

# Correspondence & VGB

Basic Swimming Pool Plan Review Training

# Pool Plan Review Correspondence

## Top 10 Things to Remember

1. You have 30 days to approve, disapprove, or provide written comments.
2. Let them know when you received the pool plans.
3. Always give a written approval or disapproval.
4. Approvals are valid for 1 year.

# Pool Plan Review Correspondence

## Top 10 Things to Remember

5. If approved – List any conditions that must be met and are not specifically addressed in the submitted plans.  
(Number the conditions for easy reference and provide rule citations for each condition.)

# Pool Plan Review Correspondence

## Top 10 Things to Remember

6. If disapproved – List all reasons the plan was not approved. Be specific, cite the rule language and the rule numbers. Also, include Formal Appeals Procedure on each disapproval letter.
7. Remind builders/designers/owners that you will need to inspect the pool piping before concrete is poured for the pool shell or deck.

# Pool Plan Review Correspondence

## Top 10 Things to Remember

8. Remind them that a statement signed by a registered architect or a registered professional engineer stating that construction is complete and in accordance with approved plans shall be submitted to the health department prior to issuance of the operation permit.  
(Remind them that they also need to apply for an operation permit.)

# Pool Plan Review Correspondence

## Top 10 Things to Remember

9. Remind them of where they need to obtain building/construction permits.
10. Send copies of all correspondence concerning the pool plan review to all relevant parties.

# Other Reminders to Include in Approval Letters

- Pools shall be constructed by swimming pool contractors licensed by the North Carolina Licensing Board for General Contractors.
- Requirements for the fence and gates.
- Any modifications to the plans must be approved.
- Signs and safety equipment shall be in place prior to permitting.

# Important Things to Remember

- Drain Safety Compliance in Rule .2539  
SUCTION HAZARD REDUCTION.
- Drain Safety Data Sheet completed: Ask RDP to complete and include original mfg. documentation of drain cover and sump certifications.
- ***When used, field fabricated suction outlet cover/grate, sump, fasteners and assemblies shall be Certified by the RDP as conforming to APSP-16.***



Email Regional to request  
approval and disapproval  
letter templates and  
examples .

April 16, 2019

Seth Coker  
Comet Builders, LLC  
PO Box 116  
Colfax, NC 27235

Alan Hine, PE  
Hunes Aquatic Engineering, PLLC  
405 Willowcrest Dr  
Winston Salem, NC 27107

Dear Mr. Coker,

This department has reviewed the plans you submitted for the Bermuda Run Apartments Pool to be constructed at 159 W. Kinderton Way, Bermuda Run, NC. The plan was reviewed by this department on April 16, 2019. The plans are disapproved as submitted.

A plan review was done in accordance with the current North Carolina Rules Governing Public Swimming Pools (15A NCAC 18A .2500). Revise the plans and include all information below:

1. Show on plans the 54" height release mechanism, swing direction, and details of anti-access shield in fence detail drawing. (#11, drawing 13, pg. SP3). **Rule .2528 (a)(7)** Access gates shall comply with the dimensional requirements for fences and shall be equipped to accommodate a locking device. Effective April 1, 2011, pedestrian access gates shall open outward away from the pool and shall be self-closing and have a self-latching device except where a gate attendant and lifeguard are on duty. Gates other than pedestrian access gates shall have a self-latching device. Where the release mechanism of the self-latching device is located less than 54 inches from the bottom of the gate, the release mechanism shall require the use of a key, combination or card reader to open or shall be located on the pool side of the gate at least three inches below the top of the gate, and the gate and barrier shall have no openings greater than 0.5 inch within 18 inches of the release mechanism.
2. Show on plans materials of construction for the deck. **Rule .2522 (g)** All decks and walkways shall have a slip-resistant, impervious surface.

You have a right to a formal appeal of this decision. To pursue a formal appeal, you must file a petition for a contested case hearing with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, NC 27699-6714. To get a copy of a petition form, you may write the Office of Administrative Hearings or call the office at (919) 431-3000. The petition for a contested case hearing must be filed in accordance with the provisions of North Carolina General Statutes 130A-24 and 150B-23 and all other applicable provisions of Chapter 150B. **PLEASE NOTE:** If you wish to pursue a formal appeal, you must file the petition form with the Office of Administrative Hearings **WITHIN 30 DAYS OF THE DATE OF THIS LETTER.** Meeting the 30-day deadline is critical to your right to a formal appeal. Do not wait for the outcome of any informal review or appeal if you wish to file a formal appeal.

If you file a petition for a contested case hearing with the Office of Administrative Hearings, you are required by Law (N.C. General Statutes 150B-23) to serve a copy of your petition on the state agency that is a party to the action. The state agency party in this case is the North Carolina Department of Health and Human Services. Service must be made in accordance with Rule 4 of the North Carolina Rules of Civil Procedure and 26 NCAC 3 .0102(a)(3). You must send the copy to: Office of General Counsel, N.C. Department of Environment and Natural Resources, 1601 Mail Service Center, Raleigh, NC 27699-1601. Do NOT send the copy of your petition to your local health department. Sending a copy of your petition to the local health department will NOT satisfy the legal requirements in N.C. General Statute 150B-23 that you serve a copy on the state agency that is a party to this action.

You may also request an informal review of this decision in accordance with 15A NCAC 18A .2643. You may call or write the local health department if you need any additional information or assistance.

Brett Haynes  
Hot Springs Pool & Spas  
578 Woodruff Rd  
Greenville, SC 29607  
[bhaynes@hspools.com](mailto:bhaynes@hspools.com)

Matt Pardue  
Omega Construction  
1100 S. Stratford Rd  
Building C, Suite 110  
Winston Salem, NC 27103  
[mpardue@omegaconstruction.com](mailto:mpardue@omegaconstruction.com)

Mr. Haynes,

This department has reviewed the plans you submitted for the Homes 2 Suites to be constructed at 1300 Jake Alexander Blvd South, Salisbury, NC. The plan was reviewed by this department on November 28, 2018. The plans are approved as submitted on November 16, 2018.

A plan review was done in accordance with the current North Carolina Rules Governing Public Swimming Pools (15A NCAC 18A .2500). This approval is valid for one year from the date of this letter and applies only to the pool and related appurtenances. If construction is not initiated within one year from the date of approval, the approval shall expire, and plans must be re-submitted. Construction permits must be obtained from the Rowan County Building Inspections and code enforcement department prior to construction.

**This approval is contingent upon your compliance with the following conditions:**

1. The fence must be at least 48" above grade and the vertical clearance between grade and the bottom of the barrier shall be 2". Rule .2528(1) The top of the barrier shall be at least 48 inches above grade measured on the side of the barrier that faces away from the swimming pool. The maximum vertical clearance between grade and the bottom of the barrier shall be two inches measured on the side of the barrier that faces away from the swimming pool.
  2. The solid masonry wall shall not contain indentations or protrusions. Rule .2528(2) Openings in the barrier shall not allow passage of a four-inch-diameter sphere and shall provide no external handholds or footholds. Solid barriers that do not have openings shall not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints.
  3. All pool gates shall open away from the pool and be self-closing and self-latching. The lever latch shall be located at least 54" from the bottom of the gate. The panic bar located on the pool side of the gate must be at least 3" below the top of the gate, and the gate and the barrier shall have no openings greater than 1/2" within 18" of the release mechanism. Rule .2528(7) Access gates shall comply with the dimensional requirements for fences and shall be equipped to accommodate a locking device. Effective April 1, 2011, pedestrian access gates shall open outward away from the pool and shall be self-closing and have a self-latching device except where a gate attendant and lifeguard are on duty. Gates other than pedestrian access gates shall have a self-latching device. Where the release mechanism of the self-latching device is located less than 54 inches from the bottom of the gate, the release mechanism shall require the use of a key, combination or card reader to open or shall be located on the pool side of the gate at least three inches below the top of the gate, and the gate and barrier shall have no openings greater than 0.5 inch within 18 inches of the release mechanism.
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Under the provisions of the current North Carolina Rules Governing Public Swimming Pools (15A NCAC 18A .2500), the pool shall be constructed by a swimming pool contractor licensed by the North Carolina Licensing Board for General Contractors.

The swimming pool contractor shall contact XYZ County Environmental 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 per rule .2509 (e).

Per rule .2509 (f) prior to issuance of the operation permit, the owner shall submit to the local health department a statement signed by a registered design professional stating that construction is complete and in accordance with approved plans and specifications and approved modifications. Any changes or modifications of the plans must be approved by this department prior to construction. Observation of construction and a final inspection for design compliance by the certifying registered design professional or his representative are required for this statement.

Per rule .2509 (g) upon completion of construction, the contractor shall notify the local health department and the owner. The contractor shall provide the owner with a complete set of drawings, which show as built, the location of all pipes and connections of all equipment and written operating instructions for all equipment.

A complete copy of the rules can be found at the following link:  
<https://ehs.ncpublichealth.com/docs/rules/294306-9-2500.pdf>

**YOU MUST NOTIFY THIS OFFICE PRIOR TO PLACEMENT OF CONCRETE SO AN INSPECTION CAN BE MADE OF THE POOL PIPING.**

Upon completion of construction, the owner must apply to this department for an operation permit. A final inspection must be made, and an operation permit must be issued before bathers can use the pool.



# AQUATICS H<sub>2</sub>O

AQUATICS H<sub>2</sub>O 

May 28, 2021

Cabarrus Health Alliance  
300 Mooresville Rd.  
Kannapolis, NC 28081

RE: Kannapolis Demonstration Project Pool  
201 West Avenue  
Kannapolis, NC 28081

Dear Cabarrus Health Alliance:

A Final site visit was made by our field representative at Kannapolis Demonstration Project Pool. To the best of our knowledge and belief, the pool and splashpad has now been completed in accordance with the plans and specifications approved by NCDHHS except for the few items below and is ready for NCDHHS' final inspection.

The grates comply with ASME/ANSI A112.19.8-2007 and ANSI/APSP-16 federal standards and are VGB compliant.

1. Pump installed is a 3HP Whisperflo WFE-12, 130 gpm at 65 TDH, max flow is 170 GPM's. the 3" main drain and 3" skimmer and 2.5" returns are all good providing they do not exceed the 130 gpm flow rate. The main drains are good for max flow of 188 gpm's.
2. Instead of electric heater, a Ray Pak Heat Pump was installed.
3. The Chlor King Salt system was not installed but a Pentair IC40 salt cell was installed.

Should you have any questions or need additional information, do not hesitate to call me at 864-386-1498.

Sincerely,  
Aquatics H<sub>2</sub>O, LLC

Tammy D. Ellis  
*Aquatic Consultant/Principal*

Hines Aquatic Engineering  
Alan Hine, P.E.  
405 Willowcrest Drive  
Winston-Salem, NC 27107  
Phone: 336-769-4900



# Drain Safety Compliance Data (VGB)

**.2539(c)** Prior to issuance of operation permits, owners shall provide **documentation** to verify suction outlet safety compliance which includes:

1. Maximum pump flow rate
2. Drain cover flow rate and proper installation verified per manufacturer's instructions.
3. Drain sump information meets cover installation requirements.

Counties use various Pool Drain Safety Data Compliance Forms and some data comes from engineers and Registered Design Professionals.

# Multiple Pump Suction Systems

- Per Rule .2539 (c)(1), Documentation must be provided for each pump suction system.
- This means that each pump will have its own PDSC form; even if the pump systems are exactly alike.
- Example: Spa with 1 circulation pump and 1 jet pump will require 2 separate forms.

# PDSC Data Sheet

## Section #1: Pump flow

Owner or CPO ,must submit:

- pump manufacturer name,
- model number and
- **horsepower** (HP) for identifying what pump curve to use to determine maximum flow of the pump.



Common error is motor information is submitted rather than the pump manufacturer's information:  
**Motor ID # vs pump model #**



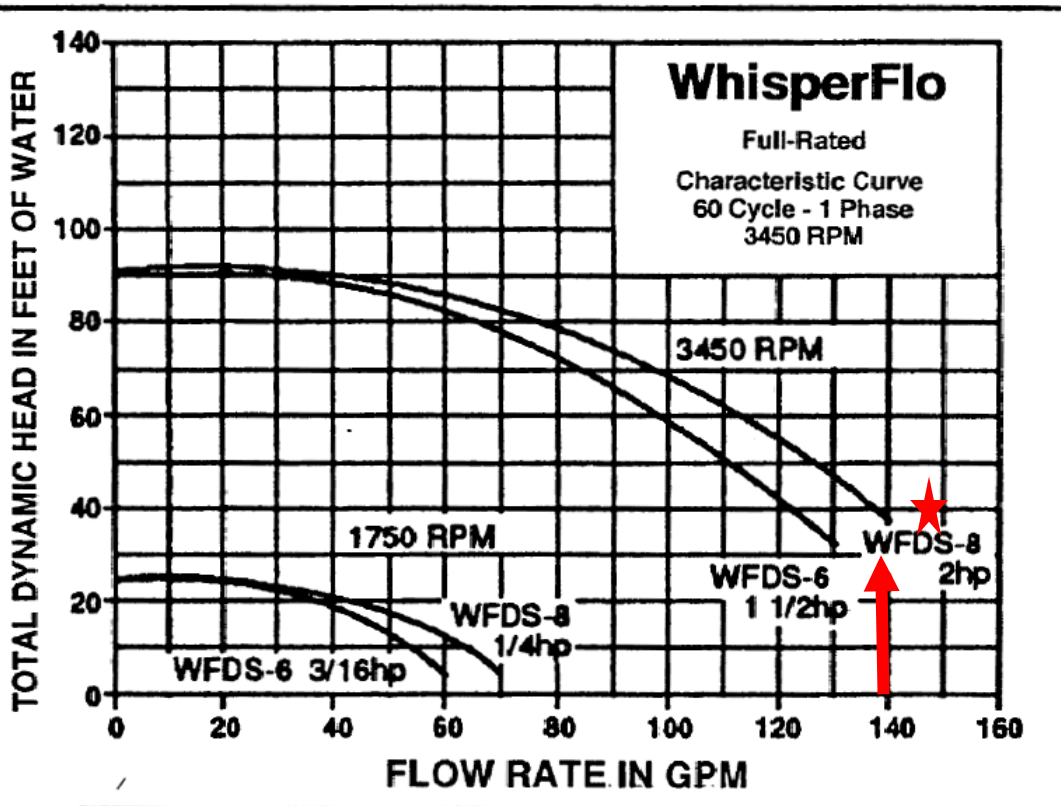
**Do not take model # off motor**



**Model and HP on pump**

# Reading a Pump Curve

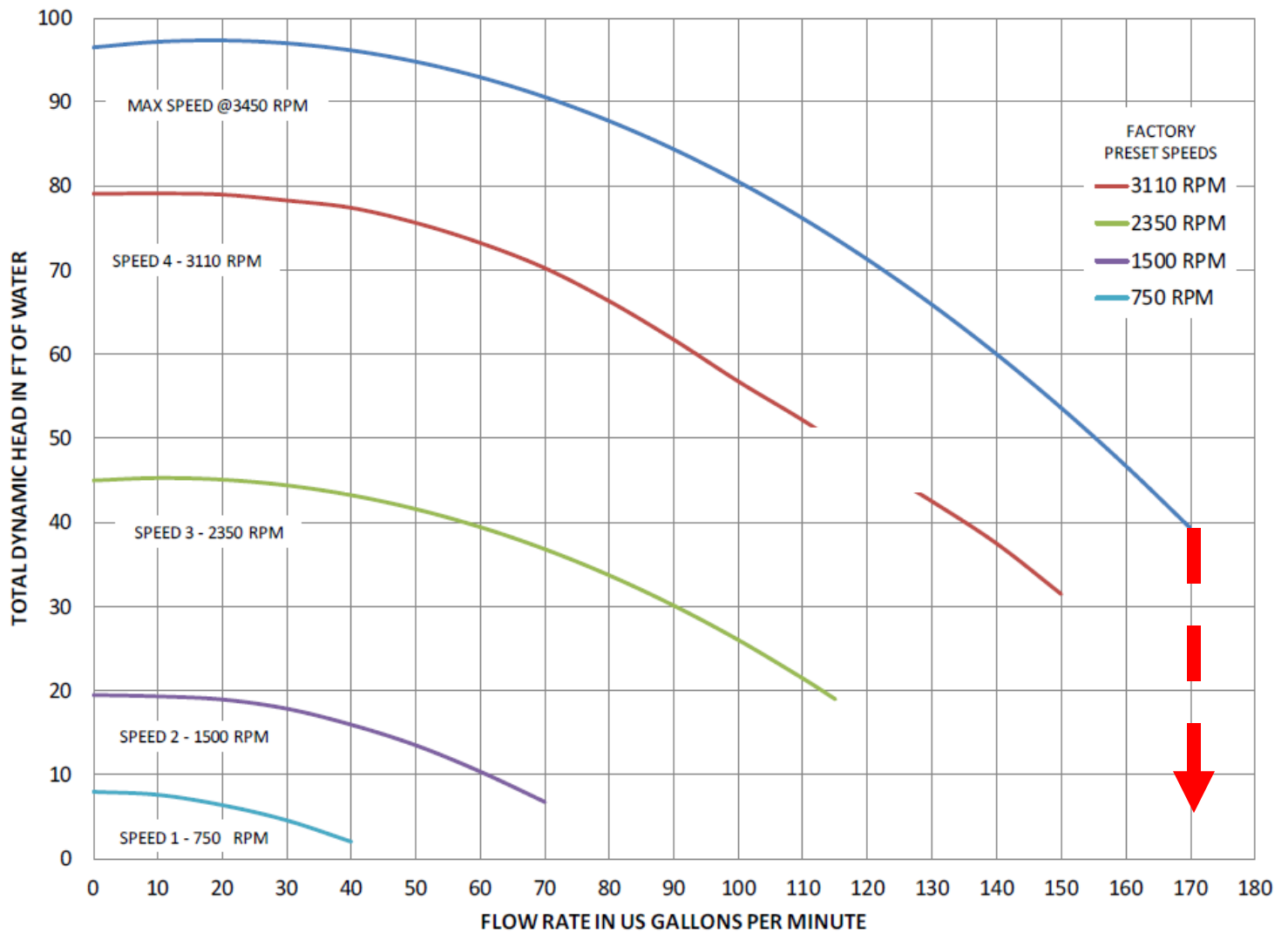
## ex. WhisperFlo Model WFDS-8



The curve to the left is an EXAMPLE of a typical pump curve. Pump curves are specific to each pump.

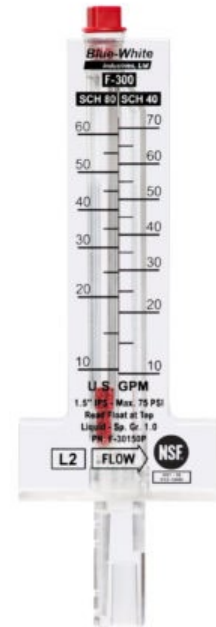
- Find the curve for the model # of the pump provided.
- Trace the line out to the end to find the maximum flow rate.
- The max pump flow for Model WFDS-8 would be 140 gpm.

# Variable Speed Pumps





What if the pump does not have a model #  
OR I can't find a matching pump curve?



## Pump Information

<https://mecknc.widen.net/s/r55m8mbvvpf/pump-identification-with-pump-curves>

## Drain Cover Information – VGB 2008 **ONLY**

<https://mecknc.widen.net/s/nkmjbjvkjf7/vgb-approved-drain-covers-and-equalizer-covers>

# Section #2: DRAIN SUMP MEASUREMENTS

- **What's under the drain cover?**

A sump is the pit or vessel between the drain cover assembly and the suction outlet pipe.

- **Need to know**

- **size of outlet pipe leaving the sump**
- **distance between the top of the outlet pipe and the bottom of the cover**
- **pipe orientation – side or bottom**
- **Does that meet manufacturer's instructions for the cover chosen?**



Some drain cover manufacturers require 1.5 X diameter of pipe between top of pipe to bottom of the cover.

# Section #3: DRAIN COVER DATA

1. Review the number of drains on each pump.
2. Review the distance between drains.
3. Review cover manufacturer and model #
4. Review date of installation and lifespan of the cover (expiration date).
5. Review flow rate of the drain cover determined by the manufacturer.

Drain cover flow must be higher than max flow of the  
connecting pump!

# VGB Series

The AquaStar line of suction outlet covers, compliant with the Virginia Graeme-Baker Pool and Spa Safety Act (ANSI/APSP 16-2011 and NSF/ANSI 50-2009a)

## Features

For single or multiple drain use  
(see installation instructions)

Single – 3" sump depth / min. 2" pipe

Floor: 166 GPM at 3.2 fps

Wall: 113 GPM at 2.2 fps

Floor/wall: 77.8 GPM at 1.5 fps

Floor/wall: 51.9 GPM at 1.0 fps

16.6 square inch opening

Additional sump and frame versions  
also available

#316 stainless steel screws

Manufactured from superior  
UV-resistant engineered polymers

Meets or exceeds ANSI/APSP 16-2011 and  
NSF/ANSI 50-2009a national standards  
and ASTM G154 UV testing

Replace every five years from the date  
of installation

36 per case

NEW

## Drain Cover Specification Sheet





## VGBA-2017 PRODUCT SPECIFICATIONS

**Suction Outlet Fitting Assembly (SOFA)**  
 VGBA-2017 Flow Ratings, Sump Dimensions,  
 Sump Flow Path Zone, and Head Loss Curves



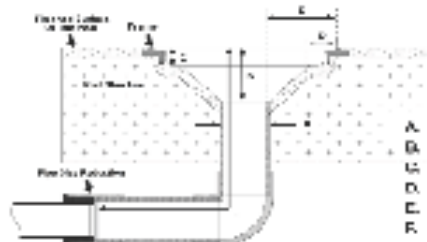
Certified to  
 NSF/ANSI CAN 50  
 ANSI/APSP/ICC 16 - 2017

**DIRECTIONS:** Please follow the SOFA specific flow rates, sump specifications, and flow path zone information below. The installation must conform to these minimum/maximum requirements including the SOFA dimension defined in Figure 1. The flow path zone is defined by dimensions A through E. The installed sump may be manufactured or field-built and it may be larger/deeper than Figure 1. Please write the Cover Model Number, orientation, and SOFA Model Flow Rating on the *VGBA DRAIN COVER IDENTIFICATION INFORMATION* label that comes with each AquaStar Pool Products, Inc. drain cover.

Cover Model Number:  
 1824xxxx



**FIGURE 1 – SOFA MODEL & FLOW PATH**



- A. Suggested PVC Pipe Size
- B. Minimum Sump Depth
- C. Minimum Ledge Depth
- D. Maximum Ledge Width
- E. Minimum Pipe Offset
- F. Minimum Length Before Reduction

FOR MOST CURRENT INFORMATION  
 SCAN THE QR CODE OR VISIT  
[WWW.AQUASTARPOOLPRODUCTS.COM/FLOWCODE](http://WWW.AQUASTARPOOLPRODUCTS.COM/FLOWCODE)  
 PRINTED DOCUMENTS MAY NOT HAVE THE MOST CURRENT  
 FLOW RATINGS OR INSTALLATION OPTIONS.



SOFA Model No.	Pipe Size (Nominal)	Pipe Depth (Minimum)	Orientation (Wall / Floor)	Flow Rating (GPM)	Head Loss Curve
1824-18f_A-1.5b_B3_C1.4_D1.4_E2.9_F16	1.5" (b)	3"	Floor (f)	126	A
1824-18f_A-2b_B3_C1.4_D1.4_E3.1_F16	2" (b)	3"	Floor (f)	170	B
1824-18f_A-2.5b_B3_C1.4_D1.4_E3_F16	2.5" (b)	3"	Floor (f)	250	C
1824-18f_A-3b_B3_C1.4_D1.4_E3.2_F16	3" (b)	3"	Floor (f)	288	D
1824-18f_A-4b_B3_C1.4_D1.4_E3.1_F16	4" (b)	3"	Floor (f)	396	E
1824-18f_A-6b_B3_C1.4_D1.4_E3.1_F16	6" (b)	3"	Floor (f)	690	F
1824-18f_A-8b_B3_C1.4_D1.4_E3.2_F16	8" (b)	3"	Floor (f)	690	G
1824-18f_A-1.5s_B5.5_C1.4_D1.4_E2.9_F16	1.5" (s)	5.5"	Floor (f)	126	A
1824-18f_A-2s_B5.7_C1.4_D1.4_E3.1_F16	2" (s)	5.7"	Floor (f)	170	B
1824-18f_A-2.5s_B6_C1.4_D1.4_E3_F16	2.5" (s)	6"	Floor (f)	250	C
1824-18f_A-3s_B6.2_C1.4_D1.4_E3.2_F16	3" (s)	6.2"	Floor (f)	288	D
1824-18f_A-4s_B6.4_C1.4_D1.4_E3.1_F16	4" (s)	6.4"	Floor (f)	396	E
1824-18f_A-6s_B7.5_C1.4_D1.4_E3.1_F16	6" (s)	7.5"	Floor (f)	690	F
1824-18f_A-8s_B8.4_C1.4_D1.4_E3.2_F16	8" (s)	8.4"	Floor (f)	690	G
1824-18w_A-2.5b_B3_C1.4_D1.4_E3_F16	2.5" (b)	3"	Wall (w)	200	H
1824-18w_A-3b_B3_C1.4_D1.4_E3.2_F16	3" (b)	3"	Wall (w)	288	I
1824-18w_A-4b_B3_C1.4_D1.4_E3.1_F16	4" (b)	3"	Wall (w)	396	J
1824-18w_A-6b_B3_C1.4_D1.4_E3.1_F16	6" (b)	3"	Wall (w)	676	K

## **Drain Cover Life**

*Afras – 6 years*

*Aquastar – 5 year*

*Bee Safe – 7 years*

*Custom Molded – 7 years*

*DrainSafe – 3 years*

*Hayward – 7 years*

*Lawson – 10 years*

*Neptune Benson – 15 years*

*Paddock Stainless Steel – Lifetime – Inspect annually at 10 years but  
required to change screws every 7 years.*

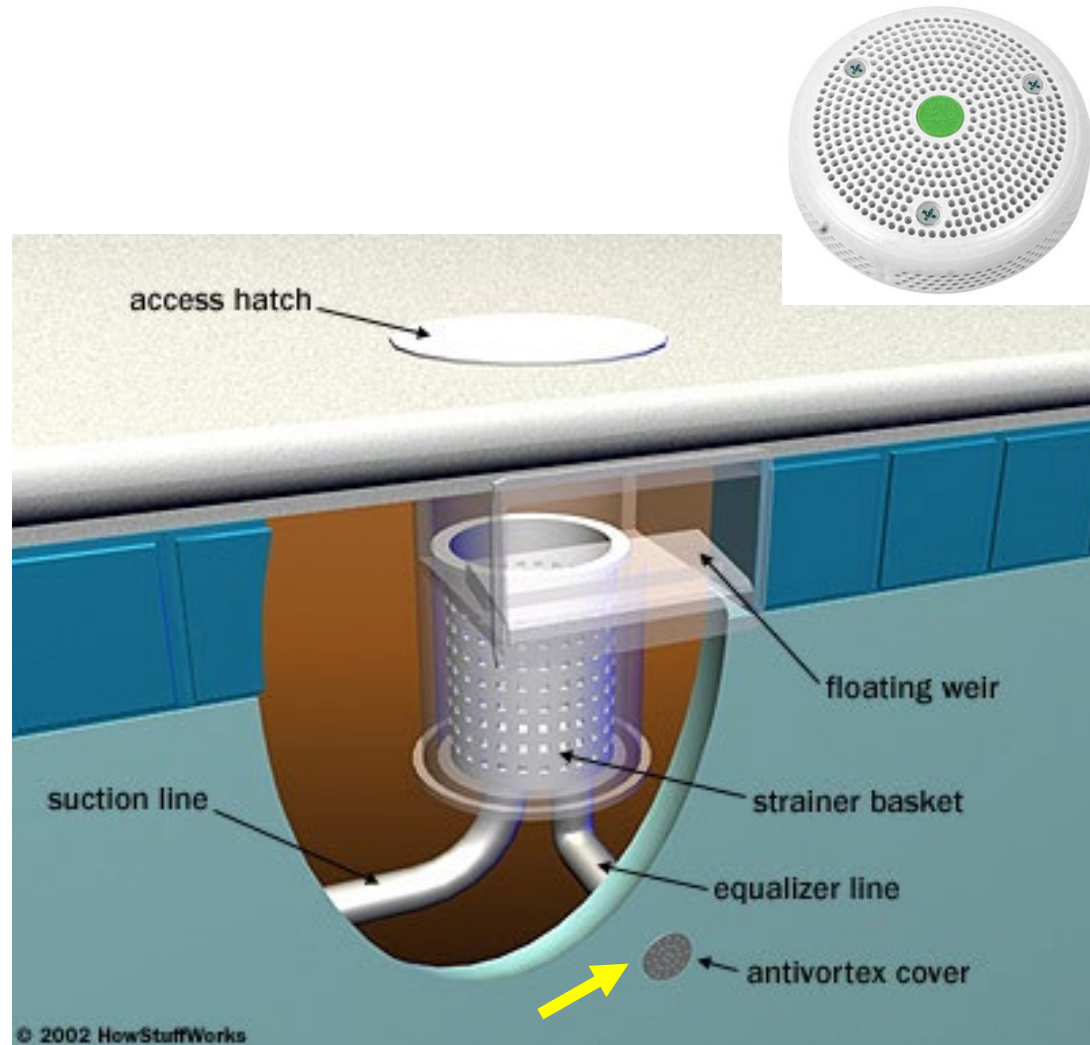
*Paramount – 5 years*

*Pentair – 7 years*

*Waterway – 7 years*

# Section #4: EQUALIZER LINE COVERS

- Determine the number of operational equalizer covers or if blocked properly.
- To calculate necessary flow rate of equalizer covers:  
Assume one is blocked by a body. The remaining covers must handle the max flow of the pump.
- Use the manufacturer and model # of the cover to obtain the corresponding specification sheet for flow ratings and lifespan.





# Example Equalizer Cover Calculation

- Maximum Pump Flow = 350 GPM
- Number of Skimmers with Operable Skimmer Equalizer Covers = 8
- $8 - 1 = 7$
- $350 / 7 = 50$  GPM
- Each of the 8 skimmer equalizer line covers will need to have a maximum flow rate of at least 50 GPM.

If the pool has 1 or 2 skimmers, then each of the skimmer equalizer line covers shall be able to accommodate the maximum pump flow.

# Section #5: SAFETY VACUUM RELEASE SYSTEM (SVRS) (note any, if applicable)

If pool has a single drain OR dual drains are less than 3 feet on center, review information:

1. Provide the manufacturer of SVRS.
2. Observe for proper installation and ask Operator to test system according to manufacturer's instructions.

# Section #6 Pool wall vacuum line cover is not required to have a suction outlet cover meeting APSP-16 (if applicable)



If any vacuum port is open and valve is open to the pump during operation; Suction hazard.

6 pt. violation, item #6

Pools built **after May 1, 2010** require a self closing self latching fitting that meets IAPMO-SPS 4 which requires a tool for opening to be in compliance.



- If documentation on the VGB form is not complete or accurate, operation permit will be withheld.
- Field verification of drain safety information should be completed during every inspection.

Questions?