



P S I P C O N C R E T E P R A C T I C E E X A M

Most Contractors

Do It Right And

Cannot Prove It.

This is the readiness check that shows you the exact gap between doing the work and defending it. Same bar as the real certification. Fifteen questions.
The full why behind every answer.

READ THIS FIRST

WHO THIS IS FOR

You pour residential flatwork and structural slabs. Driveways, garage slabs, patios, footings, sidewalks. You have been doing it long enough to know the difference between a crew that rushes a finish and a crew that respects the material.

This is for the contractor who already does most of it right and has never once been asked to prove it on paper. If you pour concrete and you have never built a documented project record, you are exactly who this was built for. If you are looking for a shortcut around the work, close this now. There is no shortcut in here.

HOW THIS READINESS CHECK IS BUILT, STATED PLAINLY

This is not a random quiz and it is not a proportional mirror of the full certification. It is a **diagnostic, weighted on purpose**. We front-loaded it with the two areas where working contractors most often score low: the **materials chemistry that changed under your feet after 2018**, and the **documentation and legal defense** that decides who wins when a homeowner files a complaint.

We are telling you that up front because PSIP does not rig a score in the dark. We score, we do not spin. You will also see at least one question from every domain on the real exam, so the number you walk away with is an honest readiness signal, not a setup.

THE BAR IS THE REAL BAR.

The live PSIP certification exam is 50 questions. Passing is 80 percent, 40 of 50. This practice check carries the same 80 percent standard. On 15 questions, that is **12 of 15 correct**. Score yourself against the real stakes, not a participation ribbon.

THE STAKES

The concrete you pour today is not the concrete you poured ten years ago. The bag did not warn you. The plant did not call you. But the chemistry changed, and the liability did not move off your shoulders.

Around 2018, two things happened at once. The Class F fly ash that quietly protected concrete from Alkali-Silica Reaction got scarce as coal plants closed. At the same time, the cement itself shifted. Type I and Type II Portland gave way to Type 1L, a Portland-Limestone Cement now dominant in the U.S. market, with up to 15 percent interground limestone. Same product code on the ticket. Different concrete in the truck.

When the protective material came out of the mix and nobody changed the spec, concrete started reacting from the inside. In pool shells and slabs, an expansive gel formed and cracked the concrete from within. The field name for it is concrete cancer. It does not buff out. It does not get sealed away. It gets worse every time it touches water.

Here is the part that should keep you up at night. In any dispute over concrete that fails, the contractor who cannot produce a record of what they poured, what process they followed, and what the conditions were on pour day has no defense to offer. Doing the job right is not enough on its own. Proving it is the other half of the job. A contractor with a documented chain of evidence stands on solid ground. A contractor with a verbal promise and a paid invoice stands on nothing.

THIS EXAM STATES THE PROBLEM. IT DOES NOT SELL YOU AN OUTCOME.

PSIP does not promise your concrete will never crack. No honest contractor can. What PSIP proves is that the process was followed and documented. The questions ahead show you where your knowledge is current, and where the ground shifted without telling you.

THE PRACTICE EXAM

Single best answer. Circle one letter per question. Do not check the key until you have committed to all fifteen. The score only means something if you earn it honestly.

Q1

TYPE 1L CEMENT

What is Type 1L cement, and how does it differ from traditional Type I/II Portland cement?

- A.** A high-early-strength cement with added calcium chloride
 - B.** A Portland-Limestone Cement containing up to 15 percent interground limestone, now the dominant cement in the U.S. market
 - C.** A low-alkali cement specifically formulated to eliminate ASR risk
 - D.** A specialty cement used exclusively for precast applications
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Q2

ASR / CONCRETE CANCER

What is Alkali-Silica Reaction (ASR)?

- A.** A freeze-thaw process that expands water within the concrete pore structure
 - B.** Corrosion of rebar caused by chloride ion penetration from road salt
 - C.** A chemical reaction between alkalis in cement paste and reactive silica in aggregates, forming an expansive gel that cracks concrete from within
 - D.** Surface scaling caused by improper sealer application
-

Q3

FLY ASH CRISIS

What triggered the significant reduction in Class F fly ash availability beginning around 2018?

- A.** The EPA banned fly ash use in concrete as a hazardous material
 - B.** A nationwide trucking strike disrupted fly ash distribution
 - C.** Fly ash prices rose due to overseas demand, making it impractical for domestic use
 - D.** Mass closures of coal-fired power plants sharply reduced the supply of fly ash byproduct available to concrete producers
-

Q4

SCM TIER HIERARCHY

In the locked PSIP SCM Tier Hierarchy, which TWO chemistries comprise the parallel Tier 1, the doctrinally preferred ASR mitigation strategies?

- A.** Class C Fly Ash and Slag Cement (GGBFS)
 - B.** Class F Fly Ash and Silica Fume
 - C.** Tier 1A natural pozzolan (Class N per ASTM C618) and Tier 1B colloidal nano silica admixtures (modern ASTM C1260 verified)
 - D.** Low-alkali Portland cement and standard Type II cement
-

Q5

NANO SILICA, MECHANISM

How does colloidal nano silica improve concrete durability at the microstructural level?

- A.** It increases slump, making concrete more workable for finishing
 - B.** Nano-scale particles fill the microscopic pores and capillary pathways in the cement paste, reducing permeability and limiting the moisture and alkali movement that drives ASR
 - C.** It replaces Portland cement at 25 to 30 percent via direct pozzolanic reaction
 - D.** It accelerates set time, preventing bleed water from forming at the surface
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Q6

DOCUMENTATION & LEGAL

In any dispute over a concrete failure, what most often decides whether a contractor can defend their work?

- A.** Whether the contractor can document the mix, the process, and the pour-day conditions. Without that record there is no defense. With it, the work speaks for itself
 - B.** Whether the contractor carried the lowest price on the job
 - C.** Whether the homeowner pulled the building permit for the work
 - D.** Whether the ready-mix plant holds a current ASTM certification
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Q7

DOCUMENTATION & LEGAL

What does a complete PSIP Project Record include?

- A.** Only the signed certificate and a single before/after photo
 - B.** A marketing brochure, signed contract, and final invoice only
 - C.** Job-site photos at each pillar stage, batch ticket(s), pre-pour checklist, weather conditions, Material Chemistry Profile, curing-method record, and a signed PSIP Workmanship Certificate delivered to the client
 - D.** A structural engineering stamp and 28-day cylinder break results
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Q8

SITE WATER ADDITION

A driver arrives and offers to add water to improve slump for easier finishing. Per PSIP protocol, the correct response is:

- A.** Accept the water addition, workability is essential to a quality finish
 - B.** Allow up to one gallon per cubic yard, industry standard practice
 - C.** Accept it only if temperature is above 80 degrees and the pour is large
 - D.** Refuse site water additions. Water added beyond the design w/c ratio permanently reduces compressive strength and increases permeability. If slump is inadequate, contact the plant. The fix comes from the mix design, not a garden hose
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Q9

BATCH TICKET, VERIFICATION

Which information on a batch ticket is most important for a PSIP contractor to verify before placement begins?

- A.** The driver's name and truck number
 - B.** That the total cubic yards on the ticket matches the estimate
 - C.** Cement type and mill, specified strength, water-cement ratio, SCM tier and source, admixtures, batch time, and any water added on site, photographed and retained on every PSIP-certified pour
 - D.** The plant's ASTM certification number
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Q10

CLIMATE X CHEMISTRY CURING

What are the two axes of the PSIP Curing Protocol?

- A.** Climate Zone, the pour-day conditions read on the forecast, and Material Chemistry Profile, what is actually in the truck, verified on the batch ticket
 - B.** Cement type (Axis 1) and aggregate gradation (Axis 2)
 - C.** Compressive strength (Axis 1) and slump (Axis 2)
 - D.** Hot weather (Axis 1) and cold weather (Axis 2)
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Q11

SIX PILLARS, BASE PRE-HYDRATION

Per PSIP Pillar 4, why must the base be pre-hydrated to SSD condition before concrete placement?

- A.** Wet base material makes the concrete float, improving surface levelness
 - B.** Pre-hydration is required only in summer months when temperatures exceed 90 degrees
 - C.** Soaking the base eliminates dust that contaminates the bottom of the slab
 - D.** A dry base pulls moisture out of fresh concrete from below, causing differential curing, shrinkage stress, and early-age cracking. Pre-wetting to SSD, a uniform damp appearance with no standing water, prevents this
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Q12

CODE VS. PERFORMANCE

Under PSIP doctrine, what does "code compliance" actually represent?

- A.** A guarantee that the concrete will perform as designed for 25 or more years
 - B.** The minimum acceptable performance to legally complete the work, a floor, not a target. Code does not assess long-term durability, chemical stability, or resistance to modern material changes
 - C.** Confirmation that the contractor used ACI 318-compliant materials throughout
 - D.** An independent verification by a structural engineer of the as-built concrete
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Q13

THE FIVE QUESTIONS

What are the Five Questions PSIP teaches homeowners to ask any concrete contractor before signing?

- A.** How long in business, license number, insurance, warranty, references
 - B.** Hourly rate, who supplies your concrete, when can you start, do you take credit cards, will you remove old concrete
 - C.** Color options, do you stamp, do you do pool decks, can you match my driveway, do you offer financing
 - D.** What PSI mix and can I see the batch ticket; how are you preventing ASR; what SCM is in your mix; what is your curing protocol for pour-day conditions; will I receive a signed workmanship certificate at completion
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Q14

CONTRACTOR DEFENSE

A homeowner files a complaint two years after a flatwork project, claiming the surface is delaminating. The contractor has a full PSIP project record. What in that record defends them?

- A.** Photos at each pillar stage, the batch ticket proving the specified mix and SCM tier, the pre-pour checklist confirming pillar completion, weather and Material Chemistry Profile at pour time, and the signed client closeout acknowledgment, a complete documented defense
 - B.** A warranty card limiting liability to 12 months
 - C.** The contractor's license and insurance certificates
 - D.** A copy of the original contract and final invoice
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Q15

PSIP VALUE PROPOSITION

What does a PSIP-certified flatwork contractor deliver that a non-certified contractor cannot?

- A.** Lower pricing because PSIP reduces material waste on every job
 - B.** A documented, ACI-referenced six-pillar process with photo proof, a performance-based mix specification per exposure class, a two-axis curing protocol, a signed PSIP Workmanship Certificate, and a homeowner care guide. A defensible paper trail in place of a verbal promise
 - C.** A guarantee of zero cracking that competitors cannot make
 - D.** Proprietary equipment unavailable to non-certified crews
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Stop. Commit to all fifteen answers before you turn the page.

ANSWER KEY + RATIONALE

Score one point per correct answer. Then read every rationale, even the ones you got right. The why is where the body of knowledge lives.

Q1 · TYPE 1L CEMENT

CORRECT: B

Type 1L is Portland-Limestone Cement, up to 15 percent interground limestone, and it is now the dominant cement in the U.S. market. This is the change most contractors never got a memo about. It is not high-early-strength, it is not low-alkali, and it does not reduce ASR risk on its own. Same product designation as before, different behavior in the field, different curing window. If you assumed the bag still acts like the Type I/II you grew up on, this is the gap.

Source: Building on Solid Ground, Ch 4A (The Type 1L Crisis).

Q2 · ASR / CONCRETE CANCER

CORRECT: C

ASR is a chemical reaction between the alkalis in cement paste and reactive silica in certain aggregates. It forms an expansive gel that absorbs water and cracks the concrete from the inside out. It is not freeze-thaw, it is not rebar corrosion, and it is not a surface defect. The field name is concrete cancer, and the reason it earns that name is in the next rationale. Knowing the mechanism is what lets you prevent it, because prevention is a chemistry decision made before the truck arrives, not a repair made after.

Source: Building on Solid Ground, Ch 4 and Ch 4B. ASTM C1260, C1778 (reactivity and mitigation testing).

Q3 · FLY ASH CRISIS

CORRECT: D

Class F fly ash is a byproduct of burning coal. When coal-fired power plants closed around 2018, the supply of that byproduct fell with them. Fly ash was never banned and it was not a trucking problem. It quietly disappeared as a supply consequence. Why it matters to you: fly ash was doing real work in the mix, suppressing ASR. When it came out and the spec did not change to replace it, the protection left with it. That is the setup for the failures that followed.

Source: Building on Solid Ground, Ch 4B (The Fly Ash Collapse). ASTM C618 (Class F / Class C).

Q4 · SCM TIER HIERARCHY

CORRECT: C

PSIP runs a locked supplementary cementitious material hierarchy, and the doctrinally preferred mitigation sits in a parallel Tier 1. Tier 1A is natural pozzolan, Class N per ASTM C618, the same pozzolanic tradition behind Roman concrete and the early mass-concrete dams of the last century. Tier 1B is colloidal nano silica admixture, verified to modern ASTM C1260 testing. Class C fly ash and low-alkali cement alone are not the preferred answer, and low-alkali cement by itself is specifically not accepted as sole mitigation. The hierarchy is the heart of how PSIP turns ASR prevention from an opinion into a documented decision.

Source: Building on Solid Ground, Ch 4 (SCM Replacement Strategies). ASTM C618, C1260.

Q5 · NANO SILICA, MECHANISM

CORRECT: B

Colloidal nano silica works at a scale you cannot see. The nano-scale particles fill the microscopic pores and capillary pathways in the cement paste, which cuts permeability and starves ASR of the moisture and alkali movement it needs to expand. It is not a slump aid, it is not a cement replacement at 25 to 30 percent, and it is not an accelerator. Understanding the mechanism is what separates specifying a chemistry from repeating a brand name.

Source: Building on Solid Ground, Ch 6 (Nano Silica as a Tier 1 SCM).

Q6 · DOCUMENTATION & LEGAL

CORRECT: A

This is the whole reason PSIP exists. In any dispute over a concrete failure, the contractor who cannot prove what they poured, what process they followed, and what the conditions were on pour day is left defending silence. The contractor who can produce that record lets the work speak for itself. Doing it right and proving it right are two different jobs, and only one of them holds up under pressure.

Source: Building on Solid Ground, Ch 8B (The Contractor Liability Trap), Ch 7, Ch 9.

Q7 · DOCUMENTATION & LEGAL

CORRECT: C

A PSIP Project Record is not a certificate and a snapshot. It is a chain of evidence: job-site photos at each pillar stage, the batch ticket or tickets, the pre-pour checklist, the weather conditions, the Material Chemistry Profile, the curing-method record, and a signed PSIP Workmanship Certificate handed to the client. Notice what it is not. It is not an engineering stamp and it is not cylinder break results, because PSIP certifies workmanship, not a structural design. Every piece exists for one reason: so that two years later, the record speaks for you.

Source: Building on Solid Ground, Ch 7 and Ch 9 (Documentation, the PSIP Closeout Packet).

Q8 · SITE WATER ADDITION

CORRECT: D

The garden hose is the oldest mistake on the job. Water added beyond the design water-cement ratio permanently lowers compressive strength and raises permeability, and higher permeability is an open door for the moisture that drives ASR. Easier finishing today buys a weaker, more vulnerable slab forever. If the slump is wrong, the fix is a call to the plant and a corrected mix design, documented. The discipline to say no on the spot is exactly the kind of decision the PSIP record captures and protects.

Source: Building on Solid Ground, Ch 4 (Water-Cement Ratio), Appendix B.

Q9 · BATCH TICKET, VERIFICATION

CORRECT: C

The batch ticket is the only independent proof of what actually went into your slab. Verify cement type and mill, specified strength, water-cement ratio, SCM tier and source, admixtures, batch time, and any water added on site. Then photograph it and keep it. The driver's name, the yardage match, and the plant's certification number are not what defends you later. The composition is. This single habit is the difference between a paper trail and a shrug when a question comes back around.

Source: Building on Solid Ground, Ch 7, Appendix B.

Q10 · CLIMATE X CHEMISTRY CURING

CORRECT: A

PSIP curing runs on two axes at once. Axis 1 is the Climate Zone, the pour-day conditions you read off the forecast. Axis 2 is the Material Chemistry Profile, what is actually in the truck, verified on the batch ticket. Curing is not a function of strength, slump, or a single hot-versus-cold switch. It is the intersection of weather and chemistry, which is why a Type 1L pour without a verified Tier 1 SCM triggers extended wet cure regardless of the zone. Curing the slab to the forecast alone, while ignoring what is in it, is how good crews still lose slabs.

Source: Building on Solid Ground, Ch 5 (Curing), Ch 1 (Climate).

Q11 · SIX PILLARS, BASE PRE-HYDRATION

CORRECT: D

A dry base is a sponge. It pulls mix water out of the bottom of the fresh slab, which cures the concrete unevenly, builds shrinkage stress, and cracks it early. Pre-wetting the base to saturated surface dry, a uniform damp look with no standing puddles, stops the base from stealing that water. This is Pillar 4, and it is the kind of step that costs almost nothing and prevents a callback that costs everything.

Source: Building on Solid Ground, Ch 3 (Pillar 4, Base Pre-Hydration).

Q12 · CODE VS. PERFORMANCE

CORRECT: B

Code compliance is a floor, not a target. It is the minimum acceptable performance to legally finish the work. It does not assess long-term durability, chemical stability, or whether your mix can survive the material changes of the last several years. Meeting code is not the same as building something that lasts and can be defended. PSIP starts where code stops.

Source: Building on Solid Ground, Ch 2 and Ch 9B (What Code Compliance Actually Means).

Q13 · THE FIVE QUESTIONS

CORRECT: D

The Five Questions are the ones PSIP teaches homeowners to ask: what PSI mix and can I see the batch ticket; how are you preventing ASR; what SCM is in your mix; what is your curing protocol for the pour-day conditions; and will I receive a signed workmanship certificate. License, insurance, and references are fine questions, but they do not touch the chemistry or the proof. Here is the business angle: the certified contractor is the only one in the driveway who can answer all five without flinching. When homeowners start asking these, the gap sells itself.

Source: Building on Solid Ground, Ch 9B, Appendix C (Questions to Ask Your Contractor).

Q14 · CONTRACTOR DEFENSE

CORRECT: A

Two years out, memory is worthless and the invoice proves nothing. What defends you is the record: photos at each pillar stage, the batch ticket proving the mix and SCM tier you actually placed, the pre-pour checklist showing the pillars were completed, the weather and Material Chemistry Profile from pour day, and the client's signed closeout acknowledgment. A license and an insurance certificate prove you were allowed to work. They do not prove how you worked. The PSIP record does.

Source: Building on Solid Ground, Ch 8B (Contractor Liability Trap), Ch 9 (Closeout Packet).

Q15 · PSIP VALUE PROPOSITION

CORRECT: B

A PSIP-certified contractor delivers what a verbal promise never can: a documented, ACI-referenced six-pillar process with photo proof, a mix specified to the exposure class, a two-axis curing protocol, a signed Workmanship Certificate, and a homeowner care guide. Not lower pricing. Not a guarantee of zero cracking, because no honest contractor makes that claim. Not secret equipment. The product is the defensible paper trail. That is what you sell, and that is what the homeowner cannot get from the low bid down the street.

Source: Building on Solid Ground, Ch 8 and Ch 2.

WHAT YOUR SCORE MEANS

Count your correct answers out of fifteen. The real certification passes at 80 percent, 40 of 50. The same bar applies here: **12 of 15**. Find your band.

12 TO 15 CORRECT · YOU ARE CLOSER THAN YOU THINK

You already carry most of the body of knowledge. Here is the hard part. The knowledge is not the product. The credential is. The contractors you are bidding against who scored lower than you will get certified, and then they walk into the same driveways you want carrying a signed, documented standard you cannot answer on price alone. Getting certified is how you turn what you already know into the proof that wins the bid, and keeps the next contractor from taking it from you.

8 TO 11 CORRECT · YOU KNOW THE WORK, NOT YET THE PROOF

You can pour. What this score exposes is the gap between doing it and documenting it to a standard that holds up. That gap is closeable, and it is exactly what PSIP certification is built to close. Every question you missed is a place a future concern would find daylight. Close the gap on purpose, on your terms, before someone closes it for you.

7 OR FEWER CORRECT · YOU ARE EXACTLY WHO THIS WAS BUILT FOR

Do not take this as a knock. Take it as the clearest signal you will get. The material under your feet changed, and the readiness check just proved it. This is not a reason to feel behind. It is a reason to get certified now, while the cost of learning it is a PDF and not a callback. You are precisely the contractor PSIP was created to protect.

Wherever you landed, the road is the same. There is one next step, and it is below.

ONE DOOR

GET CERTIFIED

You just saw the body of knowledge that separates a documented contractor from an exposed one. Certification is how you own it, prove it, and put it to work on your next bid.

Your next step is certification enrollment at

PSIPROTOCOL.COM

`psipprotocol.com`

Questions? `info@psipprotocol.com`

Take the next step in certification, build your first documented project record, and start delivering the one thing the low bid cannot: proof.

DISCLAIMER AND SCOPE

This practice exam is an educational readiness tool produced by Performance Structural Standards Group, Inc. for the Performance Structural Integrity Protocol (PSIP). It is educational in nature and does not constitute legal advice, engineering advice, or a warranty of any kind. All concrete work should be reviewed by a qualified engineer where required by local code, and project-specific legal questions should go to a licensed attorney.

WHAT PSIP IS, AND IS NOT

PSIP is a documented workmanship and quality assurance protocol. It is not a warranty, not a guarantee, not an insurance policy, and not an engineering stamp. PSIP proves that the process was followed and documented. PSIP does not promise that concrete will never crack, discolor, settle, or fail. No honest contractor can make that promise. PSIP is an independent body. The governing line is simple: we do not recommend, we score.

Hairline cracking within industry-acceptable tolerances per ACI 224R is inherent to the material and is not a workmanship failure. Surface discoloration, ground settlement and subgrade movement, freeze-thaw damage where sealer is not maintained, third-party damage, and ready-mix composition produced by the plant are outside PSIP workmanship scope, as documented in the PSIP exclusions.

CLAIMS AND THIRD-PARTY REFERENCES

Any reference in this document to a concrete dispute is stated as a general principle, not as an account of any specific case, party, or outcome. Statements about materials and supply, such as the reduction in fly ash availability beginning around 2018, describe documented industry conditions. Any product or trade name, if referenced, is cited only as a field example at the date of writing and is not an endorsement, a recommendation, or a required purchase. All named claims are subject to verification against the public record prior to release.

FOUNDER REFERENCE

PSIP and this material reflect 30 years of experience in construction. Where the founder is referenced in cleared materials, the canonical framing from Building on Solid Ground governs.