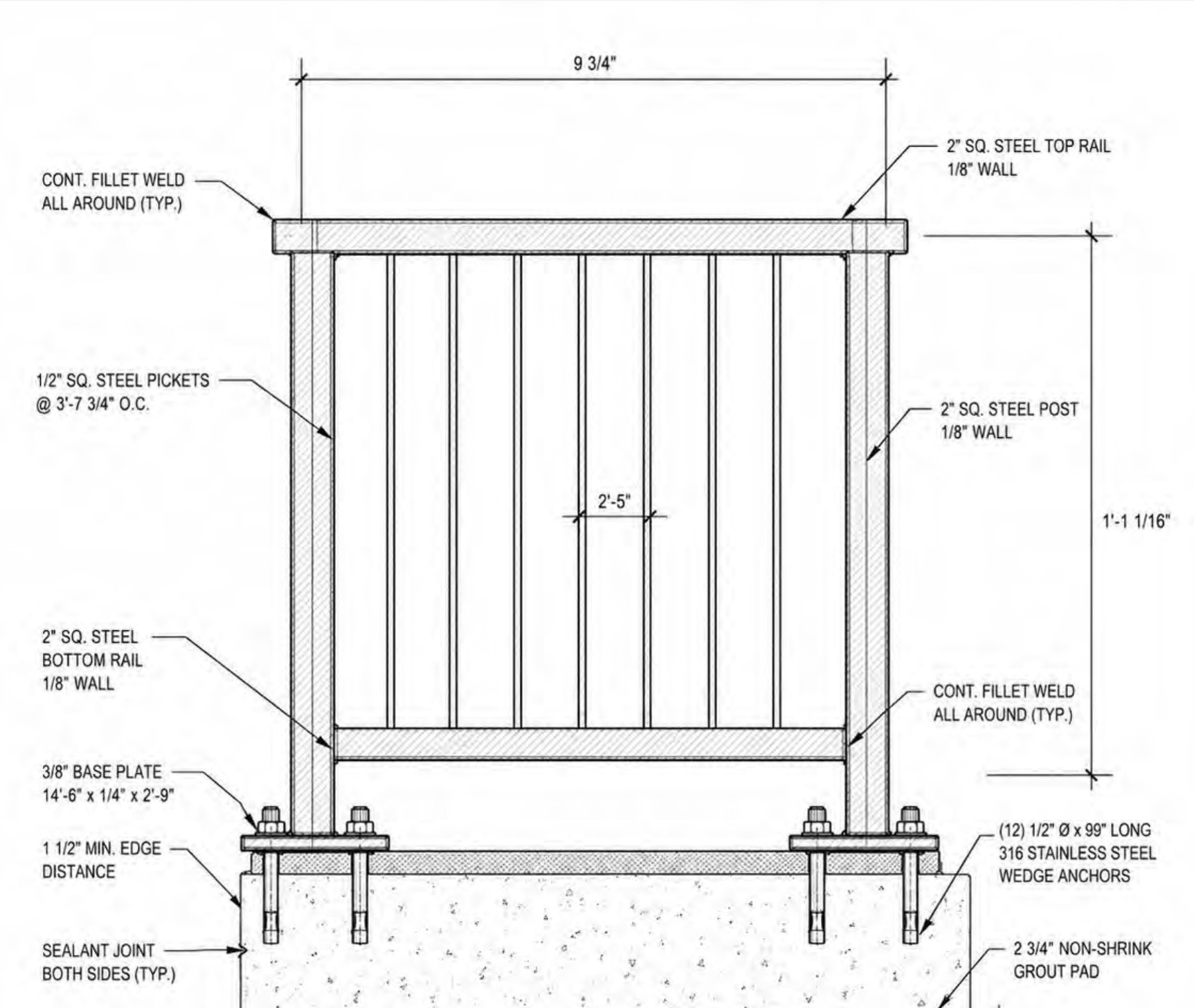
- Factual accuracy
- Site-specific validity
- Constructability
- Code & standards compliance
- Professional judgment



Illustrative contrast, not a claim about any specific tool.

A convincing detail can still be wrong.

SIMULATED EXAMPLE
NOT FOR CONSTRUCTION



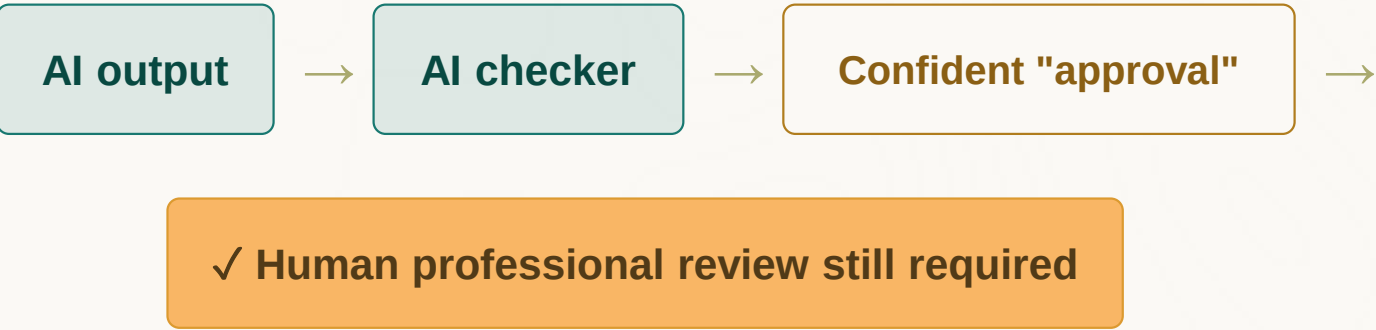
Simulated for illustration. Not a construction document and not for construction use.

Possible errors to annotate

- | | |
|-------------------------|--------------------------|
| Incorrect dimensions | Constructability issues |
| Missing information | Invented standards |
| Unsupported assumptions | Incorrect drainage logic |
| Material conflicts | Missing site conditions |

And: information the AI **could not know** about this site.

Asking one AI to check another is not **independent professional review**.

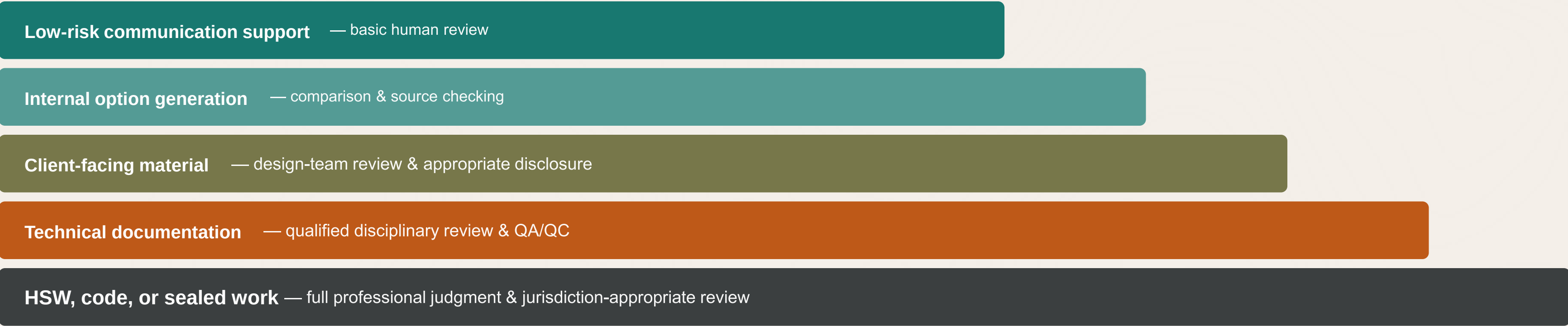


WHY THE CHECKER CAN MISS

- Shared assumptions
- Shared training limitations
- False positives & false negatives
- Missed project context
- Confident explanations of wrong conclusions

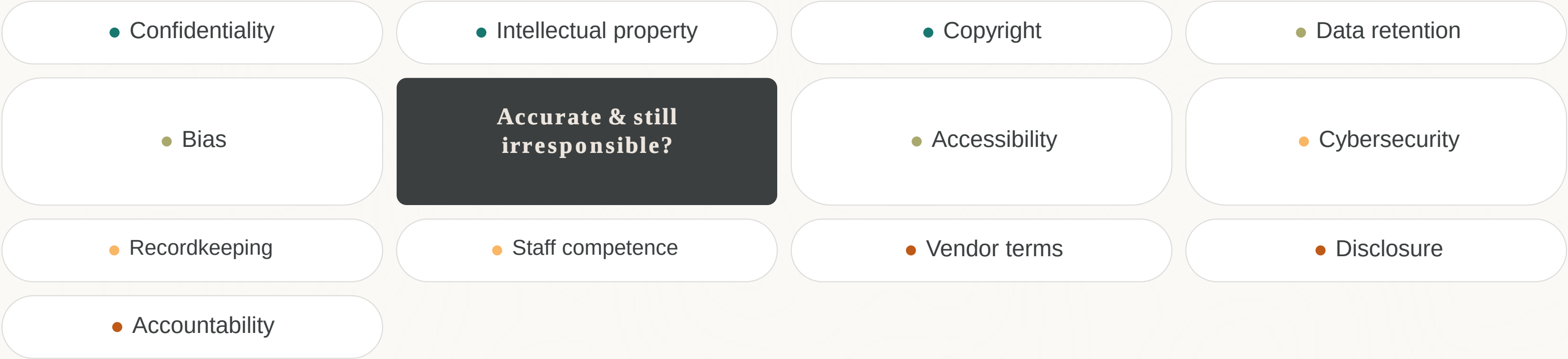
[Insert an actual QA/QC-bot error example if available.] A second AI system does not satisfy professional review.

Review should increase with the consequences of an error.



Increasing review burden →

Responsibility is bigger than accuracy.



A technically accurate output can still be used irresponsibly.

AI risk begins **before** the output is generated.

Questions to settle **before** AI touches project information — at three levels.

FIRMS / PRACTICE

- Is AI appropriate for this task?
- Is sensitive client or project information involved?
- Who is qualified to review the output?
- Is this within our professional competence?

IT / SECURITY

- Where is the data stored, and who can access it?
- Does the vendor retain, reuse, or train on it?
- Is it encrypted and access-controlled?
- Can we reconstruct what was submitted?

AI-POLICY COMMITTEE

- Is the information confidential or contract-protected?
- What triggers disclosure?
- What is logged, and for how long?
- What is the stop / escalation path?

Illustrative pre-use questions. Specific legal and contractual requirements vary by jurisdiction and agreement; treat these as questions, not universal rules.

AI has a physical footprint — **measured carefully.**

DISTINGUISH THE SOURCES

- Training large models
- Operating data centers
- Routine tool use
- Hardware lifecycle

KNOWN IMPACTS

Electricity use
Water use
Data-center infrastructure
Hardware manufacturing

MEASUREMENT LIMITS

Scope varies by study
Site & grid differences
Embodied vs. operational
Disclosure gaps

EMERGING / EXPERIMENTAL

Ocean / remote siting
Nuclear-powered concepts
Space-based proposals

Proposed & limited — not established.

EFFICIENCY GAINS

Chip & cooling efficiency
Model optimization
Grid & siting choices



AI has a physical footprint — **measured carefully.**

CLIMATE TRACE ALLOWS YOU TO VIEW POLLUTION IN REAL TIME

CLIMATE TRACE

Comprehensive Emissions Insight

Track Global Emissions

from 745 million sources of greenhouse gases and air pollutants worldwide.

See Pollution Plumes

and how they travel into communities all over the world.

Estimate Emissions Reductions

from specific, possible climate actions for every source on the planet.

Open Data

Built by a global not-for-profit coalition of over 100 universities, scientists, and AI experts.

Examine **744,678,997** emitting assets individually or aggregated by city, state, country, etc.

Group emissions by **10** industrial sectors broken into **67** sub-sectors

Follow **10+** years of data (2015-2025) with monthly data available from 2021

See the impacts of **3** GHGs and 8 non-GHG air pollutants

4.9B t CO₂e 100yr in April 2026

Access Open Data

AUGMENT · VERIFY · DISCLOSE · OWN

CLARB Annual Meeting 2026

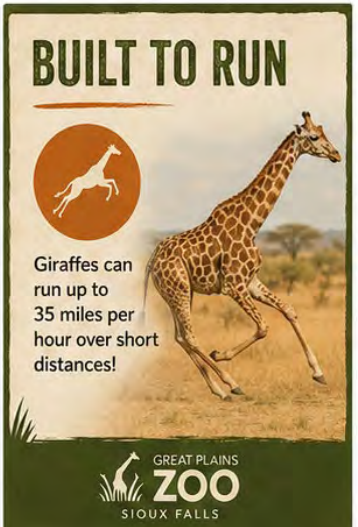
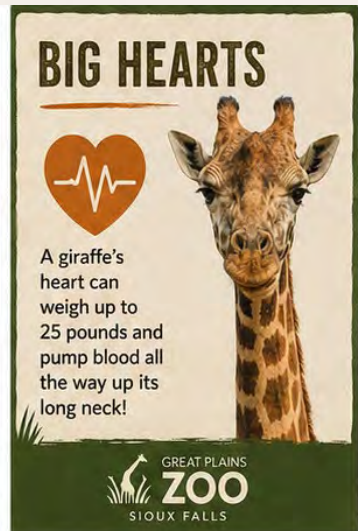
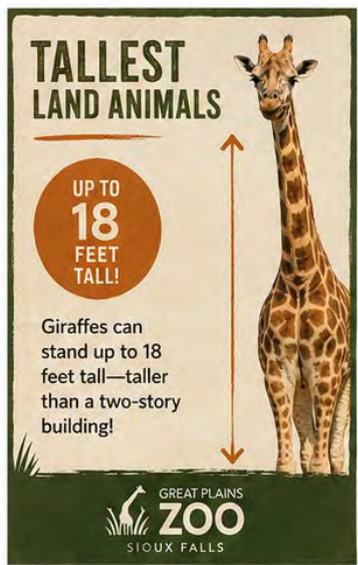
When everyone uses the same defaults, differentiation becomes harder.

SHARED DEFAULTS MAY PRODUCE

- Homogenized imagery
- Generic language
- Repeated solutions
- Reduced local specificity
- Loss of firm identity

DURABLE, HARD-TO-COPY VALUE

- Local knowledge
- Community relationships
- Design judgment
- Site experience
- Proprietary processes
- Customized tools
- A clear point of view



SECTION 04

Regulation, Licensure, & Responsible Use

DISCLOSE — new tools do not eliminate existing responsibilities.

Most professions are **extending existing duties** before inventing entirely new ones.

AEC Responsible control Competence Independent review Documentation Confidentiality	LAW Verification Confidentiality Vendor due diligence Client disclosure Sanctions for fabrication	MEDICINE Human oversight Patient disclosure Auditability Privacy Board accountability	INTERNATIONAL Logging Human oversight AI literacy Risk assessment Traceability
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AI may assist. The **licensed human** remains accountable.

Sources incl. NCARB Position on AI (2024, updated 2026); ABA Formal Opinion 512 (July 29, 2024); FSMB AI guidance (adopted April 2024); EU AI Act, Reg. (EU) 2024/1689; NIST AI RMF 1.0 (2023). Jurisdiction and authority differ; not attributable to CLARB.

Selected AEC signals — different jurisdictions, one direction.

International Council on Regulation (ICOR)

Joint Public Statement 2026— **AI cannot supplant human responsibility; licensed professionals must retain oversight and accountability.**

National Council of Architectural Registration Boards (NCARB)

Position on the Use of AI in Architecture — released Oct 2024; updated by the Board of Directors, April 2026. **"AI is a tool — not a replacement for professional judgement."**

Texas Board of Professional Engineers & Land Surveyors (TBPELS)

Policy Advisory Opinion 71, approved Nov 14, 2024. **Licensees remain responsible for work they sign and seal.**

North Carolina Board of Examiners for Engineers & Surveyors (NCBELS)

AI Guidelines, approved July 16, 2025. **AI use within competence; outputs reviewed by the licensee.**

National Society of Professional Engineers (NSPE) & Royal Architectural Institute of Canada (RAIC)

NSPE Position Statement 03-1774; RAIC statement — **approach AI with curiosity, caution, and professional responsibility.**

EMERGING AEC THEMES

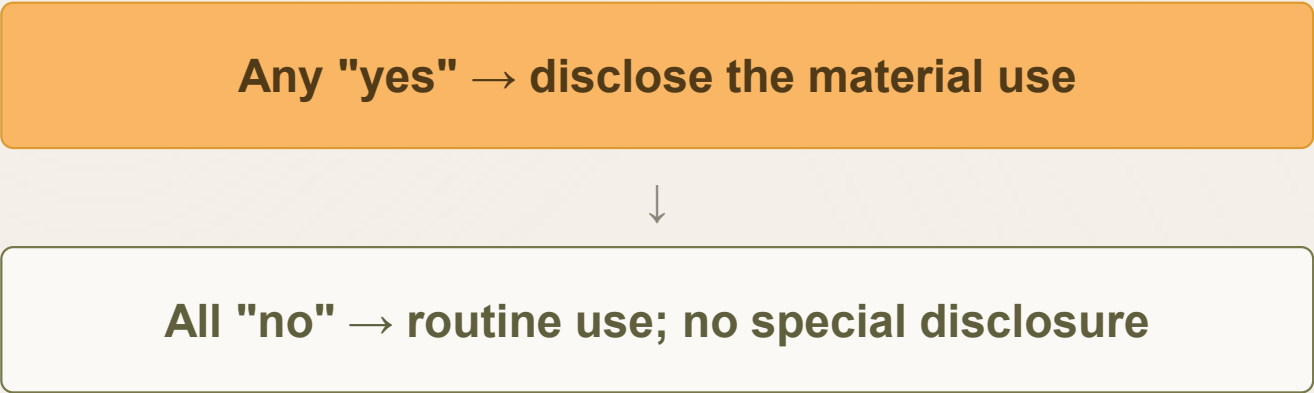
AI is a tool, not a substitute for judgment
The licensee retains ultimate responsibility
Use must stay within competence
Outputs independently reviewed
Methods, assumptions, sources may need documentation
Confidentiality & security obligations remain
Responsible-control concepts under review
AI literacy is becoming licensure-adjacent

Primary sources; jurisdictions and authority differ. **These are not CLARB positions and should not be attributed to CLARB.** This presentation is not legal advice.

Disclosure should focus on **material impact** — not every minor use.

ASK BEFORE DECIDING TO DISCLOSE

- Did AI materially influence a recommendation?
- Generated info put into technical work?
- Would a reviewer or regulator expect disclosure?
- Could it affect trust, reliance, rights, or safety?
- Did AI communicate directly with a client or the public?
- Used for a client-facing representation?
- Confidential info entered into a third-party system?



Not all AI use requires the same disclosure. Specific requirements vary by jurisdiction, contract, and institution.

AI must not replace

Critical thinking

Site-specific
understanding

Community engagement

Ethical judgment

Design for health, safety
& welfare

Professional judgment

Professional liability

Human accountability

Software capability is not **professional qualification**.

FRAME IT CAREFULLY

- Professional scopes vary by jurisdiction
- Adjacent professions are not the enemy
- Market competition isn't automatically a practice-act violation
- Professional-looking output ≠ professional competence
- Software capability ≠ qualification
- Licensure establishes competence, accountability & public protection

When professional-looking design services become easier to produce, **how do we communicate the value of licensed judgment?**

Boards may need to monitor how professional-looking services are produced, marketed, reviewed, and delivered. Scopes vary by jurisdiction; not legal advice.

A responsible-use checklist, in three stages.

BEFORE

- Is AI appropriate for this task?
- What information will be shared?
- What if the output is wrong?
- Who is qualified to review it?
- Is the tool approved for this information?

DURING

- Are assumptions & sources documented?
- Are outputs treated as suggestions, not facts?
- Are checkpoints built in?
- Is meaningful human control maintained?
- Is the work within professional competence?

BEFORE DELIVERY

- Has output been independently verified?
- Is disclosure appropriate?
- Is it consistent with contracts, ethics & regulations?
- Is established QA/QC complete?
- Is a named person accountable?

A practical path forward.

FOR FIRMS

- Inventory current AI use
- Begin with lower-risk pilots
- Establish data restrictions
- Define review expectations
- Train staff · assign accountability
- Document lessons
- Update policies as tools change

FOR EDUCATORS

- Set assignment specific expectations
- Require process documentation
- Assess reasoning, not only output
- Teach critique before generation
- Preserve foundational skills
- Address access and equity
- Reward the decision not to use Ai

FOR BOARDS & ORGANIZATIONS

- Monitor changes in service delivery
- Publish principle-based guidance
- Reinforce human accountability
- Review responsible-control concepts
- Consider documentation & disclosure triggers
- Coordinate with adjacent regulators
- Avoid rules tied to one product

AI may change how landscape architecture is practiced and taught. It does not change **why professional judgment, licensure, and accountability matter.**

Augment

Verify

Disclose

Own

“

What responsibility should **always remain human**, regardless of how capable the technology becomes?

“

How does Regulation need to Adapt to Ai Use?

Sign Up for our Ai Newsletter here



Licensure, Regulation & Professional Responsibility

CLARB. Official standards, model law, and member-board materials. clarb.org. <i>Consult directly for any current CLARB position.</i>	NCARB. Position on the Use of Artificial Intelligence in the Architectural Profession. Position statement — released Oct 2024; updates approved April 2026.
Texas Board of Professional Engineers & Land Surveyors (TBPELS). Policy Advisory Opinion 71: The Use of Artificial Intelligence (AI) Software by Licensees. Advisory opinion — Nov 14, 2024.	North Carolina Board of Examiners for Engineers & Surveyors (NCBELS). Guidelines on the Use of AI in Engineering and Surveying Services. Board guidelines — July 16, 2025.
NSPE. Position Statement No. 03-1774: Artificial Intelligence. Professional position statement.	RAIC (Royal Architectural Institute of Canada). Statement on Artificial Intelligence in Architecture. Association statement — 2026.
American Bar Association. Formal Opinion 512: Generative Artificial Intelligence Tools. Ethics opinion — July 29, 2024.	Federation of State Medical Boards (FSMB). Navigating the Responsible and Ethical Incorporation of AI into Clinical Practice. Report — adopted April 2024.
State of California. AB 3030 (generative AI in health communications) & SB 1120, "Physicians Make Decisions Act." Statutes — 2024.	European Union. Regulation (EU) 2024/1689 (AI Act) — human-oversight (Art. 14) & logging/record-keeping (Arts. 12, 19). Regulation — 2024.

Jurisdictions and authority differ; positions above are **not** attributable to CLARB. Verify exact titles/dates against each primary source. Not legal advice.

AI Governance, Education & Environmental Impact

NIST. AI Risk Management Framework (AI RMF 1.0), NIST AI 100-1 — Jan 2023; Generative AI Profile, NIST AI 600-1 — July 2024. Framework.	U.S. Dept. of Energy / Lawrence Berkeley National Laboratory. United States Data Center Energy Usage Report. Government research — 2024.
International Energy Agency (IEA). Analyses of data-centre electricity demand (e.g., Electricity 2024). Agency analysis.	Peer-reviewed research — AI energy & water use. <i>[Insert the specific article(s) you cite for any energy/water figure.]</i>
Hardware efficiency & data-center design. Primary-source manufacturer / agency efficiency reports. <i>[Insert specific sources.]</i>	Educational research. Peer-reviewed or institutional research on AI in design education. <i>[Insert specific sources.]</i>
Definitions & diagrams. Sources for any terminology, statistic, or environmental claim used in this deck. <i>[Insert as cited.]</i>	Texas Responsible AI Governance Act (TRAIGA). Enacted June 22, 2025; effective Jan 1, 2026. State statute (context).

Use current editions. Environmental figures vary by scope and year — cite the primary source and avoid unsupported statistics. Experimental data-center concepts are proposed/limited, not established.







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Inside the Exam Experience

August 29, 2026



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REGISTRATION BOARDS



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Inside the Exam Experience

August 29, 2026



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LANDSCAPE ARCHITECTURAL
REGISTRATION BOARDS



Adrienne Cadle, PhD

Vice President, Credentialing
Professional Testing, Inc.



Mike Flint, OALA, CSLA

Principal, Landscape Architect
Quinn Design Associates Inc.



Shawn Menefee Jr.

Records Services Senior Coordinator
CLARB



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Agenda

01

Candidate Experience

02

Candidate Performance and Feedback

03

Fairness and Defensibility

04

Continuous Improvement

05

Q&A

Candidate Experience



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Candidate Experience

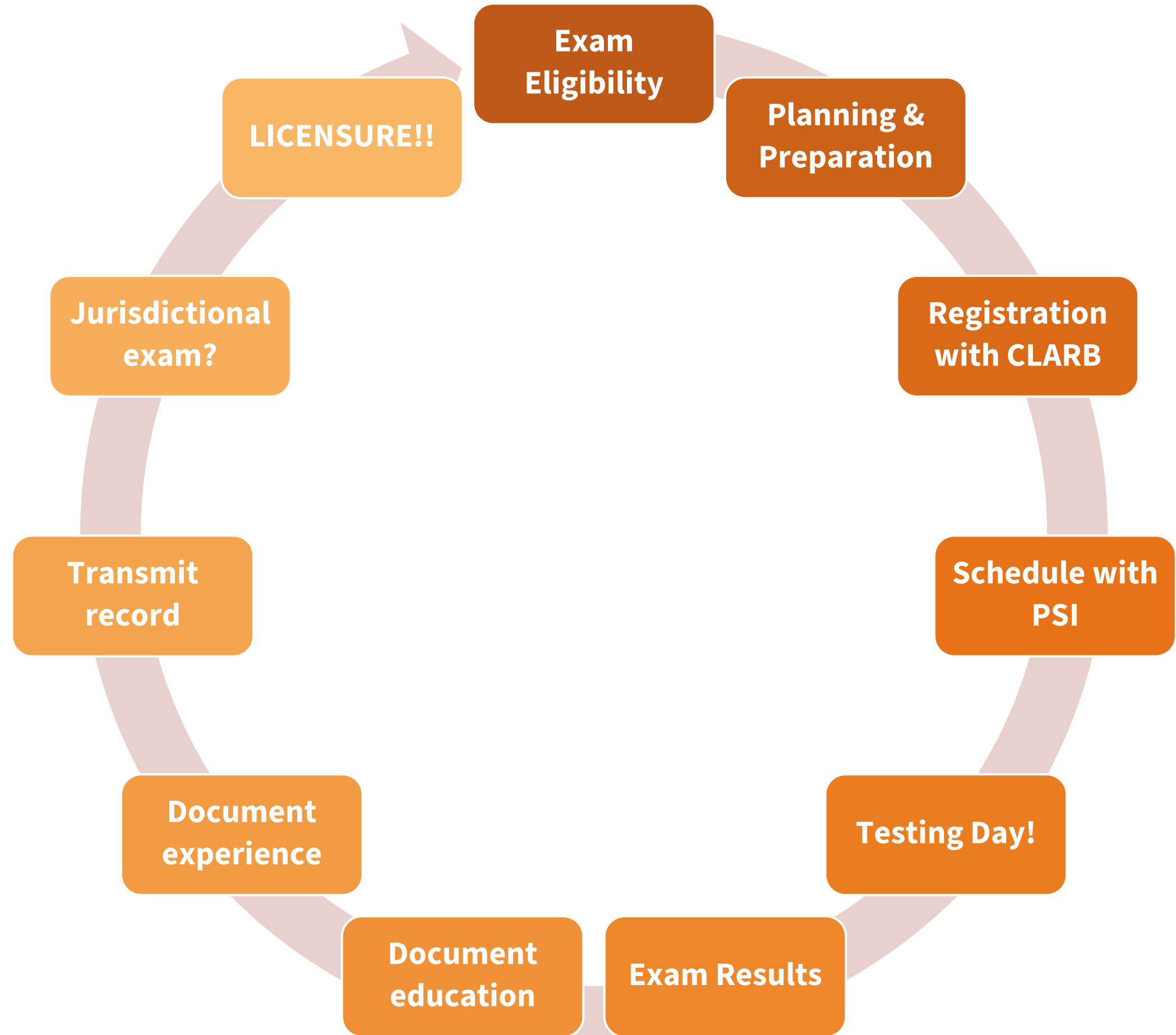
The candidate journey is a shared responsibility among CLARB, exam volunteers, psychometricians and member boards.



Why does the candidate experience matter?

- Supports CLARB's mission (and your own!) of protecting the public
- Reduces candidate anxiety and cognitive load
- Improves candidate readiness and success
- Strengthens trust in the licensure process
- Reduces customer service burden
- Promotes equity and accessibility
- Protects and enhances CLARB and member board reputations
- Addresses expectations of modern learners
- Supports candidate retention
- Demonstrates continuous improvement

Candidate Journey



Candidate Journey



CLARB's Role



- CLARB Record and eligibility tools
- Candidate guides and policies
- Practice resources
- Testing accommodation processes
- Customer support services
- Exam webinars for candidates
- Board coordination and candidate assistance

Support systems are designed to promote access and consistency.

Candidate Performance and Feedback

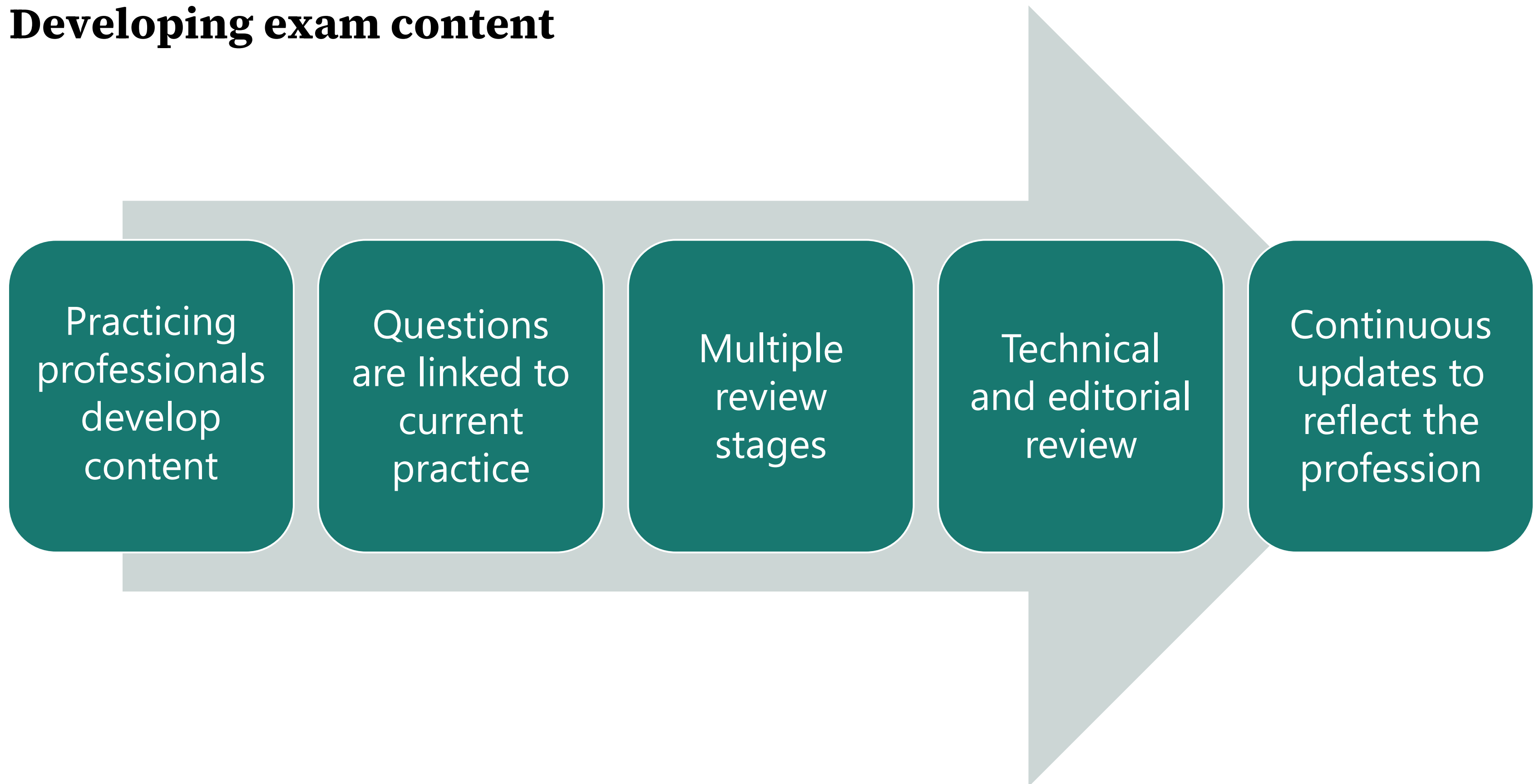


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Developing exam content



Exam Day Preparations

 **CLARB Demo Exam**
Portal User

Comments Calculator Whiteboard

Which of the following are citrus fruits? *Choose 3 that apply.*

- ☒ A. lime
- ☐ B. apple
- ☒ C. orange
- ☐ D. banana
- ☒ E. grapefruit
- ☐ F. strawberry

Comments

Lemons are best, why aren't those listed? Your exam sucks.

Save Close

Exam Day Preparations



Practice Exam - Inventory, Analysis, and Project Management

Emily Bogstie

Question
1 of 50



Comments



Calculator



Whiteboard



Mark for Review

The **MOST DETRIMENTAL** environmental effect of a capped landfill is most likely to be

- ☒ flooding.
- ☐ off-site views.
- ☐ dust pollution.
- ☒ groundwater contamination.

Explanation

Item Rationale

Groundwater contamination would be considered the most detrimental effect because it effects human health and is subsurface. Remediation is notoriously difficult. Other options listed are very visible and comparably easier to address.

Exam Day Preparations

- Time-management considerations

Structure



Testing
appointment
duration

**3.5
hours**



Time to
complete
exam

**3
hours**



Scored
items

90



Pre-test
items
(NOT SCORED)

10



Exam Day Preparations

Which of the following would **MOST LIKELY** occur when the owner and contractor cannot agree on the terms of a change order?
Choose 2 that apply.

- ☐ terminate the contract
- ☒ issue the change on a cost-plus basis
- ☒ request contractor reconsider the price
- ☐ amend the contract on a lump-sum basis

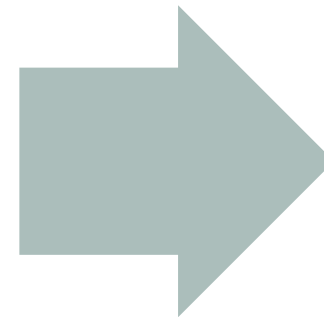
Explanation

Item Rationale

The correct responses are "issue the change on a cost-plus basis" and "request contractor reconsider the price" because the question is asking for the most likely resolution when the owner and contractor cannot agree and those two responses represent a compromise for each party. The cost-plus basis allows for the change order costs to be accurately paid on what work is performed under the change order. The reconsider price option indicates to the contractor the owner does not agree with the proposed price and gives the option to reevaluate to come to an agreed upon price. Amend the contract on a lump-sum basis would only be an option if the two parties did agree on terms including cost. Terminate the contract is an extreme escalation option that is not justified by the information present in the question.

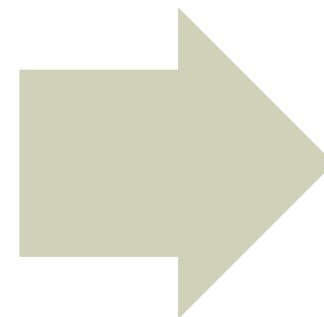
Common Misconceptions

The exam is designed to trick candidates.



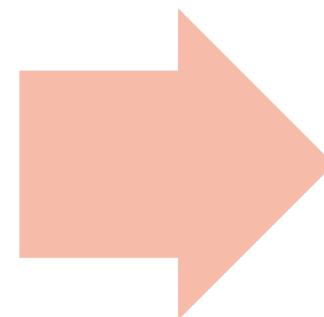
Questions are designed to assess competence and professional judgment.

Every question has an obvious answer.



Many questions require evaluating realistic scenarios and selecting the best professional response.

Memorization alone is enough.



Candidates must apply knowledge, analyze information, and use professional judgment.

Fairness and Defensibility



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The Dream Team



How Exam Performance is Evaluated

- Question-level analysis
 - **Difficulty:** What percentage of candidates are answering each item correctly?
 - **Discrimination:** Does the item distinguish between high- and low-performing candidates?
 - **Distractor effectiveness:** Are all distractors being selected? Are they doing what we intended for them to do?
 - **Bias:** Do some items behave differently for demographic groups after controlling for ability?
 - **Item fit:** Does the question perform as expected statistically?
 - **Statistical Drift:** Has the item drifted easier or harder across time, indicating potential pre-knowledge or a change in practice?

How Exam Performance Is Evaluated – Monitoring Exam Statistics

- Pass rates and score distributions
- Mean, median, and standard deviation
- Reliability coefficients
- Comparability across test forms
- Trends over time

Exam Level Statistics



- Item difficulty (percentage answering correctly)
- Item discrimination (how well a question differentiates stronger and weaker candidates)
- Distractor performance
- Differential item functioning (DIF) for fairness across groups
- Item fit and unusual response patterns

Question-level statistics



- Testing center or administration anomalies
- Potential security breaches or item exposure
- Changes in candidate populations
- Effects of new questions or revised forms

Operational monitoring



How Exam Performance Is Evaluated – Candidate Performance Patterns

- **Score distribution analysis:** Are scores spread as expected, or are they unusually high or low?
- **Pass rate monitoring:** Have pass rates changed significantly across administrations?
- **Subgroup comparisons:** Do candidates with similar ability levels perform similarly across demographic or geographic groups?
- **Response pattern analysis:** Are there unusual answer patterns that might indicate guessing, item exposure, or test security concerns?
- **Progression trends:** How do first-time candidates compare with repeat candidates?
- **Ability-performance relationships:** Do higher-performing candidates consistently answer more difficult questions correctly?



How Exam Performance Is Evaluated – Unusual Item Behavior

Unexpected difficulty

Answered correctly by far fewer (or more) candidates than anticipated.

Poor Discrimination

A question answered correctly at similar rates by both high-performing and low-performing candidates.

Distractor problems

Incorrect answer choices are examined to see whether they are functioning properly.

Differential item functioning (DIF)

The question performs differently for demographic groups after controlling for ability.

Item fit analysis

Psychometricians compare actual response patterns to what statistical models predict.

Trend monitoring

Statistics are compared across administrations.

Response pattern analysis

Psychometricians look for unusual testing behaviors.

How Exam Performance Is Evaluated – Candidate Comments



Exam Results

- What score reports mean
- Why pass/fail decisions are consistent
- Performance feedback categories
- How candidates can use results productively

Continuous Improvement



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Candidate Support

Timely
communication

Clear result
interpretation

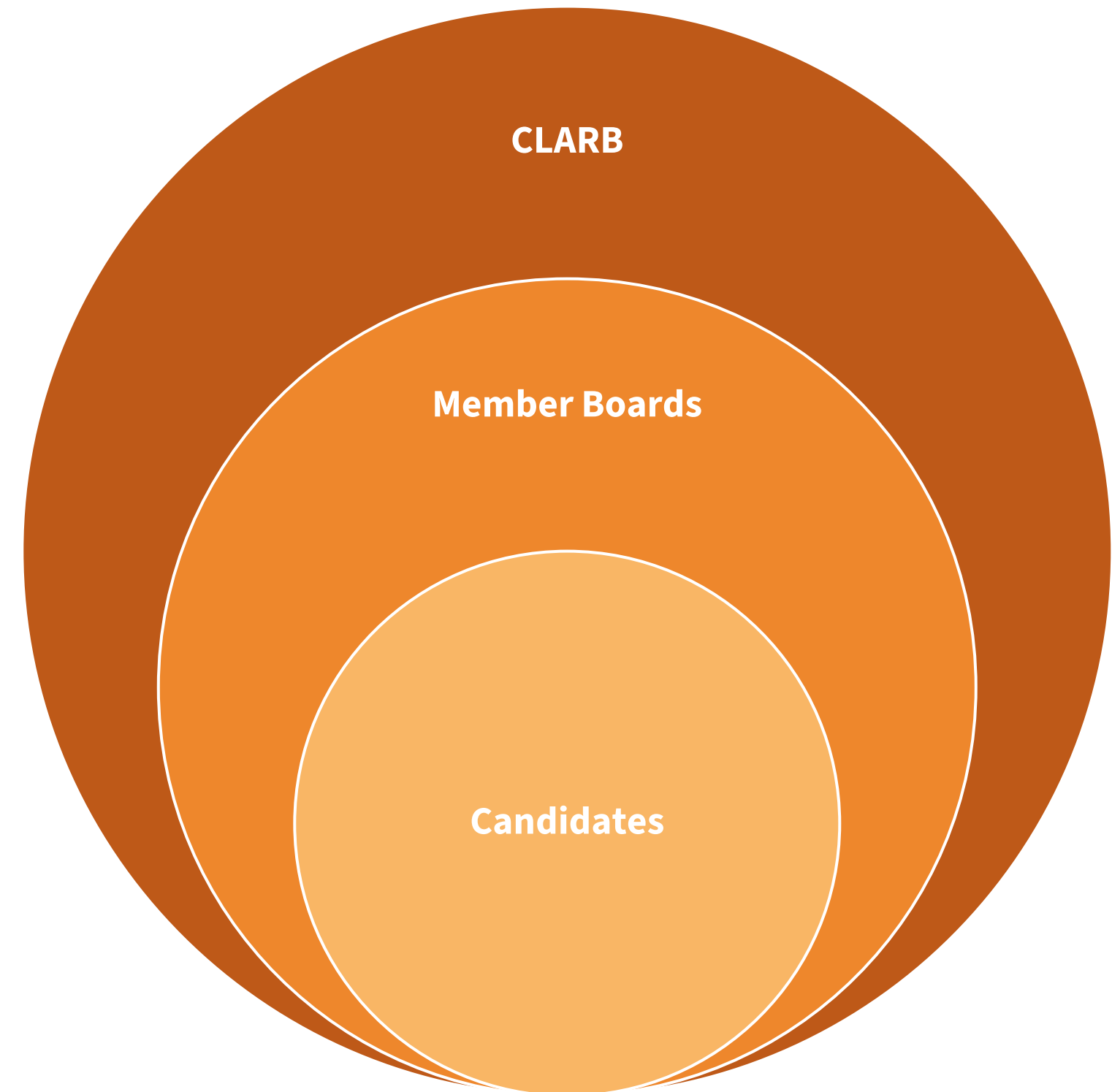
Guidance for
retesting

Access to
resources

Confidence in
the process

Role of Member Boards in the Candidate Experience

- Licensure guidance
- Regulatory oversight
- Candidate outreach
- Jurisdiction-specific information
- Public protection mission



Exam Updates Recap

Activity Date	Education Item	Credit Status	CLARB	Sub-Domain 1 Feedback	Sub-Domain 2 Feedback	Sub-Domain 3 Feedback
			Diagnostic Feedback			
4/12/2025	Grading, Drainage and Stormwater Management	Failed	590	Slightly Below Proficient	Well Below Proficient	Proficient

- Recent Recap
 - 2022 Practice exams released
 - December 2023 New exam blueprint
 - December 2023 Diagnostic feedback
 - 2024-2025 Provisional feedback
 - Aug 2024 – Inventory
 - Dec 2024 – Planning
 - Apr 2025 – Construction
 - Aug 2025 – Grading

CLARB

Grading, Drainage, and Stormwater Management - Provisional Feedback

Candidate: Emily Bogstie

Date: 30-Jul-2025

Provisional Feedback:

Likely to Fail

Based on the preliminary assessment you are **Likely to Fail** this section of the L.A.R.E.

Provisional feedback is an accurate predictor of whether or not you pass or failed the exam section, but it is NOT an official score and is based on unvalidated exam results. Your exam results must still be analyzed by CLARB using data forensics before your score report can be released. Official scores will be available at my.clarb.org approximately 4-6 weeks following the last day of the administration period.

Learning Resources

If you have any questions about the exam or would like to provide feedback about the exam items or your exam registration experience, please email info@clarb.org.

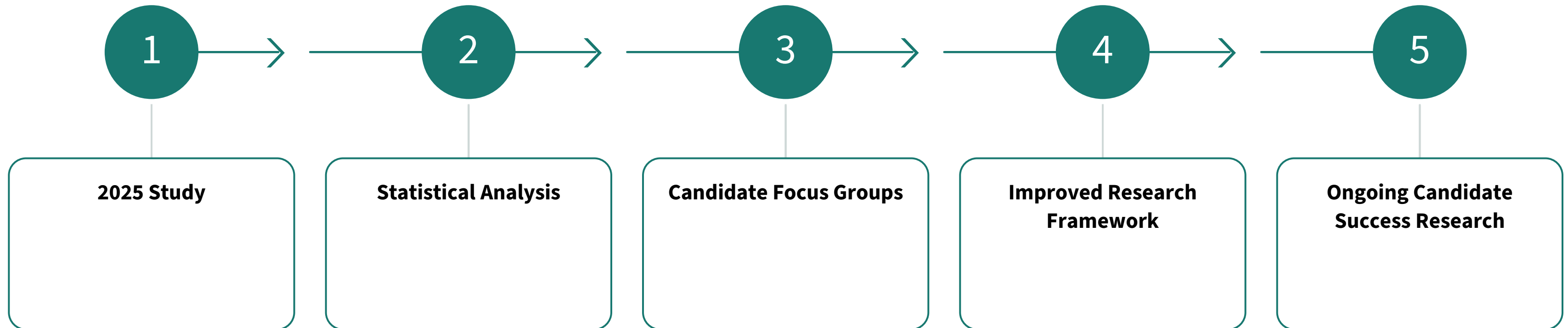
CLARB
571-432-0332 Phone
www.clarb.org

Exam Updates

■ Upcoming – More Candidate Support

- Updated practice exams
- Updated candidate handbook
- Expanded diagnostic feedback
- Exam preparation guidance
- Updated recommended reading list
- New software system
- Exciting news during the Business Session

Building a stronger evidence base to understanding candidate success factors over time



What we learned

Experience Matters – Breadth of hands-on experience is more important than years of experience

Employer Support Matters - Financial assistance, flexibility, and mentoring reduce barriers.

Timing Matter - Some exam sections are better taken earlier, while coursework is still fresh.

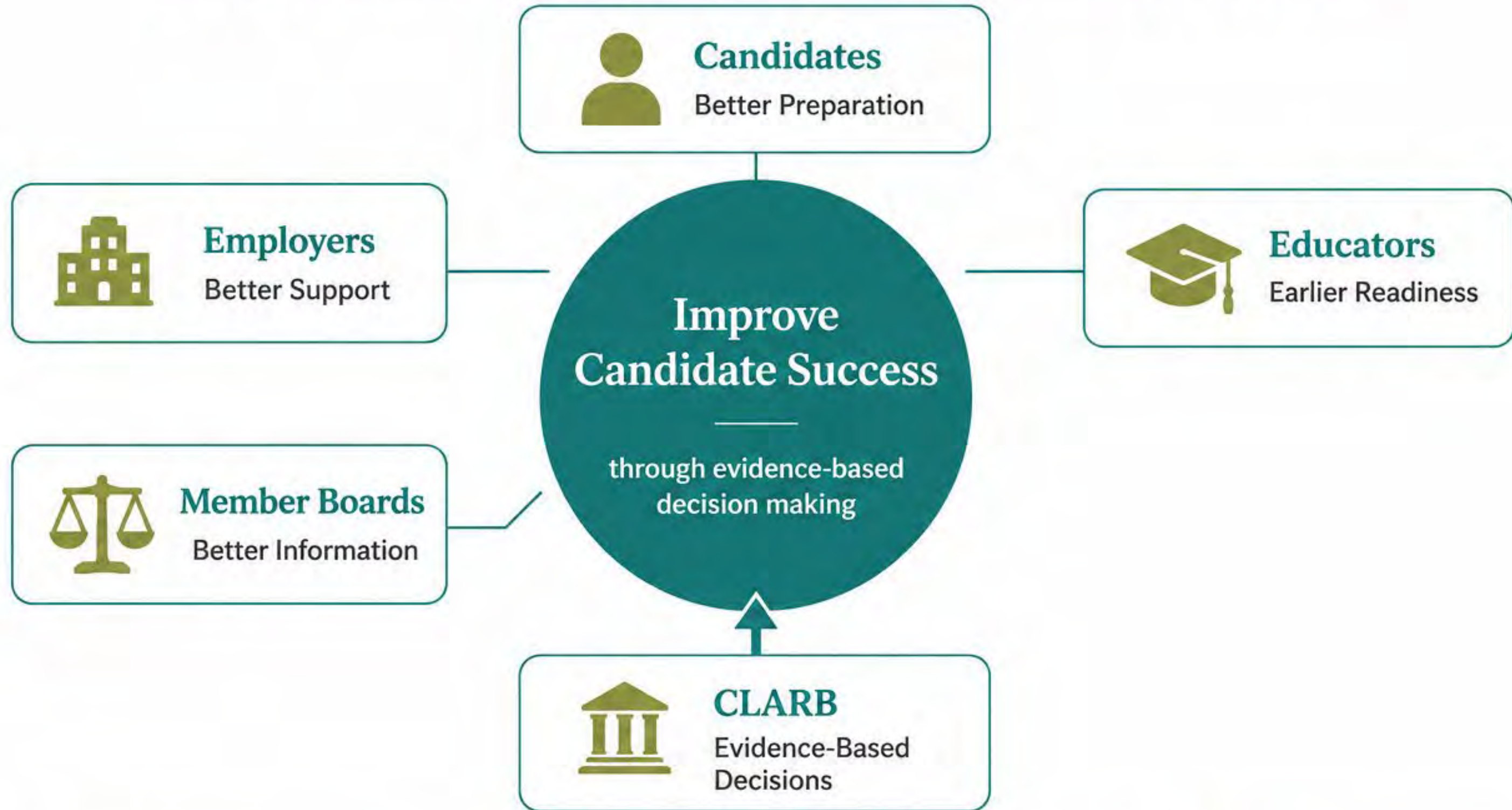
Study Strategy Matters - How candidates study matters more than total hours studied.

Practice Matters - Working through exam-style questions improves confidence and readiness.

Demographics Matter Less - Very little evidence that demographic background predicts success.

Why This Matters

Research becomes action across the entire licensure ecosystem.



Research



Insights



Action



Improved
Candidate Success

Key Takeaways

Candidate experience spans far more than exam day.

Fairness is supported through expert content development and psychometric review.

CLARB and member boards share responsibility for supporting candidates.

Communication and transparency are critical to candidate success. Enforcing policies consistently, ensuring they are correct and easily accessible.





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CLARB Business Session

August 29, 2026 | 12:00 p.m. - 12:30 p.m.



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Special announcement



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Allison Fleury

CLARB President-Elect



Joel Kurokawa

CLARB Past President



Brian Verardo

CLARB President

Recognition

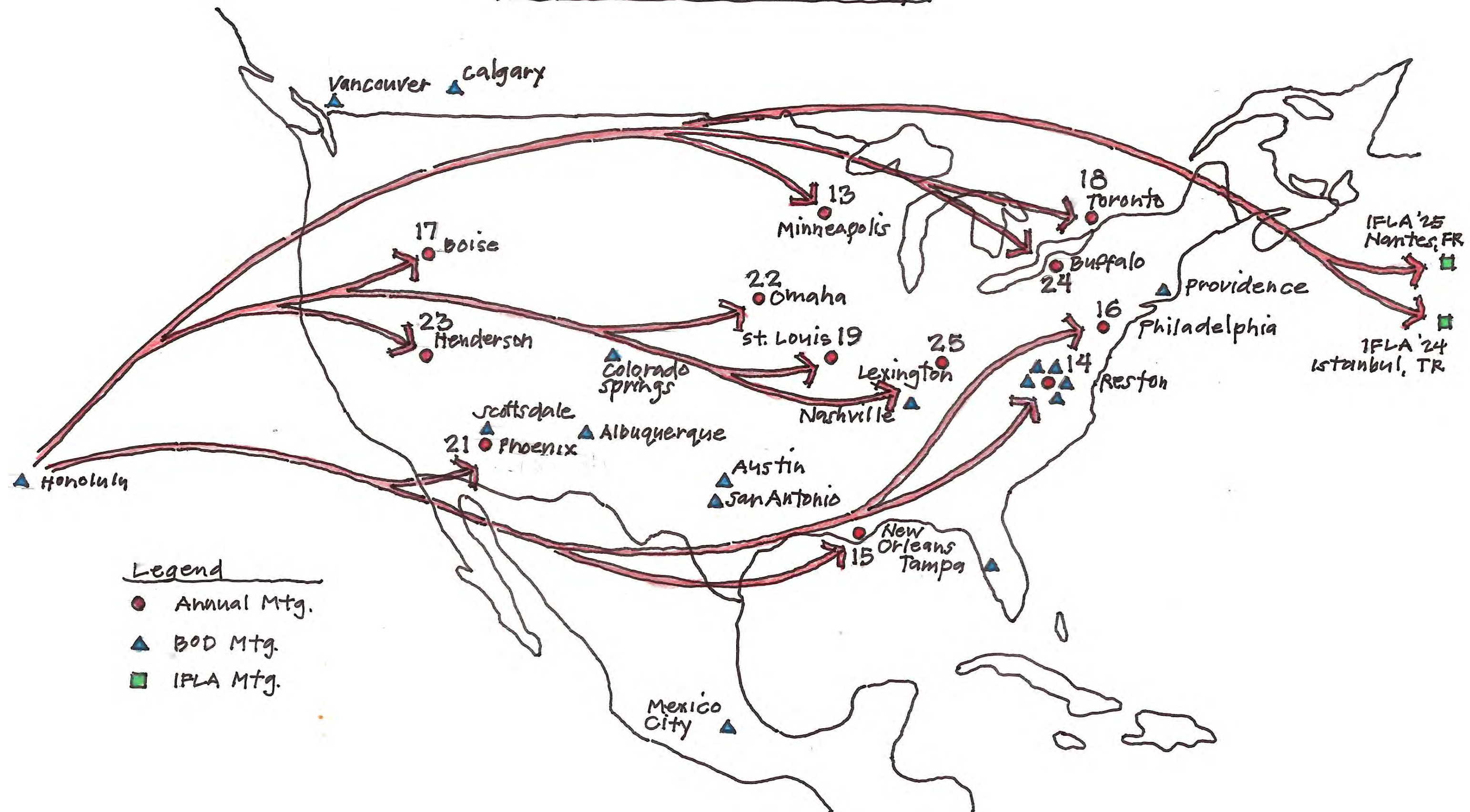
Joel Kurokawa

CLARB Past President

Leadership Advisory Council
Chair



My CLARB Journey

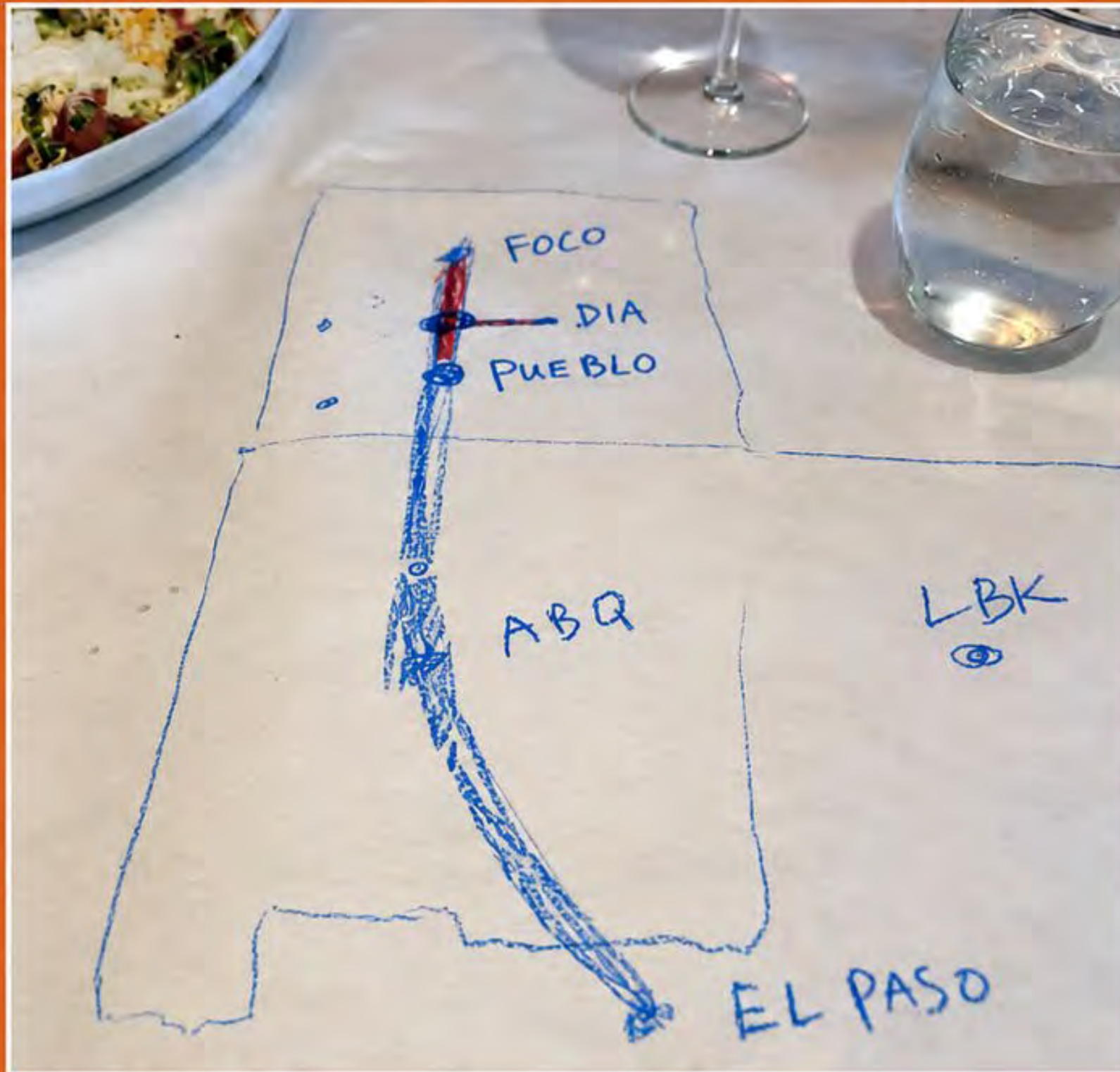


Closing Remarks

Brian Verardo

CLARB 2026 President





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Landscape Architects



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IFLA
INTERNATIONAL FEDERATION
OF LANDSCAPE ARCHITECTS



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INTERORGANIZATIONAL

COUNCIL ON REGULATION





EVERY ONE OF
YOU HELPED
SHAPE THE
LEADER AND
PERSON
**STANDING HERE
TODAY.**



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CLARB
ADVANCING PROFESSIONAL STANDARDS
IN LANDSCAPE ARCHITECTURE



What will you
do in the
coming year to
strengthen
landscape
architecture?



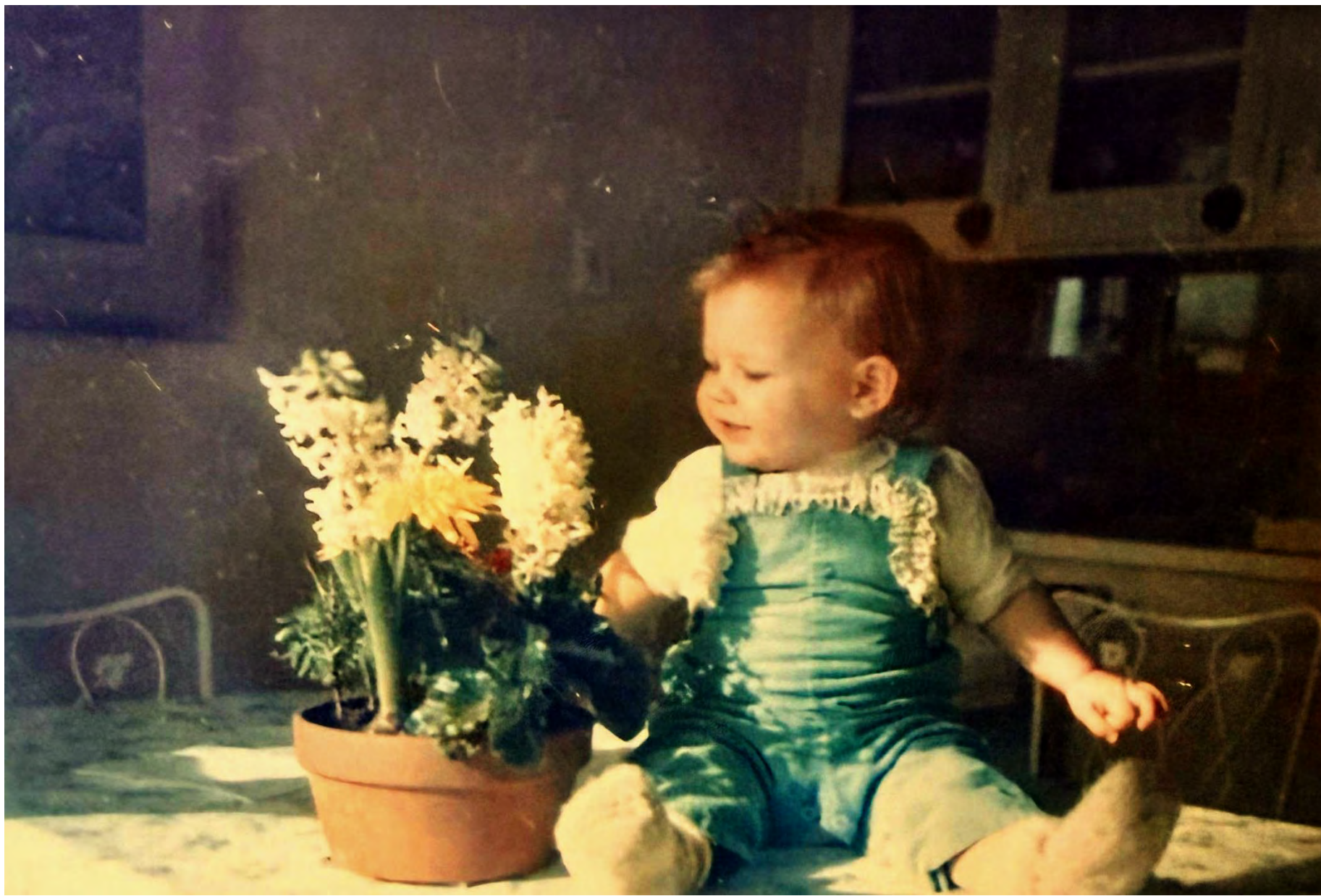


Incoming President Remarks

Allison Fleury

CLARB 2027 President





Some Things Never Change...



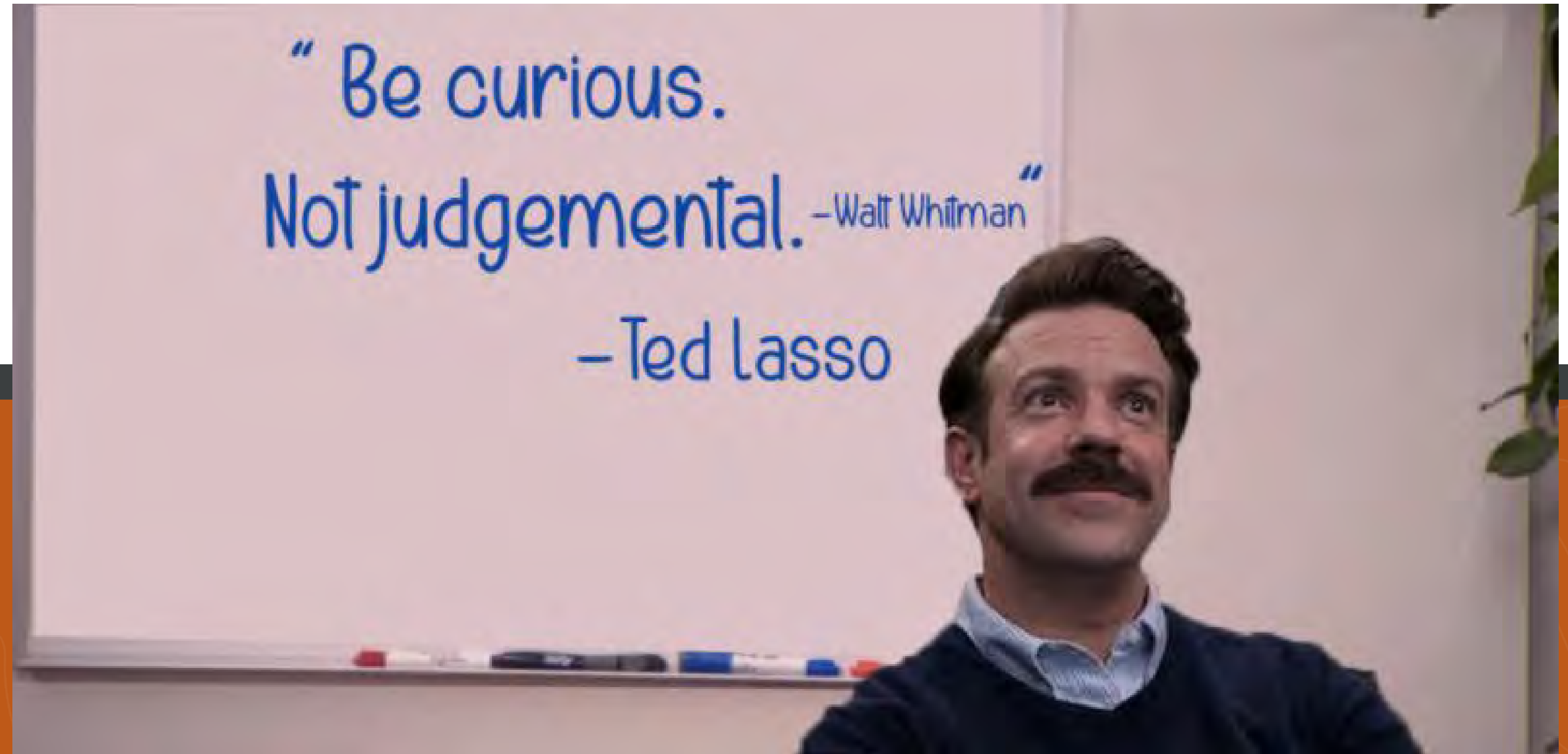
Seattle 2009



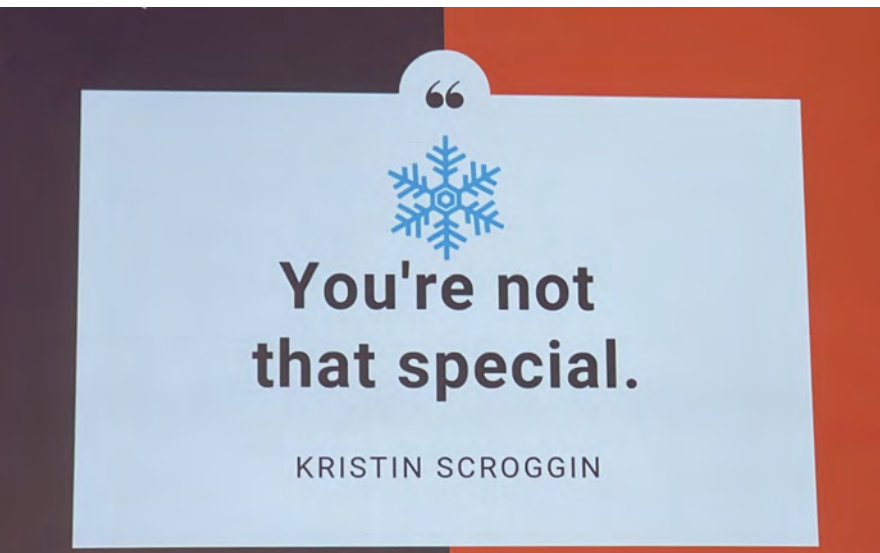
Seattle 2009

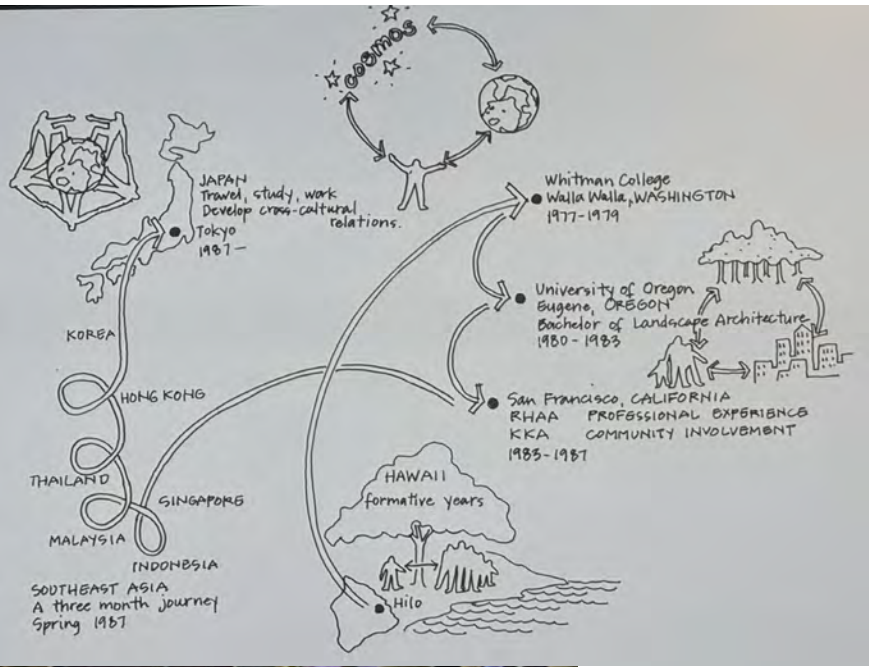


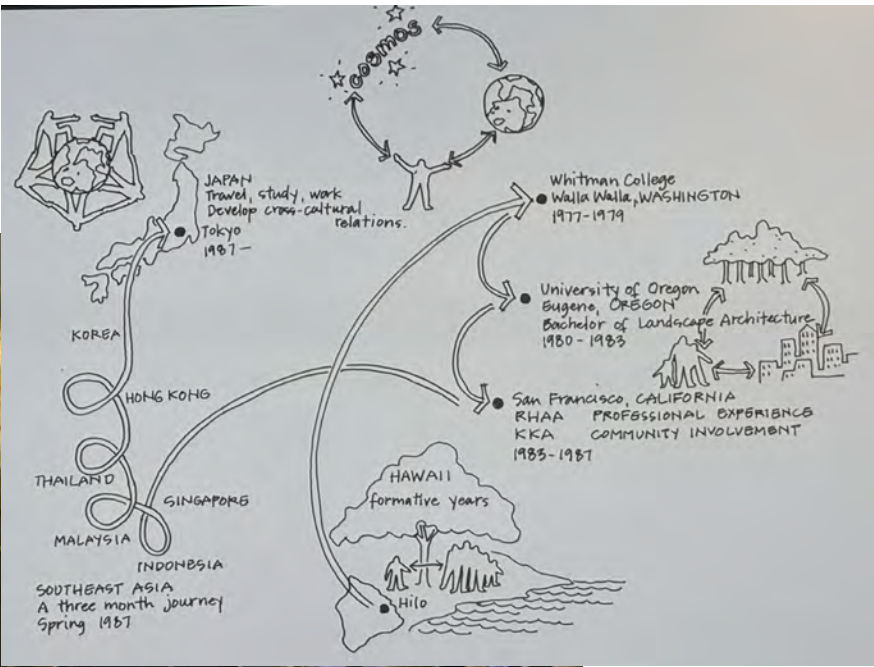
Be curious













BAM!

CLARB

Built for a Purpose

ABC
LEARNING

If it Ain't Broke
Don't Fix it...
Well it no longer fits

VISION The World's People,
Places, & Environment
are protected by
landscape architecture.

OUR PREFERRED FUTURE

Defensible Standards
Inclusive Education
Justifiable Experience
Accessible Exam

We Focus on
Health, Safety
& Well Being

We Consider
Emerging Design, Tech &
Societal Trends

a border-less
& diverse LA practice

A REFOCUS ON
THE FUTURE

CHANGE

Where LAs work
Where LAs are educated
Where LA projects reside

The profession will
become more...

Adaptable
Agile
Relevant

Ben Franklin
If you Fail to Plan,
you are Planning to Fail

SHALL WE BE LEFT BEHIND?

CLARB
WILL LEAD

To Meet the
Global Need

The
Time to
Plant
the Strategy
is NOW!

TIME
TO
ADVANCE

To Design
& Promote
LA Standards

MISSION

VALUES

Leading with Vision
Engaging as a Steward
Fostering Inclusion

Aspiring to Excellence
Demonstrating Thought Leadership

Acting with Integrity
Designing Collaboratively

GLOBAL
a strategic domain

Exchange Stories
to Grow the
Global Network

PRACTICE

a strategic domain

Equivalent
Assessment
of Competency

Competency Must Match Culture

Common Standards
Competent Practice
Growing with an
Evolving Profession

REGULATION

a strategic domain

Implement & Refine
RETHINK
regulation

Agility in Regulation,
Processes, Procedures + Partners

Evaluating Global
Qualifications

Better Prepared
To Protect The World!

Development of
Sustainable

Global Growth
Building Trust
New and Adapted Programs
Recognition of
equivalent systems

Programs,
Services &
Outreach

We
Shape
History
Through
Design

The Places We
Love and Enjoy
Meet our Cultural
Needs

The Workforce
Demands
Flexibility & Mobility

CLARB

Built for a Purpose

ABC
LEARNING

A REFOCUS ON THE FUTURE

CHANGE

Where LAs work
Where LAs are educated
Where LA projects reside

The profession will become more...

Adaptable
Agile
Relevant

Ben Franklin
If you Fail to Plan,
you are Planning to Fail!

SHALL WE BE LEFT BEHIND?

CLARB
WILL LEAD

To Meet the
Global Need

The
Time to
Plant
the Strategy
is NOW!

PRACTICE

a strategic domain

Equivalent
Assessment
of Competency

Competency Must Match Culture

- Common Standards
- Competent Practice
- Growing with an Evolving Profession

We Shape History Through Design

The Places We Love and Enjoy
Meet our Cultural Needs

REGULATION

a strategic domain

The Workforce Demands Flexibility & Mobility

Implement & Refine
RETHINK regulation

Agility in Regulation, Processes, Procedures + Partners

Evaluating Global Qualifications

Better Prepared To Protect The World!

VISION
The World's People, Places, & Environment are protected by landscape architecture.

TIME TO ADVANCE

To Design & Promote LA Standards

MISSION

OUR PREFERRED FUTURE

Defensible Standards
Inclusive Education
Justifiable Experience
Accessible Exam

We Focus on Health, Safety & Well Being

We Consider Emerging Design, Tech & Societal Trends
a border-less & diverse LA practice

VALUES

Leading with Vision

Aspiring to Excellence

Acting with Integrity

Engaging as a Steward

Demonstrating Thought Leadership

Designing Collaboratively

Fostering Inclusion

GLOBAL

a strategic domain

Exchange Stories to Grow the Global Network

Development of Sustainable

Programs, Services & Outreach

- Global Growth
- Building Trust
- New and Adapted Programs
- Recognition of equivalent systems



Allison Fleury
President



Edward Kinney
President-Elect



Brian Verardo
Past President



Craig Coronato
Treasurer



Zara Brown
Director



Nicole Cheng
Director



Erin Jennings
Director



Leehu Loon
Director



Mónica Pallares
Director



Blair Parker
Director



Brad Smith
Director



Amy Stewart
Director

2027 Board of Directors



**Brian Verardo,
Chair**



Tim Bargainer



Brandon Doss



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Verprauskus**

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Chair TBD

Zara Brown,
Board
Liaison



Jodi Aumer,
SD



Lance
Brenton, TX



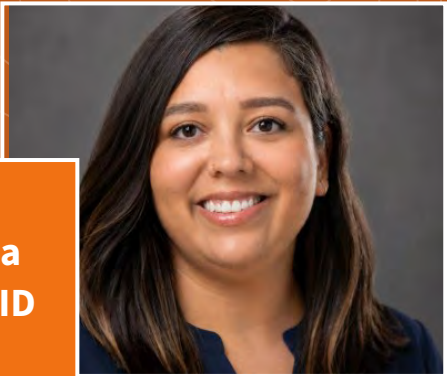
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Rose, SC



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Ellen White,
OK



2027 MBE Committee

Exam Committee

Inventory, Analysis,
and Project
Management



**Robyn Lane,
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Erik Dayrell



Mary Estes



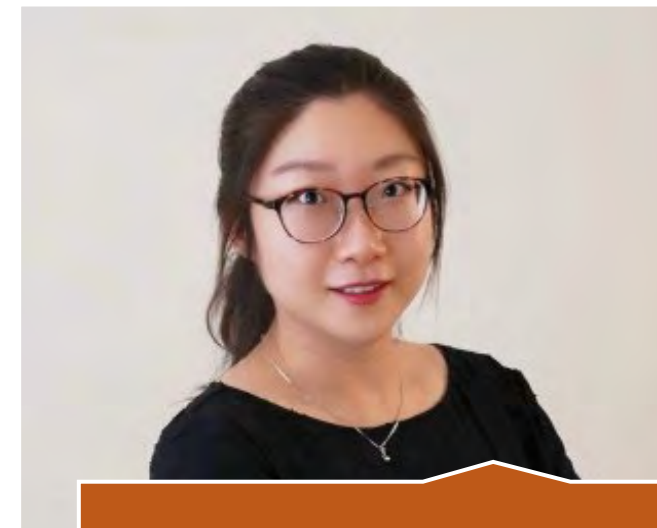
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Deb Myers



Scott Rice



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CLARB Representatives to LAAB and ASLA

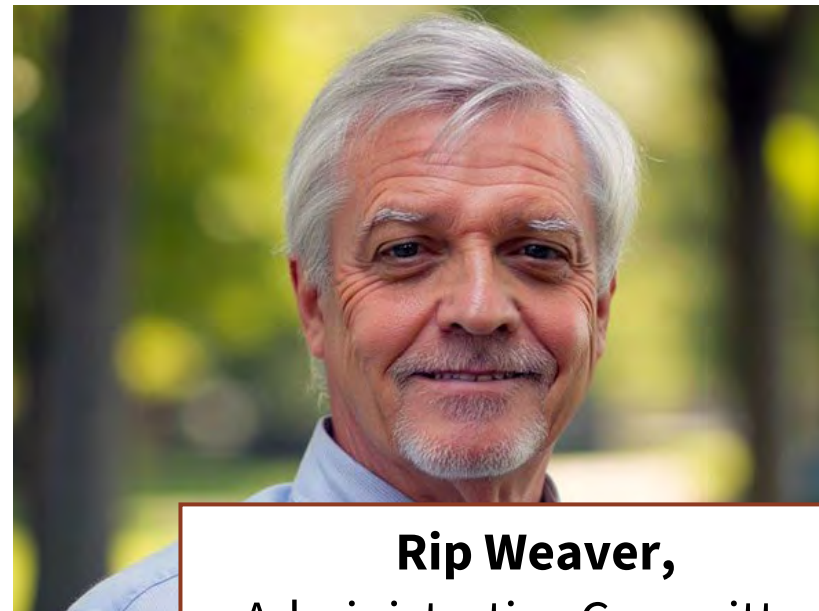


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LAAB Board of Directors**



**Chip Brown,
ASLA L.A.R.E. Prep Committee**

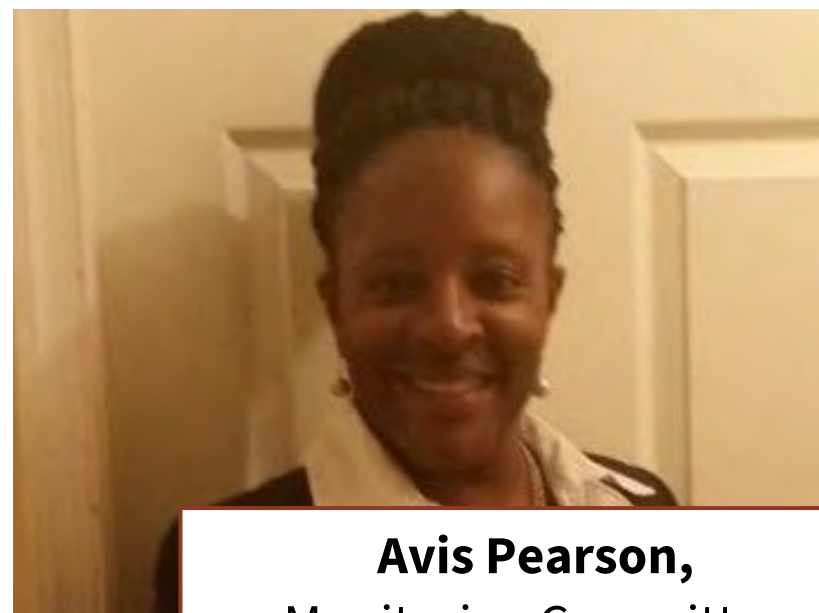
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Administrative Committee



Carisa McMullen,
Monitoring Committee



Avis Pearson,
Monitoring Committee



Fei Peng,
Application Review Committee

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