



# Massachusetts Pool Plan Review

MEHA Fall Seminar  
November 17, 2021



# Massachusetts Pool Plan Review

Jeff Scimone, BS, CPO

Design and Commercial Project Management  
South Shore Gunitite Pools & Spas, Inc.

Harold Tillson, BS, CPOI, CSP

Commercial Development and Service Management  
South Shore Gunitite Pools & Spas, Inc.



# OVERVIEW

- How Massachusetts is different in Plan Review



# OVERVIEW

- How Massachusetts is different in Plan Review
- Codes, Standards, Regulations, Specifications



# OVERVIEW

- How Massachusetts is different in Plan Review
- Codes, Standards, Regulations, Specifications
- Pool Plan Review Application

# OVERVIEW

- How Massachusetts is different in Plan Review
- Codes, Standards, Regulations, Specifications
- Pool Plan Review Application
- Pool Plan Set

# OVERVIEW

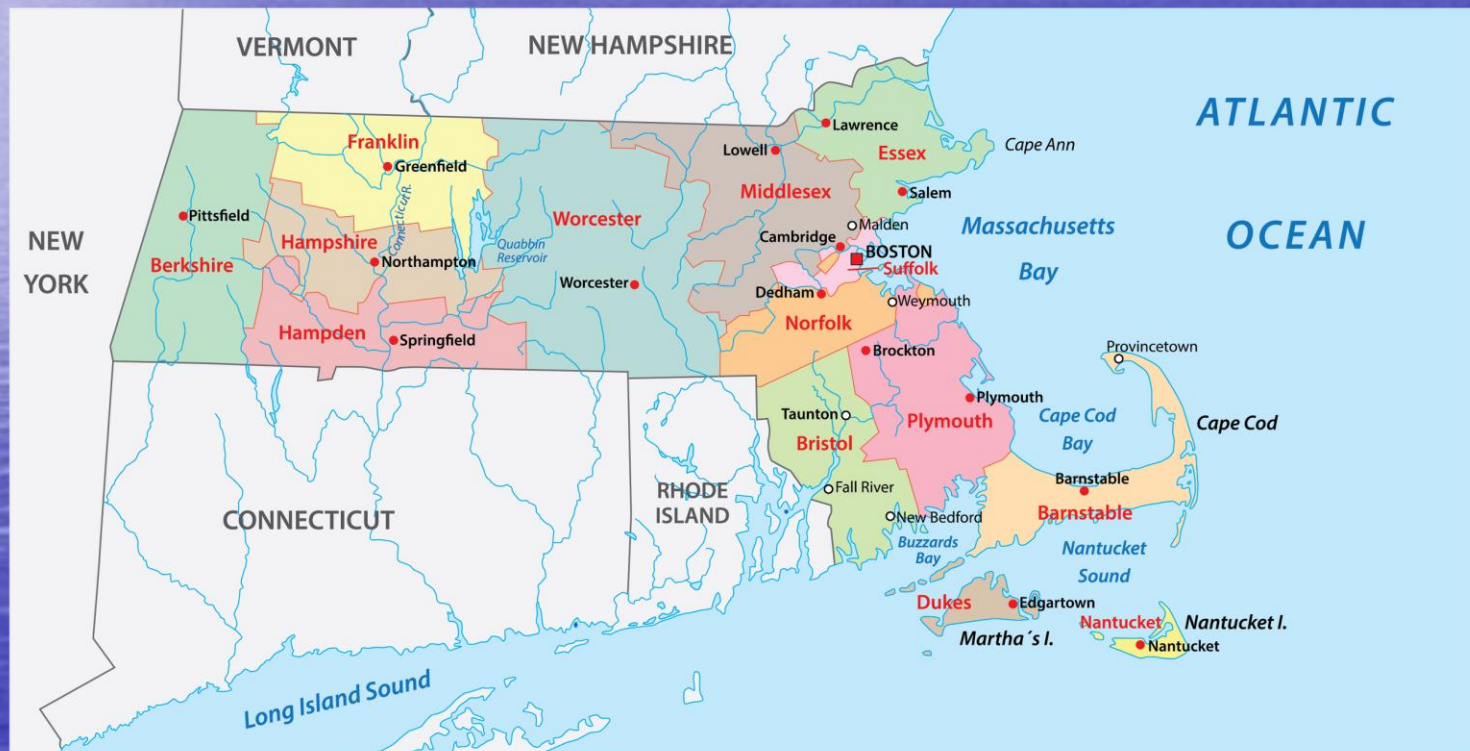
- How Massachusetts is different in Plan Review
- Codes, Standards, Regulations, Specifications
- Pool Plan Review Application
- Pool Plan Set
- Data Sheet



# OVERVIEW

- How Massachusetts is different in Plan Review
- Codes, Standards, Regulations, Specifications
- Pool Plan Review Application
- Pool Plan Set
- Data Sheet
- Questions

# How Massachusetts is different in Plan Review





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- Public Swimming Pools are approved on the local Health Department level.



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- NH, CT, RI, ME all require State approval of Plans by the Department of Health.

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- Public Swimming Pools are approved on the local Health Department level.
- NH, CT, RI, ME all require State approval of Plans by the Department of Health.
- Requires each city/town's Health Department to know the design and construction requirements for a healthy pool. There are 351 cities/towns in Massachusetts.



# Codes, Standards, Regulations, Specifications





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- Standards – Provide the “how to” of executing codes. Usually start as voluntary standards within an industry.
- Specifications - Outline requirements for a specific product. NSF 50 Standard
- Regulation - Mandated by government

# Codes, Standards, Regulations, Specifications

Voluntary Standards are written by an industry to create a common language for a given process.



# Codes, Standards, Regulations, Specifications

Voluntary Standards are written by an industry to create a common language for a given process.







# Wellness and Safety



# Wellness and Safety

## Uniformity



# Wellness and Safety

## Uniformity

## Liability





Build to Highest Standard

# Codes, Standards, Regulations, Specifications

## SWIMMING POOL CODE

## MASSACHUSETTS



<u>ACTIVE FEDERAL SOURCES:</u>	<u>DATE:</u>	<u>INDEX:</u>
Americans with Disabilities Act (ADA) - (U.S. Department of Justice)	5/24/2012	
Virginia Graeme Baker Pool and Spa (VGB) , Safety Act Drain Cover Standard - (Consumer Product Safety Commission (CPSC)	5/24/2019	
<u>ACTIVE STATE SOURCES:</u>	<u>DATE:</u>	<u>INDEX:</u>
105 CMR 435.00: Minimum Standards for Swimming Pools (State Sanitary Code: Chapter V).	1998	
105 CMR 430.00: Minimum Standards for Recreational Camps for Children (State Sanitary Code: Chapter IV)		
521 CMR 19.00: Recreational Facilities;	1998	
SECTION 780 CMR 120.M, MA BUILDING CODES ON SWIMMING POOLS	1/1/2018	
M.G.L. c. 140, § 206 for enclosures	2013	
<u>PENDING STATE SOURCES:</u>	<u>DATE:</u>	<u>INDEX:</u>
105 CMR 435.000: Minimum Standards for Swimming Pools (State Sanitary Code: Chapter V).	2019?	
<u>ADOPTIONS:</u>		
International Swimming Pool and Spa Code	2015	
<u>DATE PRINTED:</u>		

# Codes, Standards, Regulations, Specifications

- 105 CMR 435.000

## Minimum Standards for Swimming Pools-

## State Sanitary Code

Red Line Version  
(Not yet released)

**DRAFT** ~~Subsequent~~ = delete **Red** = new 105 CMR: DEPARTMENT OF PUBLIC HEALTH

105 CMR 435.000: MINIMUM STANDARDS FOR SWIMMING POOLS (STATE  
SANITARY CODE: CHAPTER V)


### Section

~~435.000:~~ **Purpose**  
~~435.010:~~ Definitions  
~~435.020:~~ Construction  
~~435.030:~~ Plan Approval  
~~435.040:~~ **License Required**  
~~435.050:~~ Bathhouse, and Sanitary Facilities, **Lighting and Ventilation**  
~~435.060:~~ Sewage Disposal  
~~435.070:~~ Location, Structural Stability and Finish  
~~435.080:~~ **Enclosures and Pool Covers**  
~~435.090:~~ Water Circulation and Filtration Systems  
~~435.100:~~ Construction Materials  
~~435.110:~~ Inlets and Outlets  
~~435.120:~~ Cross Connection  
~~435.130:~~ Skimming Facilities  
~~435.140:~~ Pool Slopes and Dimensions  
~~435.150:~~ Water Depth **and Other** Markings  
~~435.160:~~ Walkways and Decks  
~~435.170:~~ Ladders, **and Slope and Zero Entry Areas**  
~~435.180:~~ Diving  
~~435.190:~~ Water Source  
~~435.200:~~ Pool Supervision  
~~435.210:~~ **Filter Rooms and Pool Chemical Storage**  
~~435.220:~~ **Operation and Maintenance**  
~~435.230:~~ Annual Permit **License** Requirements for Swimming, Wading, and Special Purpose Pools  
~~435.240:~~ **and Splash Pads** Pool and **Splash Pad** Records **and Record Retention**  
~~435.250:~~ **Board of Health Notifications**  
~~435.260:~~ **Injury Reports**  
~~435.270:~~ Health Regulations; Signs  
~~435.280:~~ Lifeguards  
~~435.290:~~ Safety Equipment  
~~435.300:~~ First Aid Equipment and Emergency Communication  
~~435.310:~~ Waste Water and Backwash Water Disposal  
~~435.320:~~ Barrier Load Capacity  
~~435.330:~~ Bacterial **Water** Quality  
~~435.340:~~ Chemical Standards **and Water Testing**  
~~435.350:~~ Water Testing Equipment  
~~435.360:~~ Water Clarity  
~~435.370:~~ **Water Quality Maintenance**  
~~435.380:~~ **Maximum Operating Temperatures for Special Purpose Pools**  
~~435.390:~~ Closure of Pools **and Splash Pads**  
~~435.400:~~ Water Slide Flames  
~~435.410:~~ Splash Down Pools



# Codes, Standards, Regulations, Specifications

- 780 CMR 120.M  
State Building  
Code -  
9<sup>th</sup> Edition  
Chapter 13 –  
References the  
ISPSC 2018



Commonwealth of Massachusetts  
Division of Professional Licensure  
Office of Public Safety and Inspections  
1 Ashburton Place, Rm 1301 • Boston • Massachusetts • 02108

*Ninth Edition of the State Building Code  
(780 CMR)  
Manufactured Buildings Notice*

Quick Links

Message

Join Our List

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Ladies and Gentlemen -

As you may be aware, the Ninth Edition of the State Building Code (780 CMR) is nearly complete. The new, ninth edition code is based on modified versions of the following [2015 codes](#) as published by the [International Code Council \(ICC\)](#).

- The International Building Code (IBC);
- International Residential Code (IRC);
- International Existing Building Code (IEBC);
- International Mechanical Code (IMC);
- International Energy Conservation Code (IECC);
- International Swimming Pool and Spa Code (ISPS); and
- Portions of the International Fire Code (IFC).

It is expected that the new code will be filed with Secretary of State in late August or early September. Once filed, a concurrency period is allowed for practitioners to choose to comply with either the current eighth edition or new ninth edition of the code, without mixing provisions. The concurrency period ends on December 31, 2017 and the ninth edition will become in full force and effect on **January 1, 2018**.

*What does that mean for manufactured building designs?*

Any manufactured building project utilizing eighth edition code provisions will need to have been assigned a **BBRS Approval Number on or before December 31, 2017**. Any project with a BBRS number issued on or after January 1, 2018 will be expected to comply with the ninth edition of the code.

Due to statutory obligations, the one exception to this message is that the 2015 IECC went into effect on August 12, 2016 as an [amendment to the Eighth Edition](#).

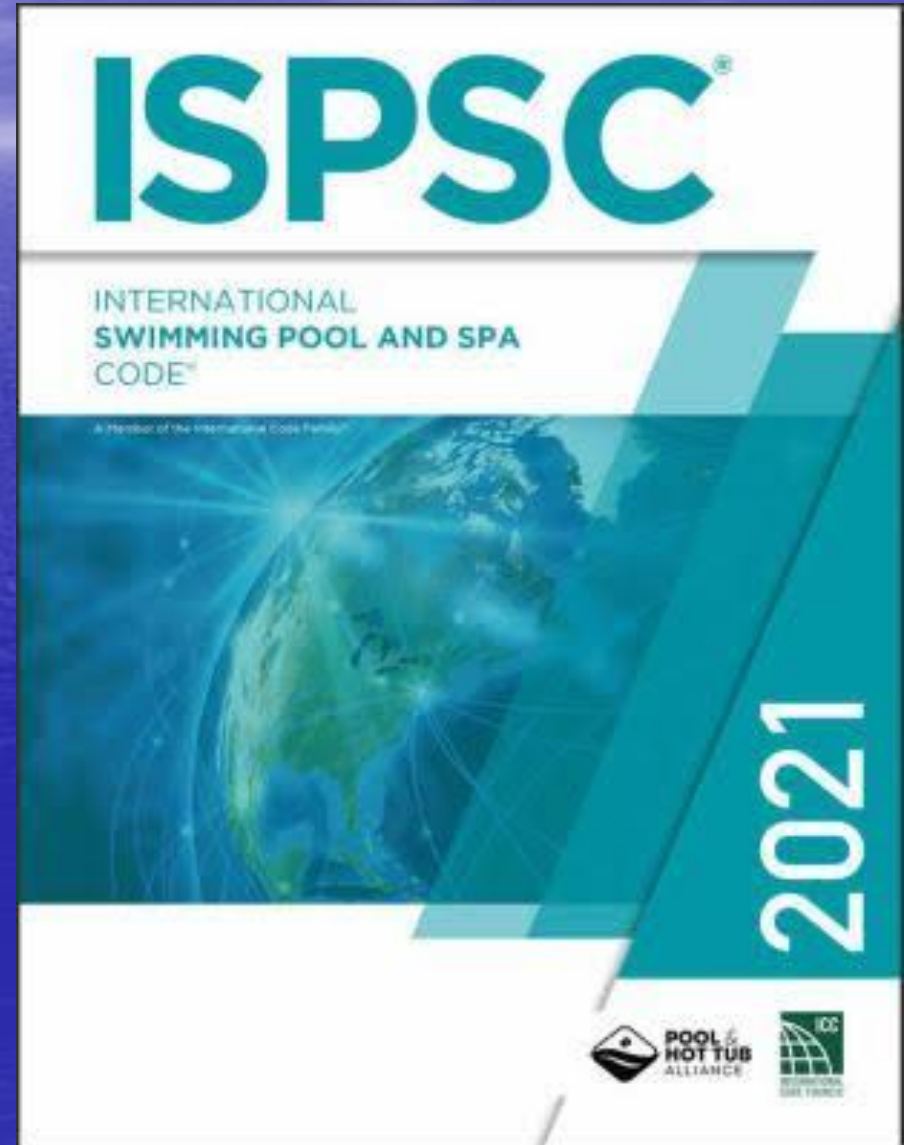
We will continue to provide updated information over the next several weeks as it becomes available. In the interim, it is hoped that this information is helpful.

Robert Anderson  
Division of Professional Licensure  
Office of Public Safety and Inspections  
Chief of Inspections - Building & Engineering  
One Ashburton Place - Room 1301  
Boston, MA 02108  
Office (617) 896-5269

# Codes, Standards, Regulations, Specifications

- ISPSC 2018

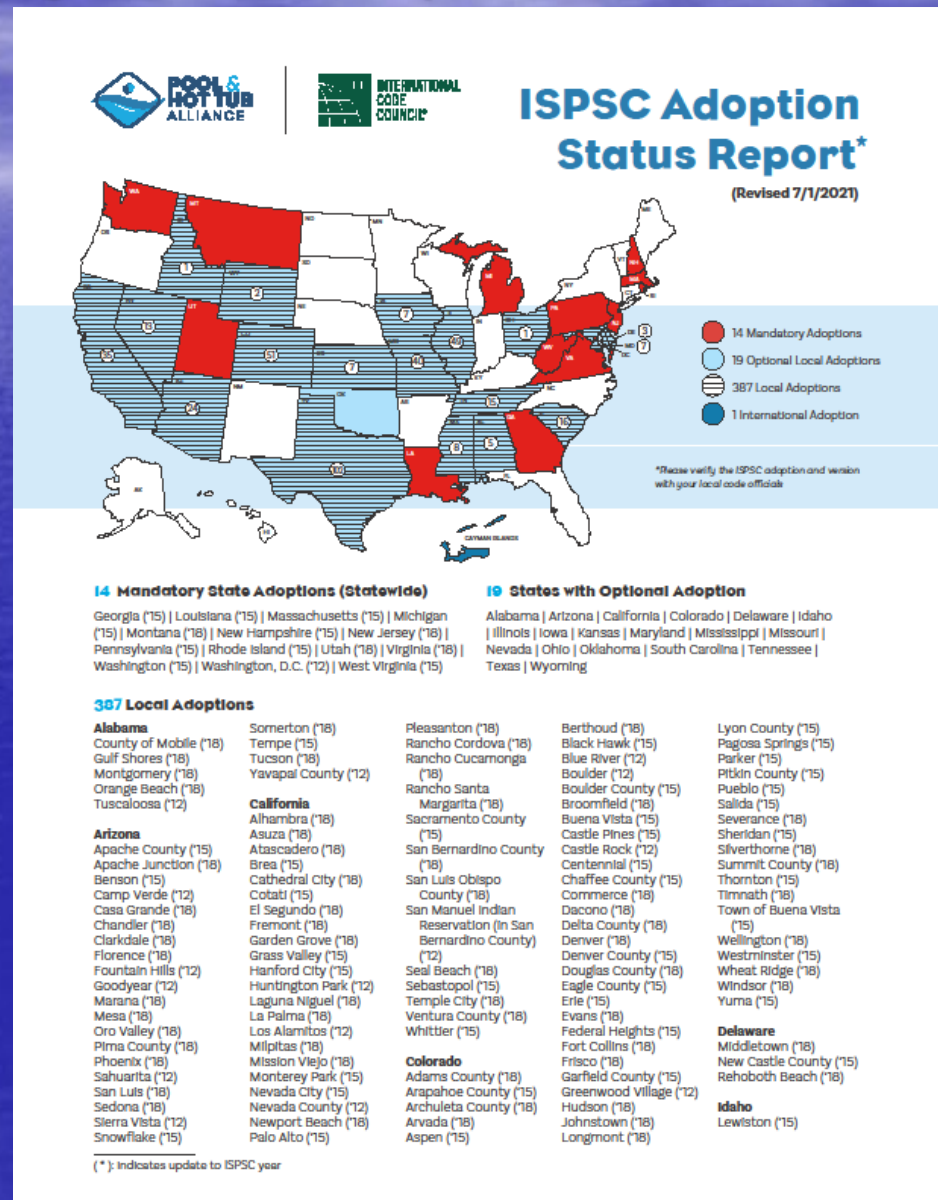
Collaboration  
between the Pool &  
Hot Tub Alliance  
and The  
International Code  
Council.  
(Revised 2021)





# Codes, Standards, Regulations, Specifications

Mandatory in  
Massachusetts





# Codes, Standards, Regulations, Specifications

- Federal Regulations –

Virginia Graehame Baker Pool and Spa Act  
2007 (Revised 2019- VGBA)

Reference – ANSI/APSP/ICC-16-2017 Standard

# Codes, Standards, Regulations, Specifications

- Federal Regulations –

Virginia Graehame Baker Pool and Spa Act  
2007 (Revised 2019- VGB 2008A)

Reference – ANSI/APSP/ICC-16-2017 Standard

American Disabilities Act 2012

# POOL PLAN REVIEW APPLICATION

Example from  
Boston ISD



## Inspectional Services Department

### POOL PLAN REVIEW

Public ☐ Semi-Public ☐ Indoor ☐ Outdoor ☐

Swimming Pool ☐ Wading Pool ☐ Special Purpose Pool ☐ Other ☐ New ( ☐ ) Remodeled ( ☐ )

Name of Facility \_\_\_\_\_ Address \_\_\_\_\_

Owner \_\_\_\_\_ Phone \_\_\_\_\_

Home Address \_\_\_\_\_

Construction Start Date \_\_\_\_\_ Pool Opening Date \_\_\_\_\_

The pool supervisor of all public and semi-public swimming pools shall have successfully completed a course in the safe and effective operations and maintenance of swimming pools evidenced by certification as a Pool Operator from the YMCA, the National Swimming Pool Foundation, or from any other organization providing equivalent training, subject to the approval of the Department. Certification submitted. Yes ( ☐ ) No ( ☐ )

Plans submitted under stamp and signature of Mass. Reg. Prof. Engineer or architect. Yes ( ☐ ) No ( ☐ )

Width of Pool \_\_\_\_\_ Length of Pool \_\_\_\_\_ Depth of Pool \_\_\_\_\_ To \_\_\_\_\_

Vol. of Pool in Gal. \_\_\_\_\_ Total Sq. Ft. of Pool \_\_\_\_\_ Total Cu. Ft. of Pool \_\_\_\_\_

435.06 Turnover Rate (GPM) \_\_\_\_\_ Design Turnover Rate (in hours) \_\_\_\_\_

- A. Swimming Pools - Once every eight (8) hours – ideal 6 hours or less
- B. Wading Pools - Once every four (4) hours
- C. Special Purpose Pools - Once every half (1/2) hour
- D. Water Slide Flumes – Once every hour

435.06 Type of Filtration System \_\_\_\_\_

Square Footage of Filter Surface Area \_\_\_\_\_

- A. Pressure or gravity sand - 3 gal. per min. per sq. ft.
- B. High Rate Sand - 15 gal. per min. per sq. ft.
- C. Diatomaceous Earth - 1.5 - 2.0 gal. per min. per sq. ft.
- D. Cartridge - .375 gal. per min. per sq. ft.



# POOL PLAN REVIEW APPLICATION

## Affidavit

Shows how other  
Codes and Standards  
Related to building a  
pool.



### Inspectional Services Department

#### POOL PLAN REVIEW

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# SUMMARY OF CHECKLIST (ITEMS TO REVIEW)

- PROJECT INFO / TYPE OF POOL
- FLOW RATE / TURNOVER
- FILTER SELECTION & EQUIPMENT PROVIDED
- DESIGNATED AREAS
- # OF INLETS/OUTLETS
- FACILITY PROVISIONS
- POOL SHAPE AND COLOR
- DEPTHS AND SLOPES
- ACCESS & EGRESS
- DIVING BOARDS
- POOL WASTE
- BATHER UTILITIES
- EMERGENCY CARE



# POOL PLAN REVIEW



## Project Location

## Pool Contractor

SOUTH SHORE GUNITE POOLS & SPAS  
12 ESQUIRE ROAD  
BILLERICA, MA 01862  
800.649.8080

## SP0 - COVER PAGE

## SP1 - PROJECT OVERVIEW

SP2 - POOL AREA PLAN LAYOUT

### SP3 - LAP POOL PLAN LAYOUT

**SP4 - LAP POOL GENERAL SECTIONS**

SP5 - LAP POOL STRUCTURAL PLAN

SP6 - LAP POOL STRUCTURAL DETAILS I

SP7 - LAP POOL STRUCTURAL DETAILS II

### SP8 - LAP POOL STRUCTURAL DETAILS III

## SP9 - LAP POOL PLUMBING LAYOUT

### SP9.1 - SITE PLUMBING LAYOUT

### SP10 - LAP POOL MECHANICAL EQUIPMENT LAYOUT

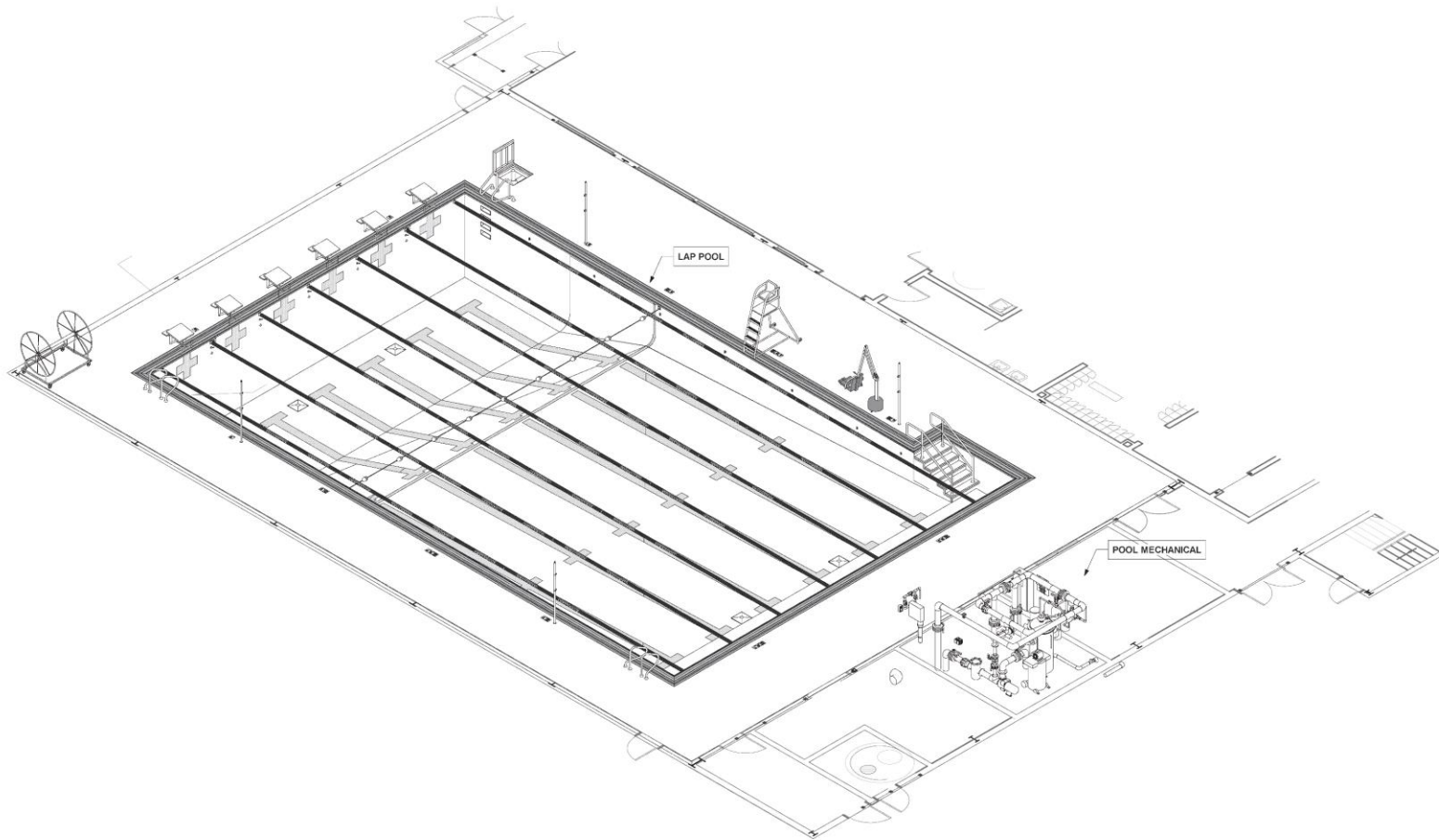
SP11 - DESIGN DATA & GENERAL NOTES

## SP12 - EQUIPMENT DETAILS

## SP13 - EQUIPMENT DETAILS II

[illegible]

# PROJECT OVERVIEW – 3D



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Pools & Spas, Inc.**

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800.649.8080

**SSG**

**Engineer's Stamp**

**Project**

**Pool Contractor**  
SOUTH SHORE GRANITE  
Billerica, MA 01862  
800.649.8080

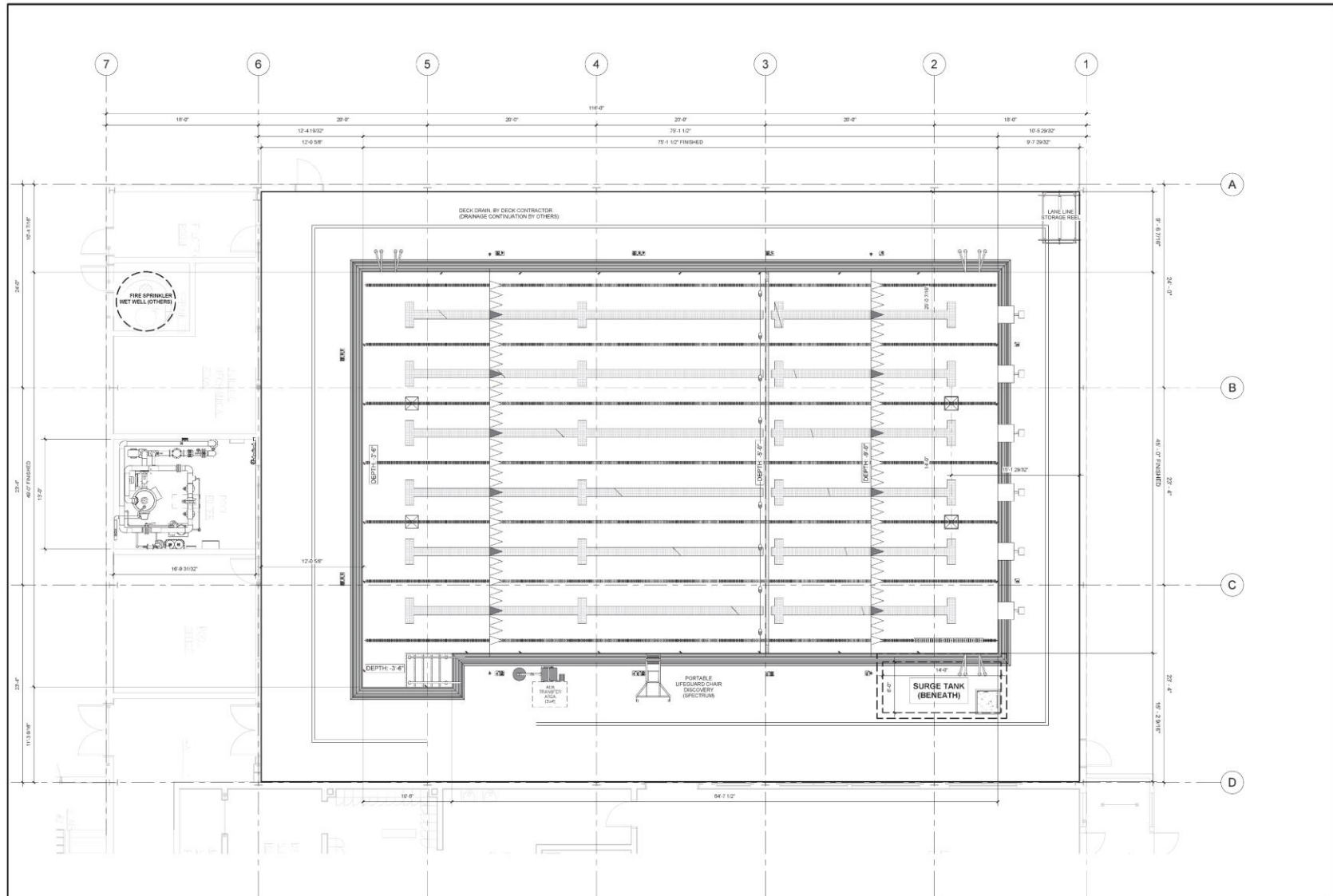
Revisions	DATE	NOTES
#		

PROJECT OVERVIEW

SCALE:

**SP1**

# SITE OVERVIEW



NOTE:  
 1) LAYOUT AND DESIGN TO CONFORM STATE AND LOCAL BUILDING CODE  
 2) SITE REFERENCED FROM ARCHITECTURAL DRAWINGS, DECISIONS AND LOCATIONS TO BE VERIFIED  
 3) OWNER TO PROVIDE BENCHMARK  
 4) SAFETY & MAINTENANCE EQUIPMENT TO BE LOCATED AND STORED AT OWNER'S DISCRETION

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 800.649.8080

**Engineer's Stamp**

**Pool Contractor**  
 SOUTH SHORE GUNITE POOL & SPAS, INC.  
 BILLERICA, MA 01862  
 800.649.8080

Revisions	DATE	NOTES
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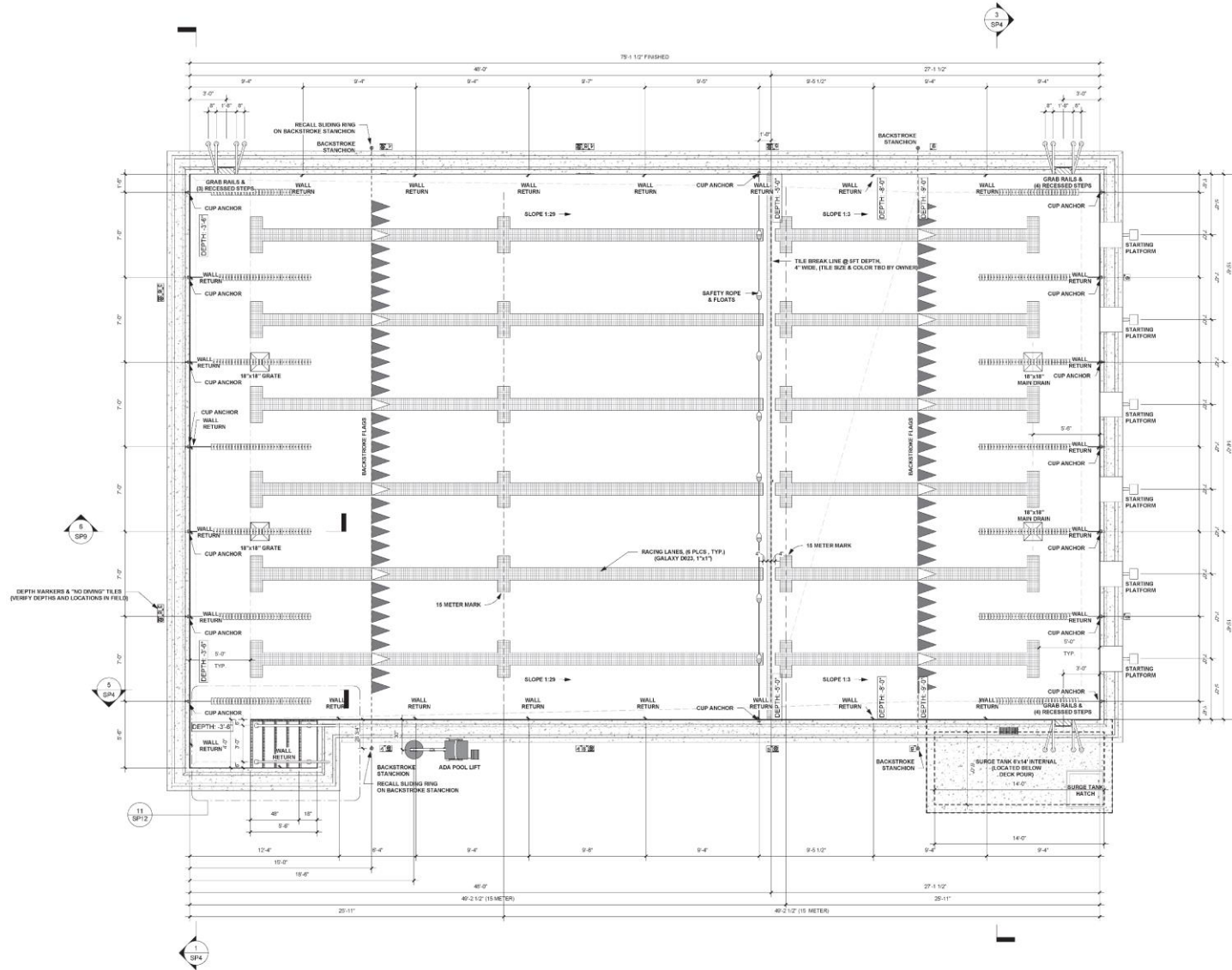
POOL AREA PLAN LAYOUT

SCALE: 3/16" = 1'-0"

**SP2**



# PLAN



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Billerica, MA 01862  
800-649-8080

**Engineer's Stamp**

**Pool Contractor**  
SOUTH SHORE GUNITITE  
BILLERICA, MA 01862  
800-649-8080

**Project**

DATE: \_\_\_\_\_ NOTES: \_\_\_\_\_

**Revisions**

# DATE \_\_\_\_\_

**POOL PLAN LAYOUT**

SCALE: 1/4" = 1'-0"

**SP3**

# SECTIONS

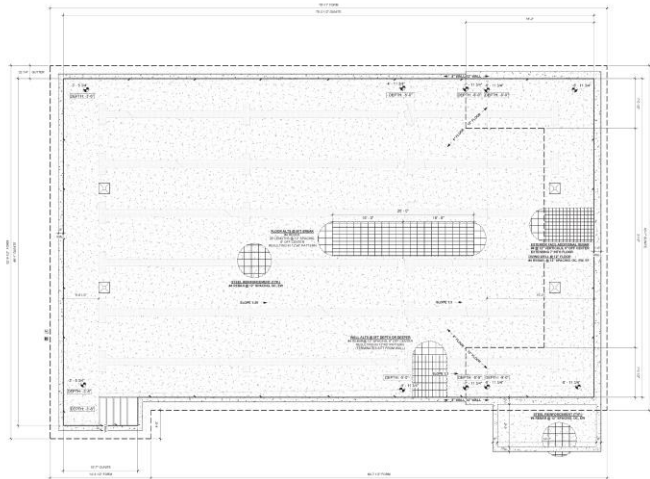


LAP POOL SECTIONS

SCALE: As indicated

SP4

**NOTE:**  
-ALL SPOT ELEVATIONS REF T.O.G.  
-NO INVERT ELEVATIONS SHOWN  
-T.O.G. BENCHMARK (-0'-3/4") FROM WATERLINE (0'-0")



⑨ LAP POOL STRUCTURAL PLAN  
14'6" x 14'6"

**Propagatory and Confidential**

**South Shore Gunite  
Pools & Spas, Inc.**

12 Esquire Road  
Billerica, MA 01862  
800.649.8080

 SSG

Engineering's Situation

**Paul Contreras**  
FOURTH SHORE, QUARTS  
12 MILLBURN ROAD  
MILLBURN, N.J. 07041  
908-261-8267

Run (km)	LAPE	SAPE
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STRUCTURAL PLAN

SCALE: 1/4" = 1'-0"

SP5

- Proprietary and Confidential**

**South Shore Gunite  
Pools & Spas, Inc.**

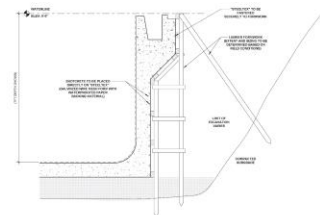
 12 Exquisite Road  
Billerica, MA 01862  
800.649.8080

Engineering &amp; Technology

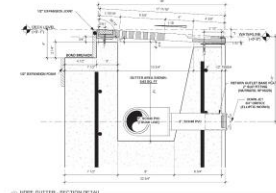
David C. Greenblatt  
10000 Wilshire Blvd., Suite 1000  
Beverly Hills, CA 90210  
Tel: 310-276-1234

Ergebnis		Beurteilung
1	100%	100%

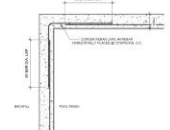
STRUCTURAL DETAILS I  
SCALE: As indicated  
**SP6**



5. FOREBORNK WALL DETAIL (TYP) - GUTTER



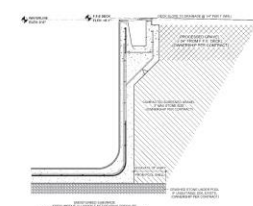
② HOPE BUTTER SECTION DETAIL  
1/2" x 1/2"



④ TYP. WALL CORNER LAP SPLICE - PLAN VIEW  
3/16" x 1/2"



② FLOOR ALTERNATES, SECTION DETAIL



② [FINISHED WALL CATAL.COM](http://www.wallcatal.com)

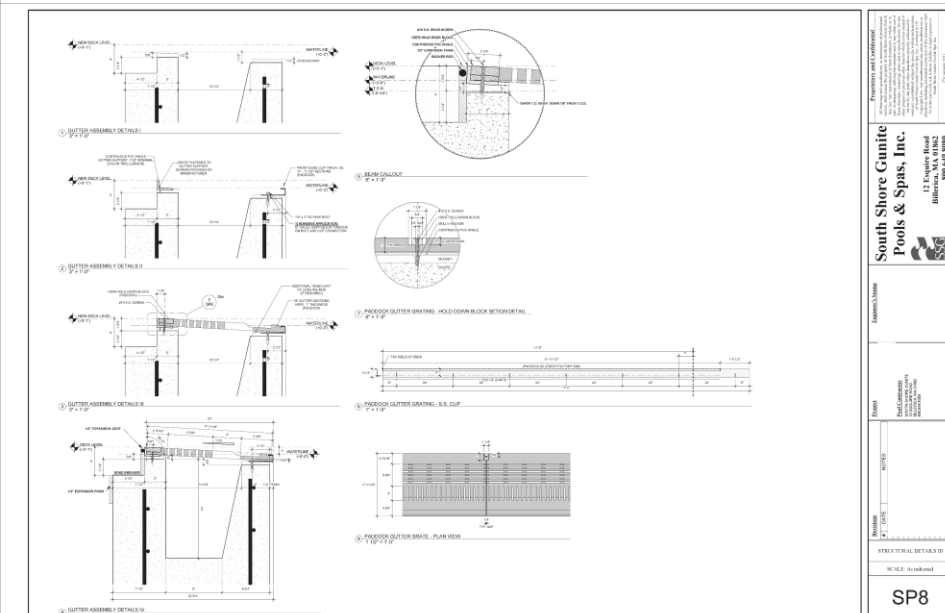
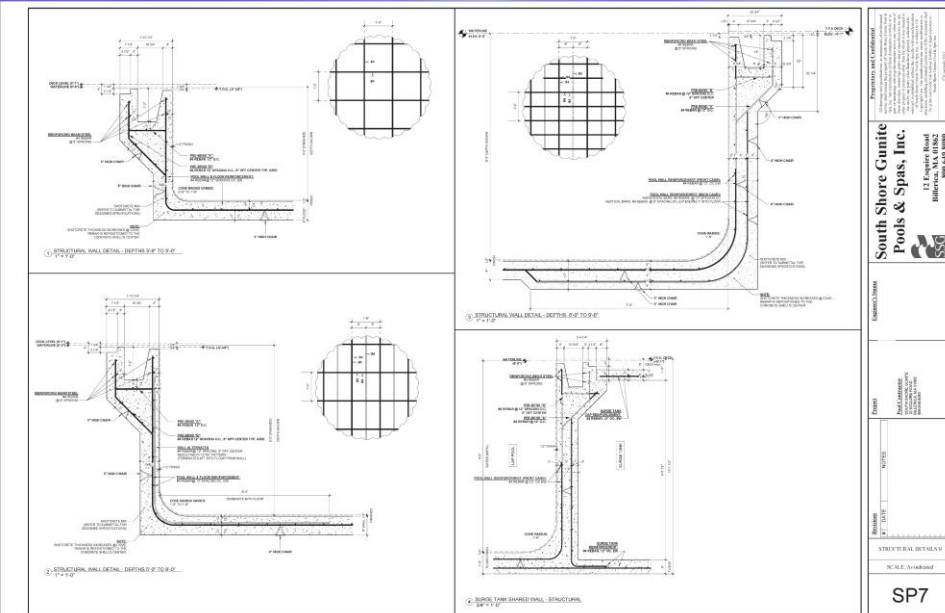


# STRUCTURAL PLAN AND DETAILS

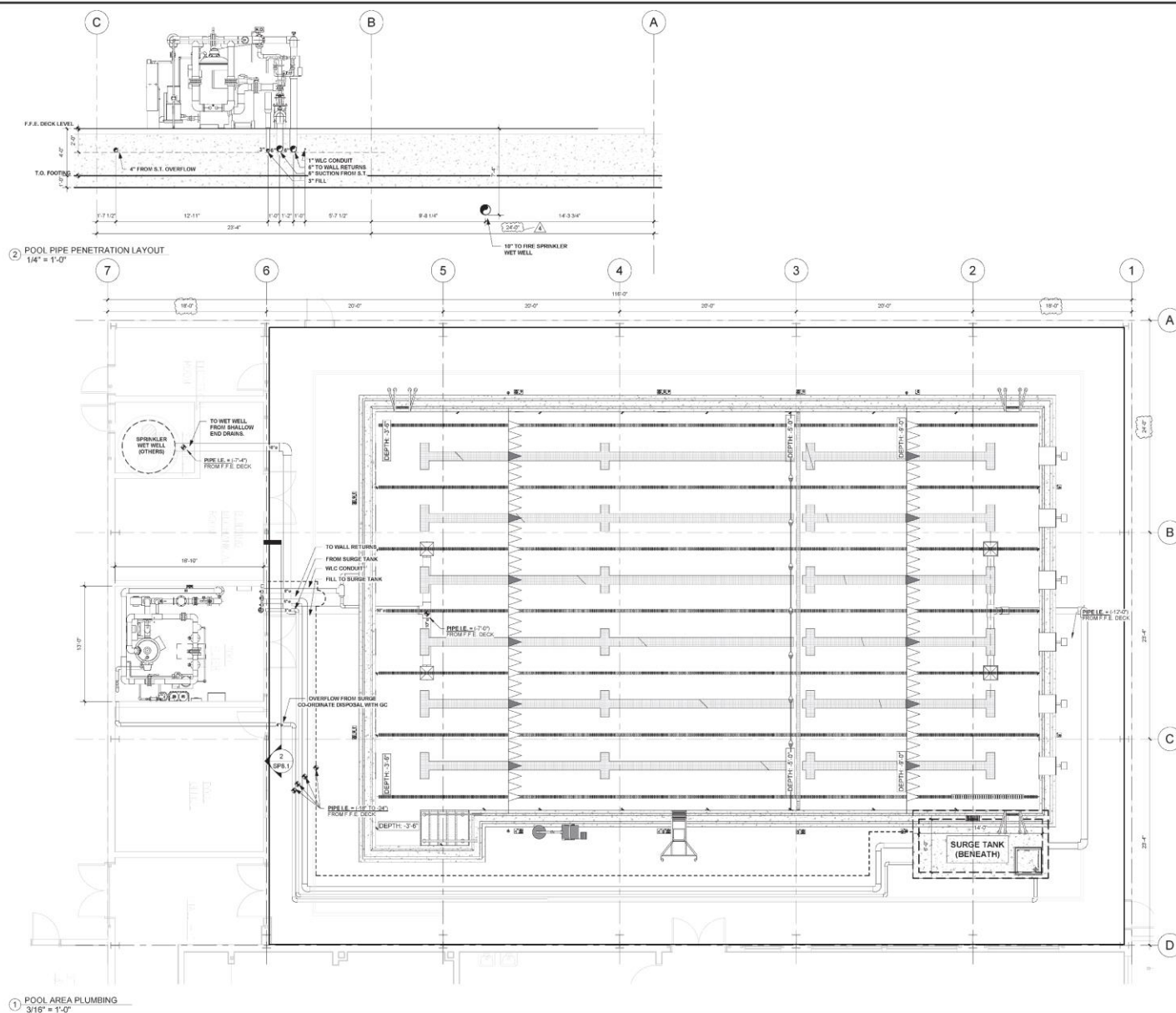
- SOME STRUCTURAL DETAILS IDENTIFY WATERSHAPE CLARITY:

- MINIMUM REQUIREMENT FOR VERTICAL WALLS, BEFORE FLOOR SLOPES AND STRUCTURAL COVES

- SAFETY LEDGES, LOCATED AT APPROPRIATE DEPTHS AND WIDTHS, NOT TO CAUSE HARM TO THE BATHER.



# PLUMBING PLAN OVERVIEW



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12 Esquire Road  
Billerica, MA 01862  
800.649.8080



Engineer's Stamp

Project

**Pool Contractor**  
SOUTH SHORE GUNITE  
2 ESQUIRE ROAD  
MILLERICA, MA 01862  
508.649.5010

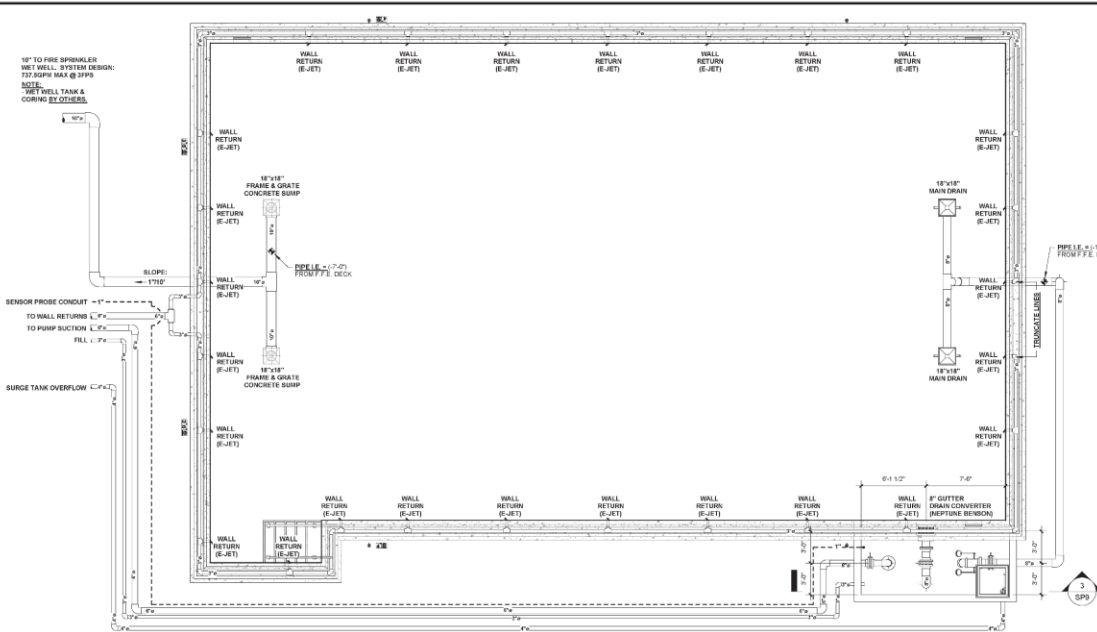
## Revisions

### SITE PLUMBING LAYOUT

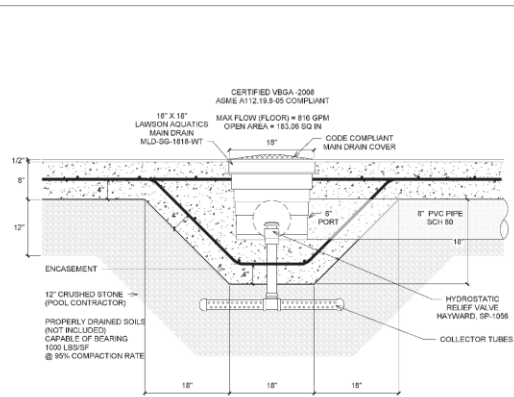
SCALE: As indicated

## SP8.1

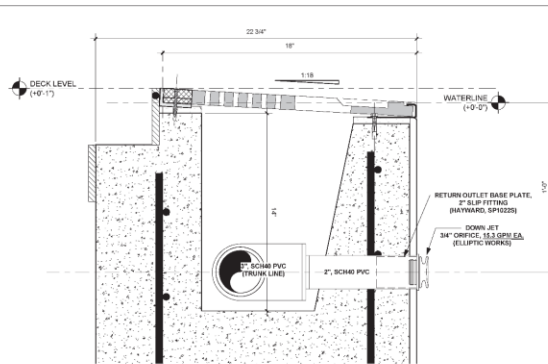
# PLUMBING PLAN AND DETAILS



① LAP POOL PLUMBING LAYOUT  
3/16" = 1'-0"

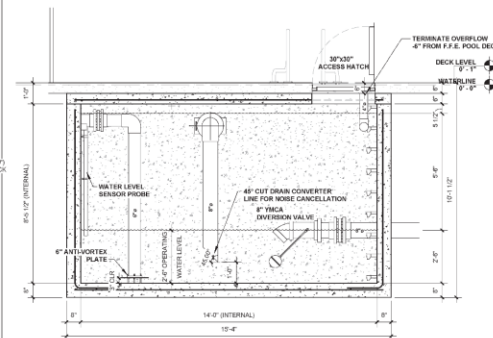


② 18"x18" MAIN DRAIN DETAIL (W/ HYDRO)  
1" = 1'-0"

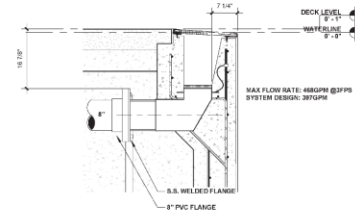


5 E-JET WALL RETURN - SECTION DETAIL  
3" = 1'-0"

**SURFACE AREA OF POOL: 3,422 SQ FT**  
(MIN. 1 GALLON PER EACH SQ. FT. OF POOL WATER SURFACE AREA  
TO ACCOMMODATE A SUDDEN CHANGE FROM ZERO BATHERS TO MAX. OCCUPANCY)  
- **NORMAL OPERATING LEVEL:**  $(6' \times 14' \times 2.5') \times 7.48 \text{ gal/cf} = \underline{\underline{1,570.8 \text{ GALLONS}}}$   
- **AVAILABLE VOLUME FOR SURGE:**  $(6' \times 14' \times 5.5') \times 7.48 \text{ gal/cf} = \underline{\underline{3,455.8 \text{ GALLONS}}}$   
- **TOTAL SURGE TANK VOLUME:** 5,027.6 GALLONS

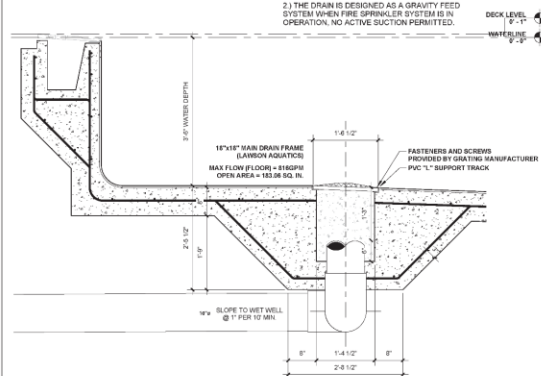


③ SURGE TANK CROSS SECTION  
3/8" = 1'-0"



4 STAINLESS STEEL GUTTER DRAIN CONVERTER  
3/4" = 1'-0"

**NOTE:**  
1.) GRATE WILL BE ELEVATED A DISTANCE NO LESS THAN 1.5 TIMES THE PIPE DIAMETER.  
2.) THE DRAIN IS DESIGNED AS A GRAVITY FEED SYSTEM WHEN FIRE SPRINKLER SYSTEM IS IN OPERATION, NO ACTIVE SUCTION PERMITTED.



⑥ WET WELL DRAIN - SECTION DETAIL  
3/4" = 1'-0"

**Proprietary and Confidential**

**South Shore Gunite  
Pools & Spas, Inc.**

**12 Esquire Road  
Billerica, MA 01862  
800.649.8080**



Engineer's Stamp

**Project**

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**Project**

## Revisions

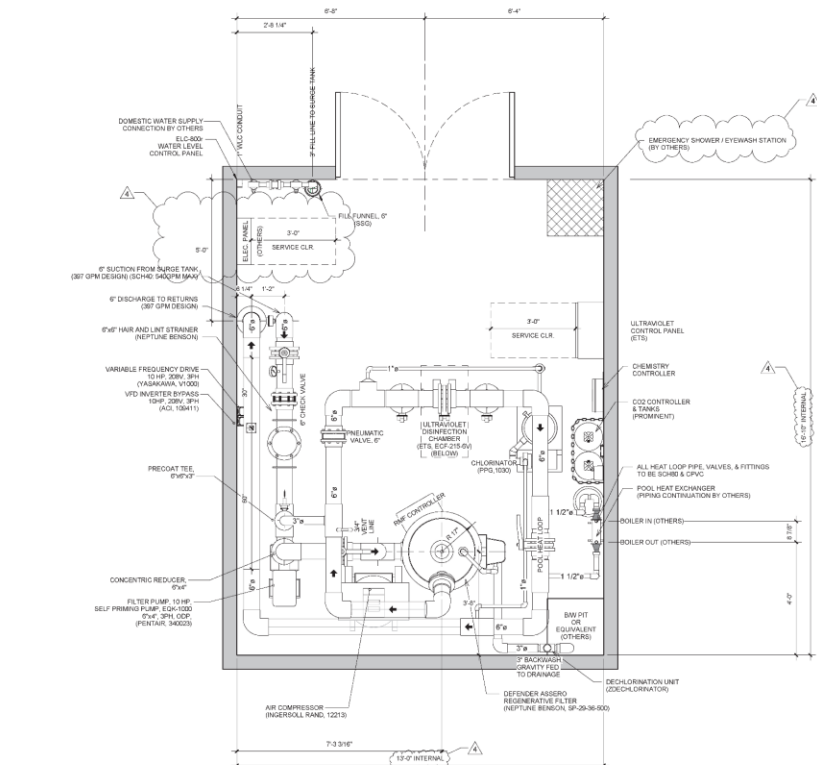
## LAP POOL PLUMBING LAYOUT

SCALE: As indicated

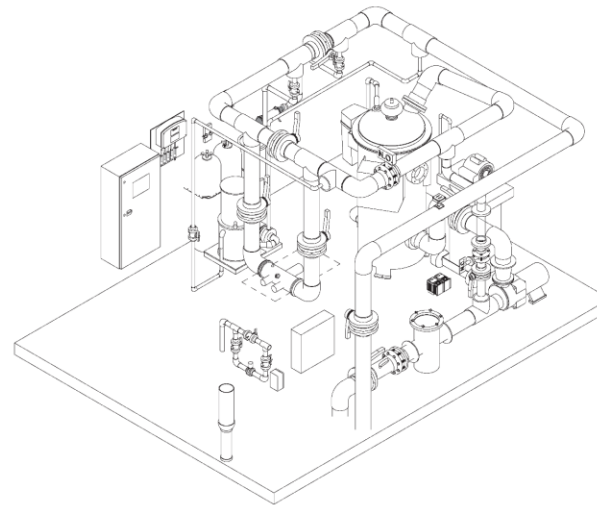
SP9



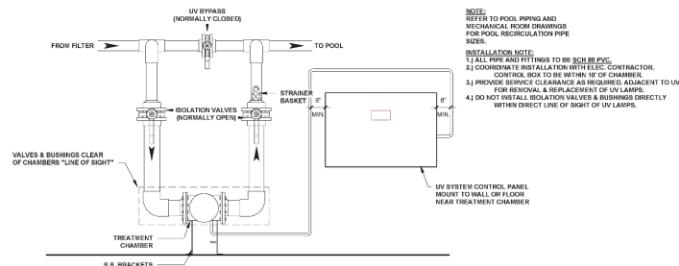
# MECHANICAL EQUIPMENT



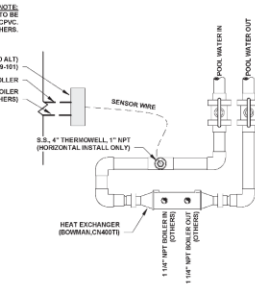
① POOL MECHANICAL ROOM  
1/2" = 1'-0"



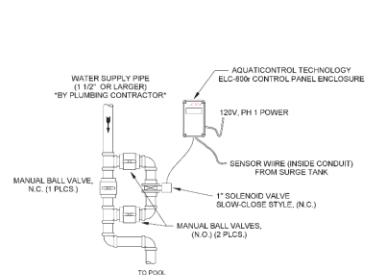
② MECHANICAL ROOM AXONOMETRIC (FOR REFERENCE ONLY)



⑤ TYPICAL UV DISENFECTION LOOP  
1/2" = 1'-0"



③ HEAT EXCHANGER & THERMO-WELL DETAIL  
1" = 1'-0"



4 WATER LEVEL CONTROLLER DETAIL - ACT  
1" = 1'-0"

Proprietary and Confidential

**South Shore Gunite Pools & Spas, Inc.**

**12 Esquire Road  
Rumney, NH 03063**

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**South Shore Gunitite  
Pools & Spas, Inc.**

**12 Esquire Road  
Billerica, MA 01862  
800.649.8080**

Engineer's Stamp

Project

**Pool Contractor**  
SOUTH SHORE GUNITE  
12 ESQUIRE ROAD  
MILLERICA, MA 01862  
508.649.8080

Revisions

POOL MECHANICAL ROOM

SCALE: As indicated

SP10

# POOL SPECIFICATIONS

[illegible]

POOL RECIRCULATION FLOW RATE:	397	# OF	SIZE & SCHEDULE	MAX ALLOWABLE FLOW RATE
MAIN DRAIN TO SURGE	397	X1	8" PVC SCH 80	3FPS = 427 GPM
GUTTER TO SURGE	397	X1	8" PVC SCH 40	3FPS = 468 GPM
SURGE TO FILTER	397	X1	8" PVC SCH 40	6FPS = 540 GPM
RETURN	397	X1	8" PVC SCH 40	10FPS = 900 GPM

[illegible][illegible][illegible]

VALUES & QUOTIES				MANUFACTURER	MODEL #
ITEM #	QTY	DESCRIPTION			
140	3	2" BUTTERFLY VALVE, POOL PUMP TYPE SF, LEVER OPERATED SECTION, PUMP DISCHARGE, RETURN(S)	ASHAI	173080	
141	1	1" BUTTERFLY VALVE, POOL PUMP TYPE SF, LEVER OPERATED SECTION, PUMP DISCHARGE, RETURN(S)	ASHAI	173080	
142	1	1" PRESSURE VALVE, PUMP DISCHARGE, RETURN(S)	GEORGE FISCHER	906817	
143	1	1" PUMP BALL VALVE, TRUE LINE, ISOCHRONOUS, 1/2" NPT, WATER SERVICE	GEORGE FISCHER	161 353 004	
144	1	1" PUMP BALL VALVE, TRUE LINE, ISOCHRONOUS, 1/2" NPT, WATER SERVICE	GEORGE FISCHER	161 353 004	
145	2	1" PUMP BALL VALVE, TRUE LINE, ISOCHRONOUS, 1/2" NPT, WATER SERVICE	GEORGE FISCHER	161 353 004	
146	2	1" PUMP BALL VALVE, TRUE LINE, ISOCHRONOUS, 1/2" NPT, WATER SERVICE	GEORGE FISCHER	161 353 004	
147	4	1" PUMP BALL VALVE, TRUE LINE, ISOCHRONOUS, 1/2" NPT, WATER SERVICE	GEORGE FISCHER	161 353 004	
148	2	1" PUMP BALL VALVE, TRUE LINE, ISOCHRONOUS, 1/2" NPT, WATER SERVICE	GEORGE FISCHER	161 353 004	
149	2	1" PUMP BALL VALVE, TRUE LINE, ISOCHRONOUS, 1/2" NPT, WATER SERVICE	GEORGE FISCHER	161 353 004	
150	2	1" PUMP BALL VALVE, TRUE LINE, ISOCHRONOUS, 1/2" NPT, WATER SERVICE	GEORGE FISCHER	161 353 004	
151	2	1" PUMP BALL VALVE, TRUE LINE, ISOCHRONOUS, 1/2" NPT, WATER SERVICE	GEORGE FISCHER	161 353 004	
152	2	1" PUMP BALL VALVE, TRUE LINE, ISOCHRONOUS, 1/2" NPT, WATER SERVICE	GEORGE FISCHER	161 353 004	
153	2	1" PUMP BALL VALVE, TRUE LINE, ISOCHRONOUS, 1/2" NPT, WATER SERVICE	GEORGE FISCHER	161 353 004	
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155	2	1" PUMP BALL VALVE, TRUE LINE, ISOCHRONOUS, 1/2" NPT, WATER SERVICE	GEORGE FISCHER	161 353 004	
156	2	1" PUMP BALL VALVE, TRUE LINE, ISOCHRONOUS, 1/2" NPT, WATER SERVICE	GEORGE FISCHER	161 353 004	
157	4	1" PUMP BALL VALVE, TRUE LINE, ISOCHRONOUS, 1/2" NPT, WATER SERVICE	GEORGE FISCHER	161 353 004	
158	2	1" PUMP BALL VALVE, TRUE LINE, ISOCHRONOUS, 1/2" NPT, WATER SERVICE	GEORGE FISCHER	161 353 004	
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163	2	1" PUMP BALL VALVE, TRUE LINE, ISOCHRONOUS, 1/2" NPT, WATER SERVICE	GEORGE FISCHER	161 353 004	
164	2	1" PUMP BALL VALVE, TRUE LINE, ISOCHRONOUS, 1/2" NPT, WATER SERVICE	GEORGE FISCHER	161 353 004	
165	2	1" PUMP BALL VALVE, TRUE LINE, ISOCHRONOUS, 1/2" NPT, WATER SERVICE	GEORGE FISCHER	161 353 004	
166	2	1" PUMP BALL VALVE, TRUE LINE, ISOCHRONOUS, 1/2" NPT, WATER SERVICE	GEORGE FISCHER	161 353 004	
167	4	1" BUTTERFLY VALVE, POOL PUMP TYPE SF, LEVER OPERATED (OV)	ASHAI	173080	

DECK EQUIPMENT				
ITEM #	QTY	DESCRIPTION	MANUFACTURER	MODEL #
100	2	STAIN BRASS, 5.5" (19" X 19")	SPECTRUM	CUSTOM
101	3	STAIN BRASS PAIN, CISO, 30" X 1/4" X 109", SS	SPECTRUM	SS50 STOCK
102	12	RECESSED STEPS, BLACK WHITE	PENTAIR	
103	1	BRASS DECK ANCHOR, 6" DEPTH, 1" ID	PERMA-CAST	PM-4000
104	16	DECK TIE-ONS, BRASS, 1/2"	SPECTRUM	24 20
105	1	ADA ACCESSIBLE LIFT, SCOUT 2, 19" X 30" 6" BACK	AQUA CREEK	F-4000262
106	1	ADA ACCESSIBLE LIFT, SCOUT ANCHOR, 6" DEPTH, 1.99" ID	AQUA CREEK	F-4000261
107	1	ADA ACCESSIBLE LIFT, SCOUT ANCHOR, 6" DEPTH, 1.99" ID	AQUA CREEK	F-4000261
108	1	ADA ACCESSIBLE LIFT, SCOUT ANCHOR, 6" DEPTH, 1.99" ID	AQUA CREEK	F-4000261

COMPETITOR EQUIPMENT				
ITEM #	QTY	DESCRIPTION	MANUFACTURER	MODEL #
101	1	ANCHOR 3/4"X10"X6" 55.1 FT. 1.8 TON, INCLUDES BOLT SET	SPECTRUM	2011
102	4	ANCHOR ANCHOR ASSEMBLY, 1.8 TON, INCLUDES 1/2"X10"X6" BOLT SET	SPECTRUM	2008A
103	1	ANCHOR SOLE, 1.8 TON, INCLUDES 1/2"X10"X6" BOLT SET	SPECTRUM	2008A
104	1	PERMANENT GEAR, REDWOOD, VARY, HEAVY DUTY, 1200#	MICRODRIPS	2004
105	1	PERMANENT LIFT, 20 TON, 1000# PER MIN, 10 FT., 1/2"X10"X6" BOLT SET, 1/2"X10"X6" BOLT SET FINISHED	MICRODRIPS	2004
106	1	ANCHOR 3/4"X10"X6" 55.1 FT. 1.8 TON, INCLUDES BOLT SET	MICRODRIPS	2011
107	5	GRAVELLY STARTING BLOCK, 18"X18"X18" PLATFORM	COMPETITOR	21000
108	5	GRAVELLY STARTING BLOCK, 18"X18"X18" PLATFORM	SPECTRUM	21100
109	5	GRAVELLY ANCHOR SET, 18"X18"X18" PLATFORM	SPECTRUM	21100
110	1	ANCHOR 3/4"X10"X6" 55.1 FT. 1.8 TON, INCLUDES BOLT SET	COMPETITOR	20000
111	1	RACING LANE STARTING BLOCK, 18"X18"X18" PLATFORM	COMPETITOR	20000000
112	1	RACING LANE STARTING BLOCK, 18"X18"X18" PLATFORM	COMPETITOR	20000000
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200	1	RACING LANE STARTING BLOCK, 18"X18"X18" PLATFORM	COMPETITOR	20000000

[illegible][illegible]

FIRE SPRINKLER WET WELL				
ITEM#	QTY	DESCRIPTION	MANUFACTURER	MODEL #
190	1	SET OF TWO (2) MAIN DRAIN COVERS, 18"X18", WHITE, FLOOR FLOW RATE: 816 GPM MAX	LAISON AQUATICS	
194	1	1/2" FITTING, 1/2" X 1/2" X 1/2"	LAISON AQUATICS	

### GENERAL NOTES AND SPECIFICATIONS

1. This pool(s) complies with all local, state, and federal codes that apply to swimming pools to be constructed in Blue Hill, ME.
2. All construction work shall conform to the rules and regulations of the current edition of The State of Maine Building Code.
3. All work is to be performed in strict compliance with OSHA work regulations, and any and all safety equipment required for the execution of the work shall be diligently completed.
4. All equipment must have NSF and/or UL labels. All equipment shall be installed by qualified personnel in accordance with the manufacturer's instructions for the appropriate application.
5. Depth markers shall be placed at a minimum of 10' intervals and shall be placed to be permanently attached to the deck and the sides of the pool above the water line at the locations shown on the plan.
6. **NO DIVING** signs must be posted at both sides and ends of the pool in 4" or larger letters where diving is prohibited by the local health department.

STRUCTURAL NOTES:

1. Subsurface conditions are to be as follows:
  - Properly grade and compact all subsurface base areas.
  - Refer to Civil/Architectural Spec sections regarding structural fill (suitable material).
  - In the absence of specifications by others, meeting the requirements of ASTM C33, use backfill as follows:
    - From grade to "24" below grade, processed gravel, stone size #4 (24") diameter
    - From "24" below grade to base of wall, screened gravel, stone size #4 (24") up to 3" diameter.
    - Installed lifts not to exceed 8", compacted to achieve 95% compaction rate
    - Presumptive allowable net bearing pressure at bottom of pool elevation shall be 2,000 PSF or greater.
  - (NOT INCLUDED) "SOLE RESPONSIBILITY BY OTHERS"
2. Shotcrete is to be placed pneumatically and is to have 28-day strength in excess of 4000 psi. Shotcrete is to be placed by qualified and certified installers. Backfill against the pool walls shall not be placed until 14 days after the completion of the Shotcrete work.
3. Reinforcing steel shall be galvanized. Shotcrete and galvanized steel is to be bent and cut as required at the site. All splices shall be lapped a minimum of 40 bar diameters. Wire chair supports and/or plain concrete brick shall be used to maintain the proper cover per the details herein. Installation shall be in accordance with the recommendations of ACI and/or CRSI.
4. SHOTCRETE QUALITY CONTROL: Shotcrete: Barbed Steel; Item Number: C21025-H-V0X; Coverage: 400 SF per gallon. It is imperative that only nozzlemen certified by the AMERICAN CONCRETE INSTITUTE (ACI) are utilized. To further enhance performance and to have basis of qualifications and quality, the ACI has provided guidelines in the form of:
 

ACI 506R-90 ACI 506 E-95 ACI 506.3R-91 ACI 506.4R-94 ASTM Designation:	Guide to Shotcrete Specifications for Shotcrete Guide to Certification of Shotcrete Nozzlemen Guide for the Evaluation of Shotcrete 1604M-05
--	--
6. A suitable waterproofing product may be required prior to tile.

## MECHANICAL NOTES:

1. Piping is to be NSF approved Schedule 40 PVC pipe and fittings, schedule welded after cleaning with solvent cleaner. (Exception, Schedule 80 PVC pipe and fittings at Main Drains. Schedule 40 stub up.)
2. All valves are to be PVDF gate valves, unless noted otherwise. All valves are to be tagged for identification.
3. All piping shall be pressure tested prior to either burial or encasement in concrete.
4. All pressure gauges and flow meters are to be installed so that they are easy to read. Flow meters must be installed and calibrated before start of work. All flow meters are to be installed in accordance with the following:
5. Main drain covers shall comply with ASME 112 19-8-2007, commonly known as Virginia Graeme Baker Pool & Spa Safety Act.
6. Make up water shall be from municipal water supply.
7. DPD chemical residual kit must be kept on hand at all times. Provide colorimetric test kits capable of determining total alkalinity, pH, hardness, and residual disinfectant.
8. pH control for this pool is to be done by a chemical feed system.

ELECTRICAL NOTES:

1. Pool(s) shall be wired and grounded by qualified installers in strict accordance with the latest edition of Article 680 of The National Electric Code.
2. Refer to contract for all electrical and bonding work for the pool. It is the responsibility of others to furnish and install electrical panel(s) in the pool mechanical area. Work shall be coordinated with the work of SSG to meet construction requirements and schedule.
3. Provide electrical interlock between recirculating pump and chemical feed pumps to stop the flow of chemicals should any circulating pump stop.
4. Service outlets in the equipment room and in the pool area shall be GFCI protected as per the NEC.

[illegible]

## MISCELLANEOUS NOTES:

1. Hose bibs with anti-siphon devices may be provided for deck cleaning.
2. The pool owner's responsibilities include, but are not limited to the following:
  - All life saving equipment, and any other required equipment, is to be mounted securely near the pool.
  - Toilet and shower stations shall be provided to serve the new pool(s) in accordance with all pertinent local and state regulations.
  - A sign shall be posted for the pool listing the rules and regulations, hours of operation, bather capacity and emergency telephone numbers including "911".
  - Signs may instruct bathers to use the showers and lavatories before entering the pool complex.

**Proprietary and Confidential**

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**South Shore Gunite  
Pools & Spas, Inc.**

12 Esquire Road  
Billerica, MA 01862  
800.649.8080

Engineer's Stamp

Project

isions

DESIGN DATA & GENERAL  
NOTES

SCALE:

SP11

**ADA LIFT ANCHOR DETAIL - SECTION VIEW**  
1" = 1'-0"

**CUP ANCHOR - SECTION DETAIL**  
1 1/2" = 1'-0"

**GRAB RAIL (26") & RECESSED STEP DETAIL**  
1" = 1'-0"

**STARTING PLATFORM DETAIL - GRIZZLY**  
1" = 1'-0"

**WALL TARGET - ELEVATION DETAIL**  
1/2" = 1'-0"

**STAIR ELEVATION VIEW**  
1/2" = 1'-0"

**BACKSTROKE FLAGS - SECTION DETAIL**  
1/2" = 1'-0"

**RACING LANE TILE DETAIL**  
1/2" = 1'-0"

**STAIR PLAN CALLOUT**  
1/2" = 1'-0"

**DEPTH MARKER DECK PLAN DETAIL**  
1" = 1'-0"

QTY.	DESCRIPTION
2	3' 6" NO DIVING
2	4' NO DIVING
2	4' 6" NO DIVING
2	5' NO DIVING
4	9'

**WATERLINE DEPTH MARKER SCHEDULE**

QTY.	DESCRIPTION
2	3' 6" NO DIVING
2	4' NO DIVING
2	4' 6" NO DIVING
2	5' NO DIVING
4	9'

**DEPTH MARKER & "NO DIVING" TILE SCHEDULE - LAP POOL**  
1 1/2" = 1'-0"

QTY.	DESCRIPTION
2	3' 6" NO DIVING
2	4' NO DIVING
2	4' 6" NO DIVING
2	5' NO DIVING
4	9'

SP12



# Data Sheet

## LAP POOL

POOL SIZE (max dimensions)	45' x 75' 1 1/2"
WATER PERIMETER (ln. ft.)	248'-3"
WATER SURFACE AREA (sq. ft.)	3,422
INTERNAL AREA (sq ft)	4910
POOL WATER VOLUME (gal)	143000
CODE MINIMUM RECIRCULATION TURNOVER TIME (hrs)	6.0
CODE MINIMUM RECIRCULATION FLOW RATE (gpm)	397
DESIGNED RECIRCULATION TURNOVER TIME (mins)	<u>6.00</u>
DESIGNED RECIRCULATION FLOW RATE (gpm)	<u>397</u>
FILTER SURFACE AREA (sq. ft.)	294
FILTRATION RATE (gpm/sq. ft.) (MA CODE: 1.5 gpm/sf max)	1.35
FILTER TANK VOLUME	181
FILTER BACKWASH VOLUME	362

EXCAVATION:	BY OTHERS
GRADING:	BY OTHERS
PLUMBING:	SCH 40 (SEE MECHANICAL NOTE 1)
REINFORCEMENT:	ACI 318
ELECTRICAL:	BY OTHERS
SHOTCRETE:	4,000 PSI
BACKFILL:	BY OTHERS
TILE:	1"X1" OR 2"X2"
INTERIOR FINISH:	PLASTER
POOL EDGE:	GUTTER, HDPE
DECKING:	BY OTHERS
POWER ON SITE:	208/3PH
POOL WATER:	BY OTHERS
POOL DEPTHS:	3'-6" TO 9'-0"
BATHER LOAD	180

POOL RECIRCULATION FLOW RATE:	397	# OF	SIZE & SCHEDULE	MAX ALLOWABLE FLOW RATE
MAIN DRAIN TO SURGE	397	X1	8" PVC SCH 80	3FPS = 427 GPM
GUTTER TO SURGE	397	X1	8" PVC SCH 40	3FPS = 468 GPM
SURGE TO FILTER	397	X1	6" PVC SCH 40	6FPS = 540 GPM
RETURN	397	X1	6" PVC SCH 40	10FPS = 900 GPM

## Data Sheet Information

- Pool Size – feet/inches
- Perimeter- feet
- Surface Area – square feet
- Volume - gallons
- Turnover Rate - hours
- Flow Rate – gpm
- Filter Surface Area - square feet
- Filtration Rate – gpm/sf

## Data Sheet

- Pool Size - Surface Area
- Perimeter – # outlets
- Surface Area – Swim Load, # skimmers
- Volume – Flow Rate, Filter Area, Pipe Size, Velocity
- Turnover Rate – Pool = 6 hours
  - Wading = 4 hours
  - Special Purpose = 0.5 hours
  - Splash Down = 1.0 hours
  - Splash Pad = 0.5 hours
  - 2+ Features = 4 hours



## Data Sheet – Equations

- Flow Rate = Volume / Turnover Rate (6.0 Hours)
- Filtration Rate - Granular Media = 15 gpm/sf  
DE/Perlite = 1.5 gpm/sf  
Cartridge = 0.375 gpm/sf
- Filter Surface Area = Flow Rate/Filtration Rate

# SUMMARY OF CHECKLIST

## (ITEMS NOT REVIEWED IN DETAIL)

Calculations and Reports by Professional Engineer (P.E.)

- PIPE SIZING AND LAYOUT
- PIPE VELOCITY & SYSTEM LAYOUT
  - ADEQUATE SIZING OF PIPE?
  - UNDERSIZED AND ENTRAPMENT ISSUE?
- TOTAL DYNAMIC HEAD OF A SYSTEM
  - WILL THE SELECTION OF THE RECIRCULATION PUMP WORK?

# Data Sheet – Velocity

- Velocity is important now more than ever.
- VGB, Energy
- ISPSC Code:
  - Gravity – 3fps
  - Suction – 6 fps
  - Return – 8 fps

SSG VELOCITY CHART

PIPE SIZE	GRAVITY		SUCTION		RETURNS	
	MAX GPM @ 3 FPS		MAX GPM @ 6 FPS		MAX GPM @ 8 FPS	
	SCH 40	SCH 80	SCH 40	SCH 80	SCH 40	SCH 80
1"	8	6.5	16	13	22	18
1.5"	19	16.5	38	33	51	44
2"	31.5	27.5	63	55	84	74
2.5"	45	39.5	90	79	119	106
3"	69	62	138	124	184	165
4"	119	107.5	238	215	317	287
6"	270	244	540	488	720	650
8"	468	427	936	854	1247	1139
10"	737.5	672	1475	1344	1966	1791
12"	1046.5	950.5	2093	1901	2791	2534

CODE REFERENCE: 2018 INTERNATIONAL SWIMMING POOL AND SPA CODE (ISPSC)





# Code Discrepancy

- 105 CMR: DEPARTMENT OF PUBLIC HEALTH

- (CURRENT 1998) 435.00: MINIMUM STANDARDS FOR SWIMMING POOLS (STATE SANITARY CODE: CHAPTER V)
  - 435.10: Skimming Facilities.
    - (1) All swimming, wading and special purpose pools shall be designed so that approximately **50%** of the recirculation rate shall be drawn from the top surface of the pool.
- **(PROPOSED 2018)** 435.000: MINIMUM STANDARDS FOR SWIMMING POOLS (STATE SANITARY CODE: CHAPTER V)
  - 435.100: Skimming Facilities
    - (1A) All swimming, wading and special purpose pools shall be designed so that approximately **50%** of the recirculation rate shall be drawn from the top surface of the pool.

- 780 CMR Massachusetts State Building Code (9<sup>th</sup> Edition)

- **(January 1<sup>st</sup> 2018)** Chapter 31 Special Construction 3109.1 General. The design and construction of swimming pools, spas and hot tubs shall comply with the ***International Swimming Pool and Spa Code***.
  - ISPSC 2015. Chapter 3 General Compliance. Section 315 Skimmers.
    - 315.2.1 Circulation Systems. Public pool circulation systems shall be designed to process not less than **100%** of the turnover rate through skimmers.



# Interpretations of Code

- Proposed Code Verbiage – Local Adoption

- **(PROPOSED 2018)** 105 CMR: DEPARTMENT OF PUBLIC HEALTH, 435.000: MINIMUM STANDARDS FOR SWIMMING POOLS (STATE SANITARY CODE: CHAPTER V)
  - 435.010: Definitions:
    - Swimming Pool means and includes every artificial pool of water having a depth of two feet or more at any point and used for swimming ..
      - ❖ (2) swimming pools constructed on or after May 1, 2017- once every six hours;
      - ❖ (7) pools with more than two aquatic play features – once every four hours.
    - Splash Pad means a recreational area with aquatic play features and/or interactive fountains designed primarily for children that maintains a shallow water depth of recirculated water not meant for swimming.
      - ❖ (6) splash pads – once every ½ hour

- Interpretation: +/- 1" of water

- 24" or greater & 2 or more features = swimming pool with a 4-hour turnover
  - 2,000sf @ 2' depth = 30,000 gallons @ 4 hour turnover = 125 gpm
    - **(3 HP pump, 3" & 4" pipe)**
- Less than 24" & 2 or more features = splash pad with a ½ hour turnover
  - 2,000sf @ 1'11" depth = 29,000 gallons @ 30 min turnover = 966 gpm
    - **(20 HP pump, 10" & 8" pipe)**





Questions ?