



BUILDING INSPECTION UNDERWRITERS

SWIMMING POOL GUIDE

Residential IRC 2021 - Outdoor Pools, Spas & Hot Tubs

Reference ISPSC 2021

This guide represents the majority of critical items the owner/installer must meet and have inspected before covering the work. However, this is not an exclusive list.

All owners or pool installers must comply with the 2021 International Residential Code - Chapter 42 and 2021 International Swimming Pool and Spa Code. Available free online at www.codes.iccsafe.org

ALL POOLS:

- E4202.3
 - o Flexible cords for permanent pools only, shall be 3' max in length, fixed or stationary equipment can be cord connected (for underwater luminaires).
- E4203.1.1
 - o Receptacles supplying power to circulation / sanitation equipment shall be located 6' minimum from pool walls, shall be a receptacle that is grounded and GFCI protected. All other receptacles required shall be no closer than 6' from pool walls.
- E4203.1.3
 - o Minimum of one 15 or 20 amp receptacle (other than pool pump equipment receptacle) supplied by general purpose branch circuit is required from 6'-20' from pool edge and located no more than 6'-6" above pool grade level / deck.
- E4203.1.4
 - o GFCI protection required for all outdoor receptacles, including pool pump motor receptacles.
- E4203.2
 - o Switching devices shall be located not less than 5' from pool edge, unless separated by permanent barrier such as a fence or wall.
- E4203.3
 - o At least one disconnecting means for all utilization equipment other than lighting, shall be readily accessible and within sight (50' max) of the served equipment. The disconnect shall be a minimum 5' from pool edge, unless separated from water by permanent barrier requiring a 5' or greater reach path.
- E4203.4.1
 - o Luminaires, lighting outlets and suspended paddle fans shall not be installed over pool or within 5' from pool edge, unless fixture is 12' or more above the water level.
- E4203.4.4
 - o Existing lighting outlets/luminaires located within 5' of pool edge, must be rigidly attached to existing structure, located no less than 5' above maximum water level, and GFCI protected.

- E4203.4.6
 - o Luminaires/lighting outlets installed between 5'-10' from pool edge require GFCI protection, unless rigidly attached to the structure and no less than 5' above maximum water level.
- E4203.7
 - o Overhead service drop conductors and any other open overhead wiring shall not be installed above:
 - " Pools and areas extending 10' away from pool edge.
 - " Diving structures or platforms and areas within 10'

Only cable TV and telephone lines are allowed to be a minimum of 10' above pool or diving platforms.
- E4203.8
 - o Underground wiring installed within 5' from pool edge must be installed in a complete raceway of RMC, IMC, or nonmetallic raceway.
 - " Burial Depths:
 - RMC = 6"
 - o IMC = 6"
 - o Nonmetallic Raceway = 18"
 - " Wiring unrelated to pool equipment must not be installed within 5' unless space limitations make it necessary.
- E4204.2
 - o Bonding is required to be by minimum #8 bare, insulated, or covered solid copper conductors. "
 - Connections shall be made by listed pressure connectors or clamps of:
 - Stainless steel
 - Brass
 - Copper
 - Copper Alloy
 - " Bonding connections shall not be by solder or sheet metal screws.
 - " Structural steel shall be bonded together by steel wire ties or equivalent and inspected prior to concealment.
 - " Perimeter surface must extend 3' minimum beyond the pool walls and shall include unpaved surfaces, poured concrete or other paving types.
 - " Perimeter surfaces consisting of buried rebar or welded wire mesh shall be attached to pool structural steel at a minimum of 4 points, evenly spaced around pool perimeter.
 - " Perimeter surfaces that do not consist of buried rebar or welded wire mesh, must meet the following:
 - Minimum of one #8 bare solid copper conductor is required.
 - o Follow contours of perimeter
 - Located 18"-24" from pool walls.
 - Located 4"-6" below the sub-grade.
 - Attached to pool structure at a minimum of 4 evenly spaced points.
 - " All metallic parts of pool structure including structural steel are to be bonded.
 - " All metal shells of underwater luminaires shall be bonded.
 - " All metal fittings within or attached to pool structure shall be bonded, including handrails, ladders, etc.
 - " All fixed metal parts located within 5' of edge of the pool wall shall be bonded.
- E4204.3
 - o Pool water shall be intentionally bonded by 9 square inches of a conductive surface in contact with pool water, such as ladders, le. Lighting, components, le. Drain bodies, etc.

STORABLE POOLS ONLY

- E4207.1
 - o Filter pumps shall be protected by double insulation and shall be provided with a GFCI that is either an integral part of the attachment plug or located in the power supply cord within 12" of the attachment plug.
- E4207.2
 - o All 120 volt receptacles located within 20' of a storable pool shall be GFCI protected.
- E4207.4
 - o Receptacles must be located no closer than 6' from the walls of a storable pool.

2021 INTERNATIONAL AND SPA CODE:

- 2021 PA UCC
 - o Swimming pools regulated by 2021 IRC and ISPSA only apply to those that contain over 24" of water.
- 305
 - o Barriers (Fencing)
 - " Minimum of 48" above grade; pool structure itself can also meet these requirements if allowed by pool manufacturer.
 - " Maximum distance between grade and barrier bottom is 2" (up to 4" allowed where barrier is over concrete or pavement).
 - " Openings shall not allow a 4" sphere to pass through.
 - " If less than 45" between horizontal bars, then horizontal bars must be on pool side and spindle spacing must not exceed 1.75".
 - " Solid barriers shall be constructed without indentations or shall be approved to be unclimbable. " Maximum chain link fence openings shall be 1.75".
 - " Mesh fences must be installed according to manufacturer's instructions, and bottom of mesh fences must be 1" maximum above grade and must not be able to be lifted more than 4" from the grade/decking.
 - " Barriers shall be located at least 36" from any permanent structures or equipment, to prevent equipment or objects from being used to climb them.
- 305
 - o Access Gates:
 - " Gates shall be self-closing and self-latching, and open away from the pool.
 - " Release mechanisms shall either be located on the outside of the gate at least 54" minimum from the bottom of gate or both of the following:
 - Located on the pool side at 3" below top of gate.
 - There shall be no openings larger than J4" within 18° of the release mechanism.
 - Dwelling walls that contain doors or operable windows with a sill height below 48" with direct access to pool shall be equipped with an audible alarm that sounds when the door is opened, with a deactivation switch located 54" minimum above the door threshold. Alarms must be UL 2017 listed.
 - Access by a ladder or set of steps, must be capable of being secured, locked, or removed to prevent access or shall be surrounded by a barrier meeting requirements for barrier around pool.
 - If less than 45" between horizontal bars, then horizontal bars must be on pool side and spindle spacing must not exceed 1.75".
- AG106
 - o Suction outlets shall comply with APSP 16.



RESIDENTIAL POOL SUBMITTAL CHECKLIST

INGROUND POOL		ABOVE GROUND POOL	
Type of Frame (metal, composite, etc.)		Type of Frame (metal, composite, etc.)	
Depth of pool in inches		Depth of pool in inches	
Shape (oval, round, rectangle, etc.)		Shape (oval, round, rectangle, etc.)	
Square footage of pool		Square footage of pool	
Barrier Type & if using powered safety cover does it comply with ASTM F1346? Will there be a temporary barrier utilized at any point? Submit fence & gate latch specifications.		Barrier Type & will there be a temporary barrier utilized at any point? Submit fence & gate latch specifications.	If pool wall is the barrier, provide pool manufacturer's approval
Door/Window alarms complying with UL2017?			
Will this pool have a heater? If yes – electric or gas?		Will this pool have a heater? If yes – electric or gas?	
Site Plan (show pool in relation to distance to home, electrical line route, gas line route, property lines, fencing, existing decks, etc.)	<i>Please attach to this sheet when submitting application for permit.</i>	Site Plan (show pool in relation to distance to home, electrical line route, gas line route, property lines, fencing, existing decks, etc.)	<i>Please attach to this sheet when submitting application for permit.</i>
Flow Chart Completed & Suction Entrapment	<i>Please attach to this sheet when submitting application for permit. You can obtain a blank copy by contacting our office.</i>		

**** All information must be completed and sent to BIU along with the completed permit application that can be found on our website www.biupa.com. Failure to remit any of the following without having a prior discussion with the code official will be cause for rejection of the project, which will be returned to the applicant as incomplete and non-compliant. ****

**** Zoning approval from your municipality may be required along with your building permit application. Please check with your local municipal office. ****



BUILDING INSPECTION UNDERWRITERS

IN GROUND POOL INSPECTIONS

Code sections for pools can be accessed online @ iccsafe.org

Electrical requirements are in Chapter 42 of the 2021 International Residential Code (IRC)

· Pool Barrier requirements can be found in Chapter 3 of the 2021 International Swimming Pool & Spa Code (ISPSC) Section 305

1. General

A. 4' high construction fence installed

2. Pool Bonding (BEFORE BACK FILL)

A. Frames of metal pools

B. Reinforcement bars or mesh for concrete pools (BEFORE CONCRETE)

C. Ladders, diving boards, any metallic parts

D. Any associated lighting in pool

3. Open trench for wiring and gas piping (BEFORE BACK FILL) A.

Proper depth and clearances

B. Proper conduit and wiring methods

C. Gas piping size and depth (If plastic 18 AWG tracer wire required)

D. Gas line test

4. Bonding of concrete reinforcing steel (Pool deck — Concrete walking surfaces)

A. Proper connection of steel to steel

B. Proper connection of bonding conductor to steel

C. Proper connection of bonding conductor to bonding grid

D. If no reinforcement, equipotential bonding per E4204 is REQUIRED

5. Final inspection (BEFORE USE)

A. Check GFCI protection on required circuits

B. Proper clearances of lighting, receptacle, and overhead wiring

C. Final bonding and grounding of equipment

D. Pool Barrier required per section 305 of the International Swimming Pool and Spa Code (2021 ISPSC)

E. Equipment location, clearances, installations, bonding and grounding to 2021 IRC Chapter 42

F. Proper installation of gas line with sediment trap

G. Installation of backflow preventer on water line to pool.

NOTE: Temporary Barriers are allowed for NO LONGER than 30 days if water is in pool

***PERMIT HOLDER IS REQUIRED TO CALL FOR FINAL INSPECTION**

IF ANY OF THE ABOVE INSPECTIONS ARE NOT COMPLETED BY AN INSPECTOR FROM BUILDING INSPECTION UNDERWRITERS, FINISHES OR MATERIALS WILL NEED TO BE REMOVED TO VERIFY COMPLIANCE WITH THE PENNSYLVANIA UNIFORM CONSTRUCTION CODE. NO USE SHALL BE GRANTED AND AN ORDER TO SHOW CAUSE/ORDER TO VACATE WILL BE ISSUED PER SECTION 403.84 OF THE PENNSYLVANIA UNIFORM CONSTRUCTION CODE.