

Swimming Pool Hot Topics

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NCDHHS – DPH

Environmental Health Section

NCEHSA – Annual Spring Education Meeting

April 10, 2014

Aberdeen, North Carolina

Hot Topics

- Cryptosporidium Outbreak
- Position Statement on Drain Cover Replacement
- New Rules for Special Purpose Therapy Pools
- Fences
- Saline Chlorination Systems
- Pool Lighting
- Open Pipe Inspections
- ADA Requirements for Pools
- Adding Water Slides to Existing Pools

Cryptosporidium

- *Cryptosporidium* is a microscopic parasite that causes the diarrheal disease cryptosporidiosis.
- Spread by swallowing water that has been contaminated with fecal matter containing Crypto.
- Diarrhea can last from one to two weeks.
- Tough outer shell makes it hard to kill.
- It takes 1 part per million of chlorine 15,300 minutes to kill Crypto.
- Crypto can stay alive for days even in a well maintained pool.

Killing Crypto

- Since it takes 1 ppm 15,300 minutes to kill Crypto you must reach a CT inactivation value of 15,300.
- $15,300 = 255 \text{ Hours} = 10.625 \text{ days}$
- CT inactivation value is determined by multiplying the Chlorine concentration in ppm by the time in minutes.
- $CT = \text{Chlorine (in ppm)} \times \text{Time (in minutes)}$
- If pool can maintain 20 ppm – then how long?
- $15,300 / 20 \text{ ppm} = 765 \text{ minutes} = 12.75 \text{ hours}$
- This is called “hyperchlorination”

Killing Crypto

- Since it takes 1 ppm 15,300 minutes to kill – it takes:
- 10 ppm – 1,530 minutes – 25.5 hours
- 20 ppm – 765 minutes – 12.75 hours
- 30 ppm – 510 minutes – 8.5 hours
- 40 ppm – 382.5 minutes – 6.375 hours
- 50 ppm – 306 minutes – 5.1 hours
- Conventional test kits can't measure Cl levels above 10 to 15 ppm (need to use test papers or dilute the sample)

Triangle Crypto Outbreak

- Friday Dec 6th Cryptosporidiosis among a high school age swim team
- Chatham, Durham and Orange counties
- Illness identified among a swim team.
- High school students from multiple counties/schools are on the team (24 students listed on the roster)
- 1 lab confirmed (non-culture) cryptosporidium
- 7 symptomatic teammates
- Onsets range from Nov. 24 – Dec. 4

Triangle Crypto Outbreak

- Multiple pools closed for hyperchlorination
- Swim coaches and parents aware of no swimming with diarrhea and no swimming for two weeks after symptoms resolve for those with crypto.
- Continued to follow up with identifying pools where the team swam
- Continued education regarding swimming exclusions

Pools Closed for Hyperchlorination

- By Saturday Dec. 7th at least 10 pools were closed and hyperchlorinated as a precautionary measure for destruction of *Cryptosporidium* in Wake, Durham and Orange counties
- Orange: 2 pools (Homestead and Koury at UNC-CH)
- Durham: (6 pools) 3 pools at Duke University, 2 City pools, 1 private swim club
- Wake: 2+ pools (Pullen Park and NCSU pool(s)).

Orange County Letter

- Dec. 12th – Orange County EH sends notice to Managers and Operators of Pools Hosting Swim Meets and Team Practices notifying them of the Crypto outbreak and advising to exclude swimmers with diarrhea and to hyperchlorinate their pools weekly until the outbreak is resolved. (Attached the recommendations for hyperchlorination.)
- On Dec 12th Raleigh News and Observer posts/prints article “Pools-borne parasite spreads in Durham, Orange” written by Tammy Grubb. Article quotes OCHD Health Director Colleen Bridger.

State Letter

- Dec. 19 – NC DHHS – DPH letter to North Carolina Competitive Pool Operators and Swim Team Coaches to notify them of the Crypto outbreak.
- Same recommendations as Orange County letter.

Crypto Outbreak Cases

- Report from epi on Dec. 30th reported a total of 16 cases
 - Durham – 10 cases (8 swimmers, 1 household contact, 1 on same high school team with a swim team x member)
 - Orange – 6 cases (5 swimmers of swim team x and 1 parent of a swim team x member.)
- Laboratory Results
 - Durham – 5 with positive lab results and 5 symptomatic with epi-link
 - Orange – 5 with positive lab results and 1 symptomatic with epi-link

Crypto Outbreak Ends

- Earliest onset: November 24, 2013
- Latest onset: December 12, 2013
- February 3, 2014 – Communicable Disease Branch indicated that we were beyond two incubation periods with no new cases, meaning the outbreak is officially over. Enhanced control measures (weekly hyperchlorination of pools) no longer recommended. LHDs could decide whether or not they will continue with hyperchlorination.
- February 6, 2014 e-mail from Alan Clapp OCHD – recommended one final hyperchlorination after the weekend swim meets of February 7-9 – then discontinue.

Position Statement on Drain Cover Replacement

- Jim Hayes sent to listserv on February 21, 2014
- How are LHDs to verify that pool drains are replaced when they reach the end of their rated useful life?
- VGB Pool and Spa Safety Act and Rule .2539 require pools drains to be in compliance with ASME/ANSI Standard A112.19.8-2007 or its successor standard.
- The standard requires life ratings on covers, beyond which it is to be replaced with a new cover.

Drain Cover Expiration Dates

- Lifespan of drain cover varies by brand
 - Range is from 3 to 15 years (most are 5 years)
 - Each cover has lifespan stamped on the cover.
- If cover(s) has/have expired = permit denied
- How to keep up with it:
 - Database – Excel spreadsheet – Stickers on files
 - Have pool submit documentation each year – include lifespan of cover and installation date on documentation sheet – Rule .2539

Drain Cover Expiration Dates

- Paramount SDX Retro – 5 Years (Some 7 Years)
- Aquastar – 5 Years (Some 7 Years)
- Waterway – 7 Years
- Hayward – 7 Years
- Drainsafe DS 360 – 3 Years
- Pentair 50011 – 7 Years
- Lawson – 10 Years
- Neptune Benson Aegis Shield – 15 Years
- Paddock Stainless Steel Covers – 15 Years
- Bottom Line – Get documentation from owner.

VGB compliant: 6-15-10

main drain covers: 2 - 18 x 18
Lawson model MLD-FGD-1818
816 gpm each
4 screws

installed: 6-10-10 expires: 6-10-20

Skimmer equalizers covers:
N/A - gutter system

pump:
Paco model: 10-40957
max. flow = 650 gpm
TDH = 50 ft

6-10-10

fence:

Oxford



10%

Pool Drain Safety data sheet
completed 6-11-10
250,000 gal \Rightarrow 695 gpm flow rate
bather load: 200

02/12/2013

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02/12/2013

VGB Compliant 5-12-10

Oxford®



10%

main drain covers: 2-12x12
AquaStar R1216101 - WAV12xxx
474 gpm each
4 screws
installed: 5-7-10 expires: 5-7-15

pump:
Pentair CH100-10hp
450 gpm max. flow

5-7-10

Pool Drain Safety Data form
completed: 5-7-10

113,115 gal \Rightarrow 350 gpm calculated
flow rate

Skimmer equalizers covers:
11 skimmers \Rightarrow 41 gpm
Waterway 640-803xV
106 gpm max flow
installed: 5-7-10 expires:

fence:

02/12/2013

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02/12/2013

New Rules

- Notice of Text with Proposed Rules - sent out by Jim Hayes on December 7, 2012.
- Rules became effective April 1, 2013
- Creates a 5th type of pool called:
 - “**Special Purpose Therapy Pools**” – “pools designed and used for therapeutic treatments or physical training and fitness outside of a licensed medical facility or practice of a licensed physical therapist.”

Special Purpose Therapy Pools

- Special Purpose Therapy Pools include:
 - Float tanks used for float therapy in a salt brine solution
 - Swim spas which use jetted water for stationary swimming against a water current
 - Exercise therapy and treadmill pools equipped for water resistance exercise therapy
 - Scuba training pools designed and used for training swimmers to use self-contained underwater breathing apparatus (SCUBA)

Special Purpose Therapy Pools

- Rule .2544 (new rules section) gives the exceptions to the rules for the Special Purpose Therapy Pools
 - Float Tanks (meet all rules except certain requirements in Rules .2522, .2532, .2524, .2518)
 - Swim Spas (meet all rules except .2522(k), .2532 water depth, .2521 no steps or ladders if handhold or handrail provided for transfer over wall above-ground swim spas)
 - Exercise Therapy and Treadmill Pools (meet all rules except .2532 water depth and .2532 turnover from 30 minutes to 2 hours)
 - Scuba Training Pools (meet all rules except .2516(b) underwater ledges, .2532 must meet swimming pool sections, not the spa section)





Floathouston.com









Sunbeltspas.com



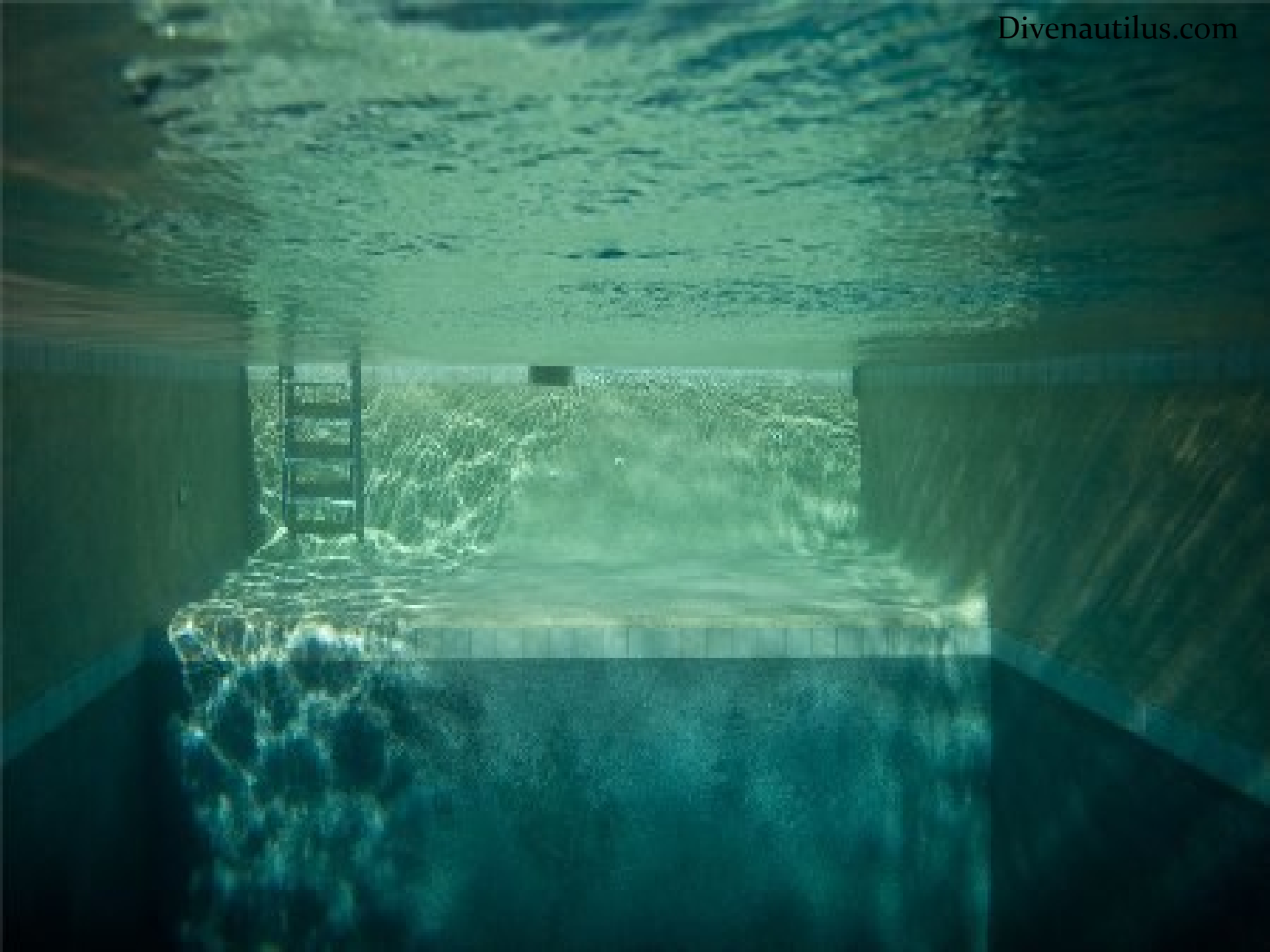
Hydroworx.com





Swimex.com





Wading Pool Fences

- Exemption expired on January 1, 2013.
- Wading pools inside swimming pool enclosures shall have a fence.
- Wading pool fence constructed before 4/1/2000 has to be at least 3 feet high.
- Wading pool fence constructed after 4/1/2000 has to be at least 4 feet high.
- Gate latch at 54 inches – gate shall swing away from the deeper pool and be self-closing and positive self-latching.
- No fence = no permit for wading pool = wading pool must be drained.

Swimming Pool Fences

- Senate Bill 368 (Session Law 2011-39) prohibits denial of pool operation permits to pools permitted before April 1, 2010 based solely on the dimensions of fence materials.
- Requirements for pool entrances must be met and the pool must still be completely enclosed, but variation from the dimensional requirements in Rule .2528 (a) (1) through (a)(6) and (b)(1) through (b)(2) are not grounds for denying an operation permit.

Swimming Pool Fences

- If the existing fence fails to meet the minimum fence height, contains openings through or under the fence of greater than four inches, has handholds or footholds that can be used for climbing, or exceeds maximum mesh sizes, the pool cannot be denied a permit for those deficiencies alone.
- All inspections should include inspecting the fence and noting the deficiency, but no permit action should be taken unless the fence has such significant problems that it does not meet the requirement that it completely enclose the swimming pool.

Swimming Pool Fences

- All provisions in the rules for pool gates are still fully enforceable.
- Rule provisions for doors and windows opening into a pool are also still fully enforceable.

Saline Chlorination Systems

- **3 Questions to Ask/Things to Remember**
- **1. Is it NSF Listed?** Check the NSF website.
- **2. Is it Properly Sized?** for the Pool Volume?
- **3. Is it Properly Installed?** in accordance with the manufacturer's instructions and does the installation comply with the electrical code?

Pool Lighting

- Rule .2524(d) – “If underwater lighting is used, it shall provide 0.5 watts or 8.35 lumens per square foot of water surface and deck lighting shall provide not less than 10 foot candles of light measured at 6 inches above the deck surface.”
- Rule .2524(e) – “Where underwater lighting is not used, and night swimming is permitted, area and pool lighting combined shall provide not less than 10 foot candles of light to all parts of the pool and required deck area.”

Pool Permitting & Inspections

- Please remember to check the following:
 - Fences, Gates, Doors and Windows
 - Depth Markers
 - No-Diving Markers
 - Safety Equipment (Ring Buoy and Throw Rope, Body Hook and Pole)
 - Emergency Telephone
 - Drain Covers
 - Warning Signs

Open-Pipe Inspections

- Rule .2509(e) as of May 1, 2010, states:
 - “The swimming pool contractor shall contact the local health department when pool pipes are in place and visible so that the local health department may conduct an open-pipe inspection of the pool piping.”
 - Include reminder with quoted rule in plan approval letter and give contact numbers and best time to reach
 - Please try to make these inspections
 - Go by pool construction sites often (if time allows)
 - Problems with contractor submitted photos

Number of Inlets



3. 11. 2005 17:54

Distance Between Drains (>3 ft. on center) and Hydrostatic Relief Valve



9.11.2005 09:26

Number and Locations of Skimmers



3.11.2005 17:53

Pipe Connections



3. 11. 2005 17:58

Pipe Sizes



IPEX XIRTEC140 2"/50MM I

S

ASTM D2665 NSF-WELL-CASING ASTM F480-02 NSF-IC-0 B-050

IPEX Xirtec140 2"/50MM IPS PVC 1120 POTABLE SCH 40 280 PSI @ 73F/2

M

VACUUN

WELL-CASING ASTM F480-02 NSF-IC-0 B-05090704229AM (A-2 RM) MADE IN USA

3.11.2005 17:58

- Check all pipes to equipment room
- Ladders and steps
- Bathhouse



3. 11. 2005 17:58

ADA Requirements

- Became effective March 15, 2012
- Enforced by Building Inspections (not EH)
- Pools with < 300 liner feet of pool wall = 1 means of access (usually a pool lift)
- Pools with > 300 liner feet of pool wall = 2 means of access (usually a pool lift and a ramp)
- Wading pools can only have ramps to the deepest part of the wading pool (handrails not required on wading pool ramps)
- Spas can only have lifts

ADA Requirements

- Who must comply with ADA requirements?

ADA Requirements

- In North Carolina – all public swimming pools regardless of their date of construction, but enforcement will be carried out only on new construction and remodeling projects.
- Existing pools must do an assessment of barriers to entry by people with disabilities and develop a plan for removing the barriers starting with the barriers farthest from the pool.
- Plan for removing barriers must be developed by March 15, 2012, there is no deadline for existing pools to carry out that plan.

ADA Requirements

- Existing pools will be compelled to comply if one of three things happen:
 - 1. If alterations are made that may affect usability of the facility, at least 20% of the remodeling budget must be devoted to removal of any existing barriers to entry;
 - 2. Municipalities which must certify ADA compliance to qualify for federal grant money have incentive to become compliant;
 - 3. Lawsuits brought by persons denied access to a pool can compel owners to comply.

The Best Thing About ADA?

- We don't enforce it.
- Building Inspections does.

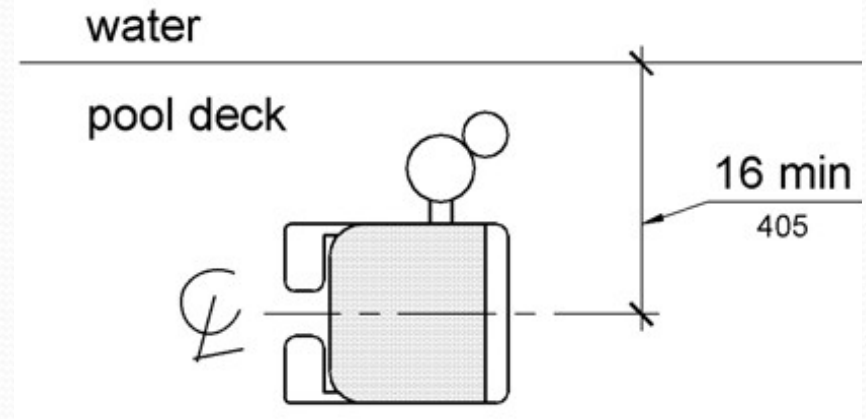
- However, changes made to the pool in order to meet ADA cannot violate the pool rules.

ADA Requirements

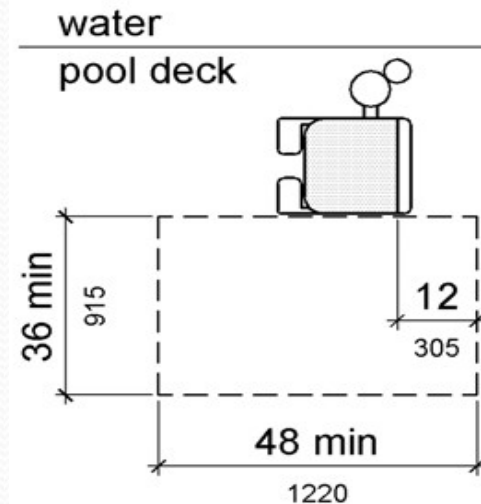
- So why do we need to know about this?
- **New Pools** – if plans show no lifts or ramps, remind designer to look at ADA requirements, notify building inspections.
- **Existing Pools**
 - Adding Lift – no plans needed – however they need to be mindful of pipes and deck repair
 - Adding Ramp – plans needed – considered a remodel since the pool profile is being changed – also need to replace any covered or removed skimmers, return inlets, vacuum ports, depth markers, etc.

Lift Chair

- Located at least 16 in (center) from edge of pool adjacent to water depth of 48 in max

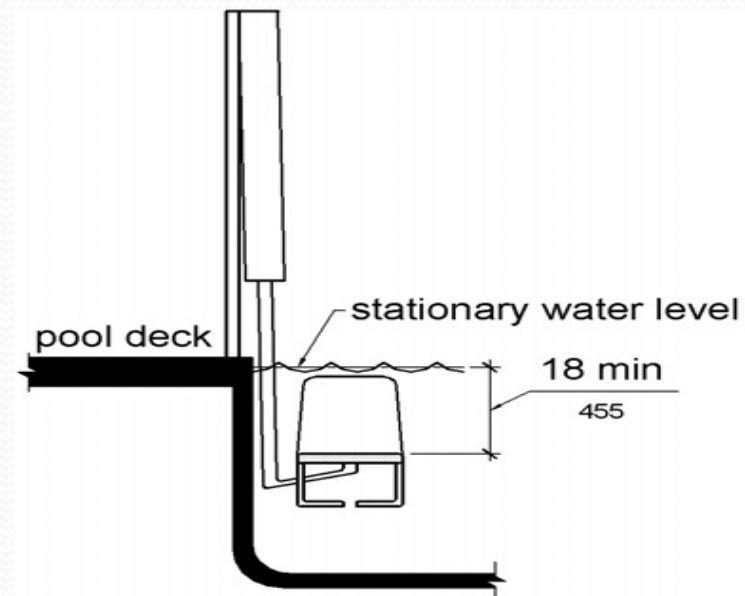
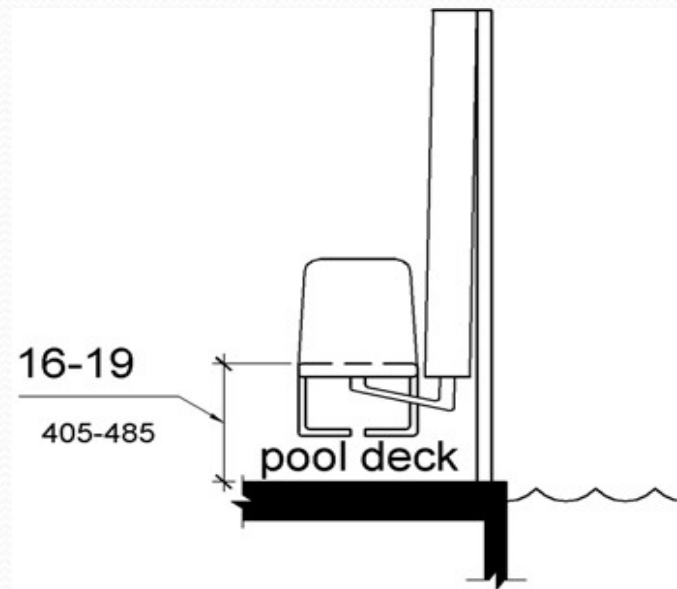


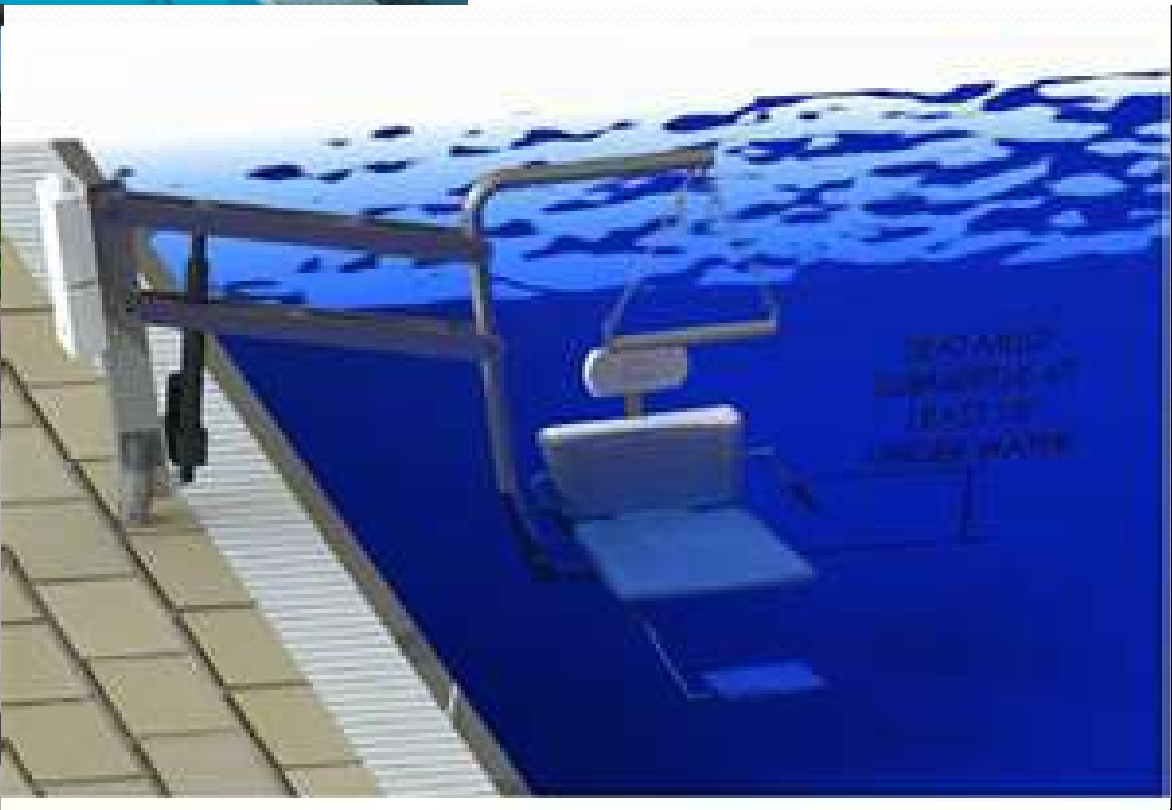
- 36 in free deck required outside lift for 48 in from 12 in behind seat



Lift Chair (continued)

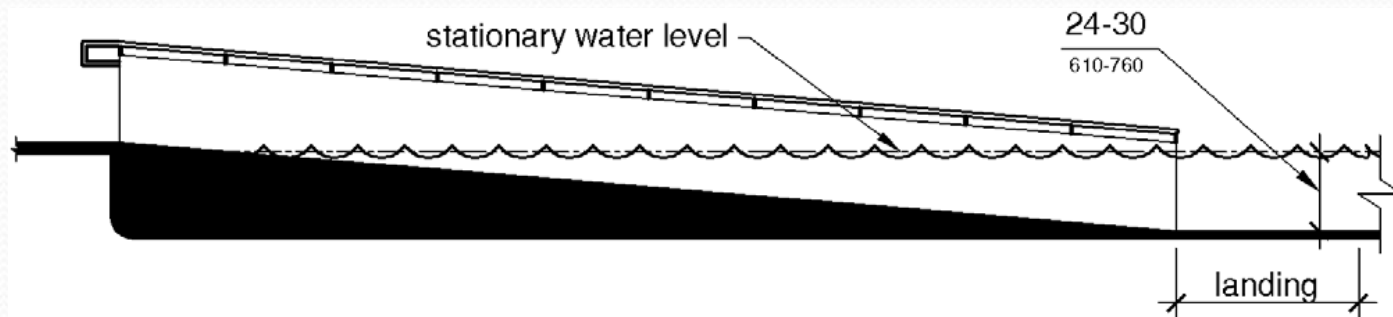
- Seat height 16 to 19 inches above deck
- Deck from seat to pool sloped 1:48 max
- Seat lowers to 18 inches min. below water surface





Sloped Entry

- 1:12 max slope
- 36 inches min wide
- 60-inch landing required every 30 feet
- Slip-resistant handrails on both sides 33 to 38 inches apart
- Terminate at 24 to 30-inch water depth















NO DIVING

NO SWIMMING

NO DIVING

0



NO DIVING

0'

Adding Water Slides to Existing Swimming Pools

- Installation must comply with Rule .2527 which states: “All swimming pool slides installed at a public swimming pool shall be labeled by the manufacturer for use in public pools, and shall be installed in accordance with manufacturer’s instructions.”
- Manufacturer’s instructions will usually address:
 - Slide overhang into pool
 - Slide height above water
 - Minimum depth of water required
 - Clearance between end of slide and pool walls, etc.







Banzai Falls
IN-GROUND
POOL SLIDE™

CAUTION - ELECTRICALLY OPERATED PRODUCT
Always read and understand the instructions carefully. Do not use if you are under the age of 18.

FAST & EASY SETUP

2 Step Setup
1. Assemble the slide and pool deck.
2. Connect the slide to the pool deck.

NO-TOOL

DRINK TECH
Keep your drink safe and secure while you slide.

An advertisement for the Banzai Falls In-Ground Pool Slide. It features a large blue and yellow slide with people sliding down into a pool. The background shows a house and a lawn. There are several callouts and icons: a '2 Step Setup' icon, a 'NO-TOOL' icon, and a 'DRINK TECH' icon. A caution label is also present.

Adding Water Slides to Existing Swimming Pools (Other Considerations)

- Water supply to slide
 - Installing separate feature line with drains
 - Borrowing water from returns
 - Using fresh water (another way to fill or top off the pool)
 - Garden hose across the deck (not allowed)
 - Any disruptions to deck must be repaired in accordance with Rule .2522 (deck slope, slip resistance, materials, depth markers and no-diving markers reinstalled)
- Slides over a certain height are subject to separate NC Department of Labor annual inspections.