

RESTREPO STANDARD

Bonded. Sealed. Signed.

Pre-Pool Bonding & Conduit Standard

Pump · Heat · Sanitize · Bond

The pool is bonded once. Wire it before the gunite cures.

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PREFACE

A pool is bonded once. The bond grid, conduit stubs, and niche sleeves must be set before the gunite truck arrives and before the deck pour closes access forever. Whatever is embedded at that construction window is what the home will live with for forty years. This standard codifies the pre-pool bonding and conduit discipline that makes that single window survivable: eleven domain sections plus without-written-direction, the pre-gunite checklist, the QC gate, and citations. The pool is bonded once. Wire it before the gunite cures.

This standard does not replace manufacturer instructions, code authorities, or professional licensing. NEC Article 680 (NFPA 70-2023), Virginia Graeme Baker Pool and Spa Safety Act (VGBA), DOE 10 CFR 431 (dedicated-purpose pool pump motors), NSF/ANSI 50, APSP/PHTA standards, and NJ UCC (N.J.A.C. 5:23) govern. Verify all specifications against current product data sheets prior to procurement. See Citations for primary source URLs.

Bond it before the gunite cures.

Conduit before concrete. Grid before water.

01 BOND GRID SEQUENCE

Seven bonding operations, performed in sequence before the gunite truck arrives. Each item is verifiable, photographable, and irreversible once the shell is poured. NEC 680.26 governs. #8 solid copper throughout. No substitutions without written direction.

#8 Solid Copper Throughout

#8 AWG solid copper conductor, insulated or bare, per NEC 680.26(B). Solid copper only for NJ/NY projects under NEC 2023; copper-clad steel is not yet adopted. Conductor must not be smaller than 8 AWG at any point in the perimeter loop.

All Metal Within 5 ft of Pool Wall

Every metallic fitting, ladder, handrail, diving board stand, light niche shell, junction box, and structural metal part within 5 ft of the inside pool wall is bonded to the equipotential grid per NEC 680.26(B)(3) through (B)(7).

Perimeter Loop

The #8 solid copper perimeter conductor encircles the pool inside the rebar cage, bonded to the rebar grid at minimum four uniformly spaced points around the pool. Where rebar is unavailable, a bare copper grid 18-24 inches below the deck is used.

Rebar Grid Tied

Pool shell reinforcing steel (#4 or #5 rebar at 12-inch spacing) is bonded using #8 solid copper wraps at four minimum points and at each listed clamp location. Rebar tie wire alone does not provide a reliable electrical bond; listed clamps are required at bond connection points per NEC 680.26(B)(1).

Water-Bond Conductor - NEC 680.26(C)

The pool water itself must be bonded. A minimum 9 square inches (5,800 mm²) of conductive metal surface in direct contact with pool water is required. Achieved by bonding connection to a metal skimmer fitting, return fitting, or wet-niche shell in direct contact with water. Stub conductor before gunite.

Photo-Document Before Gunite

Every bond connection, every conduit stub, and the full perimeter loop must be photographed before the gunite truck arrives. Archive to project record. Photo documentation is the only record of what is inside the shell.

Brass Split-Bolts / Listed Clamps Every 4-6 ft

Deck concrete reinforcement (wire mesh or rebar) bonded to pool shell bonding every 4-6 ft using brass split-bolt connectors or listed pool bonding clamps. Ensures the deck is equipotential with the pool shell and eliminates step-voltage hazards.

SPEC · BOND GRID LOCK

No gunite or shotcrete proceeds before: (1) perimeter loop set and photographed, (2) rebar grid bonded at four minimum points, (3) water-bond conductor stubbed, (4) all niche shell conduits capped. Bond grid deviations require written direction from the Restrepo principal and AHJ sign-off.

02 CONDUIT BURIAL DEPTH

NEC 680.10 and Table 680.10 govern minimum cover depths for underground pool wiring. PVC Schedule 40 or 80 is the standard conduit for all pool applications. BX/MC cable is not permitted in any NEC Article 680 conduit run.

WIRING METHOD	MIN COVER	CODE REF	NOTES
PVC RNC direct burial	18 inches	NEC 680.10 / Table 680.10	Schedule 40 or 80 PVC nonmetallic raceway listed for direct burial. Standard run from subpanel to equipment pad.
Under concrete (pool deck)	6 inches	NEC 680.10	PVC or RMC under pool deck concrete slab. 6-inch minimum cover beneath concrete surface.
Under driveway / roadway	24 inches	NEC Table 300.5	All conduit crossing driveway or roadway surfaces requires 24-inch minimum burial depth regardless of conduit type.
RGS / IMC where required	6 inches	NEC 680.10	Rigid galvanized steel (RGS/RMC) or intermediate metal conduit (IMC) where mechanical protection or AHJ requires metal conduit. 6-inch minimum cover.
Sweep elbows at direction changes	N/A — geometry req.	NEC 680 / field standard	Long-radius sweep elbows (24-inch minimum radius for 3/4-inch or larger conduit) at all direction changes. No standard 90-degree elbows underground.
No burial fittings underground	N/A — prohibition	NEC 300.15 / field standard	No couplings, pull elbows, or conduit bodies buried underground. All splices and transitions are in listed pull boxes or junction boxes above grade.

CONDUIT DISCIPLINE

- NEC 680.10 governs minimum cover for underground pool wiring. Table 680.10 specifies 18 inches for nonmetallic raceways listed for direct burial and 6 inches for RMC and IMC.
- No underground wiring is installed under the pool or within 5 ft horizontally of the inside pool wall unless required to supply pool equipment; where space requires it, use RMC, IMC, or PVC conduit.
- BX/MC cable is not permitted in NEC Article 680 applications under any circumstances without written direction. PVC Schedule 40 or 80 is the standard conduit for all pool applications.
- Liquidtight flexible nonmetallic conduit (LFNC) is used for final motor connections only, 3-ft maximum per NEC 680.21(A). LFNC is not used for underground runs.
- Conduit stubs for future circuits (automation expansion, pool cover, feature lighting) are set before concrete. Unused stubs are capped above grade and documented on as-built drawings.
- Spare hardware: minimum 5% spare PVC fittings, couplings, and pull-box covers delivered at closeout, serialized and labeled per project closeout standard.

03 NICHE & J-BOX GEOMETRY

Wet-niche forming shells, conduit runs, low-voltage transformer placement, and J-box geometry are all set before gunite. NEC 680.23 and NEC 680.24 govern. Listed pool J-boxes only per UL 1241. No splices in conduit.

ELEMENT	CONDUIT TYPE	LOCATION RULE	NEC REF	NOTES
Wet-niche forming shell	PVC Schedule 40 RNC or brass RMC	In pool wall, set before gunite	NEC 680.23(B)(1)	Metal shell: brass or corrosion-resistant metal. Nonmetallic LED shells exempt from bonding per NEC 680.26(B)(5).
Wet-niche conduit run	PVC RNC or brass RMC; IMC prohibited	Shell to deck J-box	NEC 680.23(B)(1)	No splices within conduit. IMC not permitted in the wet-niche conduit run (corrosion risk). Brass or PVC only.
Low-voltage transformer	Dry, accessible enclosure	Outside equipment area; min 5 ft from pool wall	NEC 680.23(A)(2)	Listed safety-isolation transformer; secondary not to exceed 15V AC. Located outside pool equipment area or separated by permanent barrier.
J-box height above deck	UL 1241 listed pool J-box	Min 4 in above deck or min 8 in above max water level, whichever is greater	NEC 680.24(A)	Listed as swimming pool junction box. Support by two metal conduits threaded wrench-tight per NEC 314.23(E).
J-box horizontal setback	UL 1241 listed pool J-box	Min 4 ft from inside pool wall	NEC 680.24(A)	Unless separated by a solid fence, wall, or permanent barrier. Grounding terminals: one more than the number of raceway entries.
J-box bonding	8 AWG solid copper	Bond J-box to equipotential grid	NEC 680.26(B)	Metal junction boxes bonded to the equipotential bonding grid. All unused conduit entries plugged and sealed before gunite pour.

NICHE & J-BOX DISCIPLINE

- Wet-niche conduit stubs must be set, capped, and photographed before gunite. Conduit from shell to J-box location must be continuous with no underground splices.
- The low-voltage isolation transformer for 12V pool lights is located dry and accessible, outside the pool equipment area or separated by a permanent barrier, minimum 5 ft from the pool wall.
- NEC 680.24(A) J-box height: 4 inches above ground level or pool deck, OR 8 inches above maximum water level, whichever is greater. Verify with final pool water level before setting boxes.
- Listed pool junction boxes per UL 1241 are required. Standard weatherproof boxes (NEMA 3R, non-listed) are not acceptable for NEC 680.24 applications.
- For multi-light installations (2 or more wet niches), each niche runs its own conduit to the J-box or to a listed multi-niche junction box. No home-run daisy-chaining of wet-niche conduits.
- Transformer VA sizing: size transformer VA equal to or greater than the sum of all connected fixture wattages plus 25% headroom. IntelliBrite 5G White: 40-55W per fixture. Jandy WaterColors Nicheless: 24W per fixture.

04 EQUIPMENT PAD & SUB-PANEL

The equipment pad sub-panel is listed for wet location, carries an SPD per NEC 230.67, and has dedicated circuits for each pump, each heater, chemistry, automation, and cover. All disconnects are within sight per NEC 680.12. Cat6A wired to controller.

Dedicated Pool Sub-Panel Listed for Wet Location

NEMA 3R minimum; NEMA 4 preferred in exposed NJ/NY locations. Main breaker sized for total connected load plus 25% headroom. Separate branch circuits for each pump, each heater, lights, chemistry controller, automation head-end, and pool cover motor.

SPD per NEC 230.67

Surge Protective Device required. For pool subpanels downstream of service: NEC 230.67 permits SPD at the next level distribution equipment downstream. Install Type 2 SPD rated minimum 40 kA SCCR in the pool equipment subpanel. Type 1 SPD at service panel is required independently by NEC 230.67.

Motor Disconnects In Sight per NEC 680.12

One or more means to simultaneously disconnect all ungrounded conductors for each utilization equipment item (pumps, heaters, blowers, cleaner booster pump). Readily accessible, within sight from the equipment, located at least 5 ft horizontally from the inside pool wall per NEC 680.12.

5 ft Min from Inside Pool Wall

All equipment (sub-panel, disconnects, pump motors, heaters, filter) located a minimum 5 ft horizontally from the inside wall of the pool per NEC 680.12 and 680.22(D). Measure along the shortest path from the water edge to the equipment.

Dedicated 240V / 50A Heat-Pump Circuit

Hayward HeatPro HP140: 42A MCA, 60A max breaker, 240V single-phase. AquaCal HeatWave SuperQuiet: verify MCA and max overcurrent per current product data sheet. Titanium heat exchanger standard; wired to flow-switch interlock to prevent dry-fire.

Dedicated 240V / 30-50A Heater Circuit

Gas heater (MasterTemp 400, Jandy LXi/JXi): 240V, 30A dedicated circuit for controls and ignition. RS-485 communication cable from automation head-end to heater. Manual gas shutoff valve within 6 ft of heater per NFPA 54 and NJ UCC.

Cat6A Wired Drop to Controller

Wired Cat6A drop from network rack or POE switch to equipment pad automation head-end (IntelliCenter, AquaLink RS, or OmniLogic load center). Wi-Fi backhaul over concrete decks is not reliable for RS-485 bridging. Static IP assignment required for stable Crestron / Control4 integration.

Owner-Grade Enclosure

Lockable NEMA 3R or NEMA 4 enclosure with door-stop, interior lighting, and panel schedule label. Automation load center within the enclosure or in adjacent listed outdoor sub-panel. All conductors labeled at both ends with circuit ID matching panel schedule.

INSPECT · SUB-PANEL COMMISSIONING

Verify: (1) SPD installed and indicator lit, (2) all circuits labeled to panel schedule, (3) Cat6A drop tested end-to-end, (4) each disconnect within sight from its equipment and minimum 5 ft from pool wall, (5) automation controller online before owner walkthrough.

05 GFCI & RECEPTACLES

NEC 680.22 and 680.21 govern GFCI protection in the pool zone. All 125V-250V receptacles within 20 ft of the pool wall require GFCI. All pump motor circuits require Class A GFCI. No receptacle within 6 ft of the pool wall.

NEC 680.22(A) - All 125V 15/20A Receptacles Within 20 ft

All 125V, single-phase, 15A and 20A receptacles located within 20 ft of the inside wall of the pool must have GFCI protection per NEC 680.22(A)(4). No exceptions for dedicated pool equipment circuits within this zone.

250V Receptacles per 2023 NEC Update

NEC 2023 expanded GFCI coverage: all receptacles rated 125V through 250V, 60A or less, within 20 ft of the pool wall require GFCI protection. This includes 240V receptacles for pool equipment. Verify with AHJ for NJ-adopted code year.

Pump Motor Circuit GFCI per NEC 680.21

All pool motors on branch circuits rated 150V or less to ground and 60A or less, single- or three-phase, require Class A GFCI protection per NEC 680.21(C). This covers all residential single-phase 240V pump motors regardless of ampacity.

Cover-Pump Motor GFCI per NEC 680.27

The branch circuit serving the pool cover motor and controller must be GFCI protected per NEC 680.27(A). The operating switch must be located such that the pool is in full view of the operator. Cover motor minimum 5 ft from inside pool wall.

No Receptacle Within 6 ft of Pool Wall

NEC 680.22(A)(2): all receptacles must be not less than 6 ft from the inside pool wall. NEC 680.22(A)(3): the required 125V receptacle must be not less than 6 ft and not more than 20 ft from the inside pool wall.

Switching Devices 5 ft Min

NEC 680.22(D): switching devices must be located at least 5 ft horizontally from the inside pool wall unless separated by a solid fence, wall, or permanent barrier. Applies to all switching devices serving pool-area luminaires and equipment.

GFCI Breaker Compatibility

Confirm GFCI breaker compatibility with variable-speed pump motor inrush before installation. Some GFCI breakers nuisance-trip on VSP motor soft-start inrush. Use a GFCI breaker rated and tested for variable-speed motor loads, or use a GFCI receptacle with a motor-rated VSP on a dedicated circuit.

06 VGBA HYDRAULIC DISCIPLINE

Virginia Graeme Baker Pool and Spa Safety Act compliance is not optional. Dual main drains, anti-vortex covers, and surge tank sizing are set during construction. VGBA non-compliance cannot be corrected after gunite without demolition. All hydraulic plumbing is NSF/ANSI 50 listed.

Dual Main Drains

Virginia Graeme Baker Pool and Spa Safety Act (VGBA) mandates anti-entrapment protection. Minimum two main drains with ASME/ANSI A112.19.8 or ANSI/APSP-16 compliant anti-vortex covers. Drain separation: minimum 3 ft on-center. Drains closer than 3 ft do not constitute independent anti-entrapment separation.

Anti-Vortex Covers

VGBA-compliant anti-vortex drain covers: rated for maximum pump flow rate at that drain. Cover flow rating must equal or exceed maximum pump GPM serving the drain. Listed and labeled; cell life and load capacity on the cover must be verified against pump selection before gunite. NSF/ANSI 50 listed fittings throughout.

Automatic Vacuum Release

Where single main drain is unavoidable, a Safety Vacuum Release System (SVRS), suction-limiting vent system, gravity drainage system, automatic pump shut-off system, drain disablement, or CPSC-equivalent system is required. On luxury residential projects, dual drains at 3 ft minimum separation are the standard.

2-inch Min Suction

Main drain suction line: 2-inch minimum per NSF/ANSI 50 and hydraulic design requirements. Skimmer suction: 1.5-inch minimum, 2-inch preferred for variable-speed pump performance. Return manifold: 1.5-inch minimum, 2-inch preferred. All NSF/ANSI 50 listed fittings.

Sweep Elbows

Long-radius sweep elbows in lieu of standard 90-degree elbows at all direction changes in the hydraulic path. Standard 90-degree elbows create 5-10 ft of equivalent head loss per elbow. Sweep elbows are set before the gunite pour; they cannot be changed after the shell is cured.

Surge Tank Sized for Negative-Edge

Vanishing-edge pool requires a dedicated surge (catch basin) sized for: bather surge (max bathers x avg weight / 62.4 x 7.48 gallons) + evaporation allowance (approximately 4 gal/linear ft of overflow edge/day, Climate Zone 4A) + wave action reserve (10-15%) + 25% safety margin. Surge tank below frost depth (36-inch minimum NJ/NY) or insulated and heated.

In-Floor Cleaning Manifolds Photographed Before Gunite

Paramount PV3 or A&A in-floor cleaning manifolds: all plumbing, pop-up head grid locations, and valve body positions photographed before gunite. PV3 uses dedicated 2-inch suction from main drain through PV3 valve. All PV3 and A&A plumbing is pressure-rated and NSF/ANSI 50 listed.

DONOT · VGBA NON-COMPLIANCE

Single main drain without a listed SVRS or equivalent anti-entrapment system is VGBA non-compliant and a life-safety violation. No project proceeds with a single-drain configuration without written direction, AHJ approval, and a listed SVRS installed and commissioned before pool fill.

07 SANITIZER PATH & MATERIALS

NSF/ANSI 50 listed equipment throughout. Salt cell interlocked with flow switch and heater. UV or AOP downstream of filter, upstream of heater. ORP and pH probes accessible in bypass loop. Acid feed pump on dedicated GFCI circuit.

NSF/ANSI 50 Piping Throughout

All pool and spa plumbing, fittings, and equipment in the hydraulic path must be NSF/ANSI 50 listed. This applies to PVC pipe and fittings, union connections, filter housing, pump volutes and impellers, and all chemical injection ports. NSF/ANSI 60 certification required for all pool chemicals.

Salt Cell Wired to Flow Switch + Heater Interlock

IntelliChlor SCG, Hayward AquaRite TurboCell, or Jandy TruClear: salt cell wired to flow switch interlock to prevent dry-cell operation. Heater interlock: when heater fires, cell output managed by automation system to prevent scaling at heat exchanger. Cell output setpoint controlled via RS-485 automation bus.

UV / Ozone / AOP Plumbed Downstream of Filter, Upstream of Heater

DEL AOP, Paramount Ultra UV2, or equivalent: plumbed downstream of filter to prevent media fouling by ozone; upstream of heater to prevent ozone attack on heat exchanger materials. Contact chamber minimum 30-second dwell time. All materials in ozonated water path: EPDM, Viton, or Teflon seals; no natural rubber.

ORP / pH Probes Accessible

IntelliChem or Hayward Sense and Dispense: ORP and pH probes installed in a bypass loop with isolation valves for service access without draining the system. pH probe range 6.0-8.5; ORP probe target 650-750 mV. Electrode replacement schedule: pH probe 12-18 months; ORP probe 12-24 months.

Acid-Feed Pump on Dedicated GFCI

Stenner Classic Series (45MF/85MF fixed-rate or 45MJ/85MJ adjustable) or LMI Milton Roy electronic metering pump: acid feed pump on a dedicated GFCI-protected circuit at the equipment pad. Self-priming; can handle off-gassing solutions. Injection port downstream of circulation pump discharge.

CO2 Alternative for pH Down

CO2 carbon dioxide injection system (Hayward Sense and Dispense CO2 option) as alternative to muriatic acid for pH reduction. CO2 system reduces corrosion risk at the equipment pad enclosure, eliminates acid handling hazard, and provides more precise pH control. CO2 tank and regulator located outside equipment enclosure.

Material Compatibility in Saline Path

For salt-chlorine generator pools, all plumbing fittings and union connections in the saline return path must be listed for salt water use. Titanium heat exchangers (HeatPro, HeatWave SuperQuiet, UltraTemp ETi) are required. Cupro-nickel or bronze heat exchanger headers required in salt-water gas heater applications; standard polymer headers are the alternate for Pentair MasterTemp.

NOTE · CHEMICAL FEED SEQUENCE

Injection point order: circulation pump discharge -> filter -> UV/AOP contact chamber (minimum 30-second dwell) -> heater bypass -> return manifold. Acid injection is downstream of the salt cell. ORP and pH probes are in a bypass loop with isolation valves upstream of the return manifold for service access without draining.

08 WITHOUT WRITTEN DIRECTION

Seven actions do not occur on a Restrepo Vol 19 project without written direction from the Restrepo principal. Written direction means a signed project record entry, a documented principal authorization, or a formal client contract clause.

We do not commit the pool envelope without written direction:

- 1 We do not commit BX/MC cable encapsulated in pool deck conduit without written direction: default is PVC Schedule 40 or 80 (or RMC/IMC where mechanically required) for all NEC Article 680 conduit runs. BX/MC is not permitted in pool applications under any circumstances per the Restrepo field standard.
- 2 We do not skip the #8 solid copper bond conductor at any metal within 5 ft of the pool wall without written direction: every metallic fitting, niche shell, ladder bracket, handrail socket, and junction box within the equipotential zone is bonded before gunite.
- 3 We do not install a single main drain (VGBA non-compliant) without written direction: dual main drains at minimum 3-ft on-center separation are the standard for every new gunite or fiberglass residential pool. Single-drain configurations require a listed SVRS or equivalent anti-entrapment system and explicit written AHJ approval.
- 4 We do not locate the pool light transformer in the equipment-pad enclosure without a listed NEC 680.24 J-box and proper conduit run without written direction: the listed safety-isolation transformer is located dry and accessible, minimum 5 ft from the pool wall, and is not co-located in the automation load center.
- 5 We do not specify a pump motor with total horsepower exceeding 0.711 THP single-speed (DOE 10 CFR 431 non-compliant) without written direction: all new pool pump motors must meet DOE dedicated-purpose pool pump efficiency standards. Variable-speed pumps are the standard specification for all primary circulation applications.
- 6 We do not omit GFCI protection on the pump motor circuit without written direction: NEC 680.21(C) requires Class A GFCI on all pool motor branch circuits 150V or less to ground and 60A or less. This applies to all single-phase 240V VSP motor circuits regardless of ampacity.
- 7 We do not leave the rebar grid disconnected from the bond conductor without written direction: the pool shell reinforcing steel is bonded to the #8 solid copper perimeter loop at minimum four uniformly spaced points before the gunite truck arrives. Rebar tie wire does not substitute for listed bond clamps at connection points.

09

PRE-GUNITE & PRE-DECK CHECKLIST

Every item below is verified before gunite pour and before deck concrete is placed. Any unchecked item holds the schedule until remediated. This checklist is the gate between rough-in and the shell pour.

- ☐ Bond grid resistance verified: equipotential bonding grid measured and resistance reading filed in project record before gunite
- ☐ Water-bond conductor stubbed: minimum 9 sq-in conductive metal contact with pool water confirmed; stub conductor accessible above grade
- ☐ Dual main drain frames in place: both drain frames set at correct depth and spacing (3 ft min on-center); VGBA anti-vortex covers staged
- ☐ Niche conduits stubbed: all wet-niche forming shell conduits set, capped, and photographed; conduit continuous from shell to J-box location
- ☐ J-box height verified: J-box rough locations staked at correct elevation (4 in above deck or 8 in above max water level, whichever is greater)
- ☐ Sub-panel located and SPD installed: equipment pad sub-panel mounted; Type 2 SPD (40 kA SCCR minimum) installed and tested
- ☐ Cat6A drop pulled: wired Cat6A cable pulled from network rack to equipment pad automation controller location; cable labeled at both ends
- ☐ Surge tank sized and located: vanishing-edge surge tank volume calculated, located below frost depth (36 in min NJ/NY), and excavated
- ☐ Motor disconnects in sight: each pump, heater, and blower disconnect located within sight per NEC 680.12 and not less than 5 ft from pool wall
- ☐ Photo-doc archived: every bond connection, conduit stub, niche location, J-box rough, and main drain frame photographed, indexed, and signed by GC and Restrepo PM

QC QC GATE · 10-ITEM PRE-GUNITE PASS/FAIL

All 10 items must be PASS before gunite proceeds and before pool is filled. Every item is reviewed by the project lead. Any failed item holds the schedule until resolved.

#	QC GATE ITEM	PASS	FAIL
1	NEC 680 inspection passed AHJ bond and grounding cert filed; all NEC 680 items signed	PASS / SIGN	FAIL / HOLD
2	Bond grid resistance reading filed Resistance measurement documented and filed in project record	PASS / SIGN	FAIL / HOLD
3	VGBA dual-main-drain certificate filed Dual drains at 3 ft min separation; VGBA anti-vortex covers certified	PASS / SIGN	FAIL / HOLD
4	NSF 50 sanitizer certificate Salt cell, UV/AOP, and chemical feeder NSF/ANSI 50 certs filed	PASS / SIGN	FAIL / HOLD
5	Pump VFD commissioning report Variable-speed pump commissioning report filed; DOE certification verified	PASS / SIGN	FAIL / HOLD
6	Heater gas pressure test Gas supply pressure test at heater inlet filed; NFPA 54 compliance	PASS / SIGN	FAIL / HOLD
7	Pool cover automation tested Cover open/close cycle tested; limit switches confirmed; GFCI verified	PASS / SIGN	FAIL / HOLD
8	Pool light transformer VA verified Transformer VA equals or exceeds fixture wattage sum plus 25% headroom	PASS / SIGN	FAIL / HOLD
9	Spare parts ≥5% labeled 5% spare hardware for all systems staged, labeled, delivered to owner	PASS / SIGN	FAIL / HOLD
10	Closeout package complete Photo doc, bond cert, QC gate signed, warranties and manuals filed	PASS / SIGN	FAIL / HOLD

PROJECT LEAD SIGN-OFF

Signature / printed name _____ DATE _____ PROJECT _____
MM/DD/YYYY

REF CITATIONS & PRIMARY SOURCES**1 NEC Article 680 · NFPA 70-2023 Swimming Pools**

NFPA primary source for NEC 2023 Article 680: bonding, grounding, GFCI, conduit, wet-niche, and J-box requirements.
<https://www.nfpa.org/codes-and-standards/nfpa-70>

2 NEC 680.26(B) Equipotential Bonding — ExpertCE

ExpertCE course content on NEC 2023 equipotential bonding for pools, spas, and wet areas; #8 AWG conductor requirements.
<https://expertce.com/blog/electricians/equipotential-bonding-pools-spas-and-wet-areas-per-nec-2023/>

3 NEC 680.26(B) Equipotential Bonding 2023 Code Language

Electrical License Renewal primary source for NEC 680.26(B) bonding requirements; solid copper conductor #8 AWG minimum.
<https://www.electricallicenser renewal.com/Electrical-Continuing-Education-Courses/NEC-Content.php?sectionID=1976>

4 Equipotential Bonding Around Pools NEC 680-26 — PaCode Alliance

PaCode Alliance PDF on above-ground pool bonding requirements per NEC 680-26; equipotential zone and deck bonding.
https://pacodealliance.com/wp-content/uploads/2023/12/Above-Ground-Pool-Bonding-Requirements_10-23-20.pdf

5 Article 680 Swimming Pools by Mike Holt — PaCode Alliance

Mike Holt comprehensive review of NEC Article 680 wiring methods, bonding, GFCI, and luminaire requirements.
<https://pacodealliance.com/wp-content/uploads/2023/12/Article-680-Swimming-Pools-by-Mike-Holt.pdf>

6 NEC 680.22(A)(1) Receptacle Location — Electrical License Renewal

Primary source for NEC 680.22(A)(1) receptacle requirements including 6-ft and 20-ft zone rules.
<https://www.electricallicenser renewal.com/Electrical-Continuing-Education-Courses/NEC-Content.php?sectionID=170.0>

7 Leviton Captain Code: GFCI Requirements Around Pools Expanded (NEC 2023)

Leviton Captain Code resource on expanded GFCI requirements including 250V receptacles per NEC 2023.
<https://captaincode2023.leviton.com/node/365>

8 Leviton Captain Code: 680.21(C) GFCI Single-Phase Pool Pump Motors

Leviton primary source for NEC 680.21(C) Class A GFCI protection requirement for pool pump motor circuits.
<https://captaincode2014.leviton.com/node/58>

9 NEC 680.21(C) and (D) GFCI Protection — 2020 Code Language

Electrical License Renewal source for NEC 680.21(C) and (D) GFCI and motor replacement requirements.
<https://www.electricallicenser renewal.com/Electrical-Continuing-Education-Courses/NEC-Content.php?sectionID=958>

10 NEC Article 680 — NESPA NJ Pool Electrical Code Reference

NESPA NJ edition: NEC Article 680 underground wiring Table 680.10 and burial depth requirements.
https://www.nespa pool.org/Portals/0/08_nj_nec_electrical_code.pdf

11 NEC Underground Burial Depth — Super Bright LEDs

NEC code overview for outdoor buried electrical wiring; PVC 18-inch and RMC 6-inch burial depth requirements.
<https://www.superbrightleds.com/blog/understanding-the-nec-code-for-outdoor-buried-electrical-wiring.html>

12 Pool and Spa Junction Box Requirements NEC 680 — ConversionsTech

Primary source for NEC 680.24 pool J-box height, setback, and listing requirements.
<https://conversionstech.com/blogs/news/pool-and-spa-junction-box-requirements-nec-680-bonding-guide>

13 NEC 2023 Article 680 Code Year Updates — NSSL

NSSL summary of 2023 NEC Article 680 changes including expanded GFCI and bonding provisions.
<https://www.nssltd.com/nec-information/2023-Code-Year-NEC-680>

14 NEC 2017 Article 680 Swimming Pools — NYEIA

NYEIA PDF of NEC 2017 Article 680; useful for legacy system comparisons in NJ/NY retrofit projects.
<https://www.nyeia.com/wp-content/uploads/2024/04/2017-National-Electrical-Code-Article-680-Swimming-Pools-Fount...>

15 Virginia Graeme Baker Pool and Spa Safety Act — Wikipedia

Overview of VGBA (enacted December 19, 2008) mandating anti-entrapment drain covers and dual-drain requirements.
https://en.wikipedia.org/wiki/Virginia_Graeme_Baker_Pool_and_Spa_Safety_Act

REF CITATIONS & PRIMARY SOURCES (CONT.)**Premier Aquatics VGBA Refresher**

- 16 Premier Aquatics summary of VGBA requirements including drain cover ratings and suction entrapment systems.
<https://premieraquatics.com/news/view/virginia-graeme-baker-pool-spa-safety-act-refresher>

ANSI/APSP-7 Suction Entrapment Standard

- 17 ANSI/APSP-7 suction entrapment standard for pools and spas; referenced for dual-drain compliance.
<https://www.scribd.com/document/357519221/ANSI-APSP-7-2006-suction-entrapment-PDF-with-covers-pdf>

eCFR Title 10 Part 431 Subpart Z — DOE Pool Pump Motors

- 18 DOE 10 CFR 431 Subpart Z: energy conservation standards for dedicated-purpose pool pump motors; 0.711 THP threshold.
<https://www.ecfr.gov/current/title-10/chapter-II/subchapter-D/part-431/subpart-Z>

DOE Dedicated Purpose Pool Pump Motors Federal Register Final Rule 2022

- 19 DOE NOPR Federal Register source for variable-speed pool pump efficiency requirements.
<https://www.federalregister.gov/documents/2022/06/21/2022-11745/energy-conservation-program-energy-conservation...>

In The Swim: National Variable Speed Pool Pump Law

- 20 Summary of DOE variable-speed pool pump law requirements and compliance deadlines.
<https://www.intheswim.com/blog/national-variable-speed-pool-pump-law.html>

NSF/ANSI 50-2025 Equipment for Swimming Pools — ANSI Blog

- 21 ANSI Blog primary source for NSF/ANSI 50-2025 scope covering pool and spa equipment certification.
<https://blog.ansi.org/ansi/nsf-ansi-50-2025-equipment-swimming-pools/>

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- 23 APSP/PHTA standards source including ANSI/APSP-16 drain cover standard referenced for VGBA compliance.
<https://shop.iccsafe.org/standards/apsp-standards.html>

NJ Admin Code NJAC 5:23-2.18C — Pools, Spas, and Hot Tubs

- 24 NJ UCC Title 5 Chapter 23 primary source for NJ pool construction requirements and bonding certificate.
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DITEK Surge Protection: NEC 2023 Rules for Surge Protection

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<https://www.ditekurgeprotection.com/understanding-the-2023-nec-rules-for-surge-protection/>