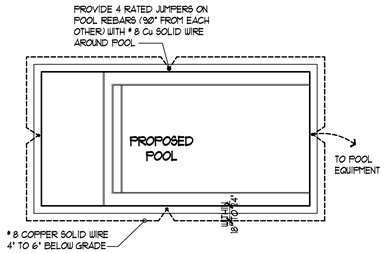
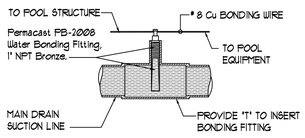


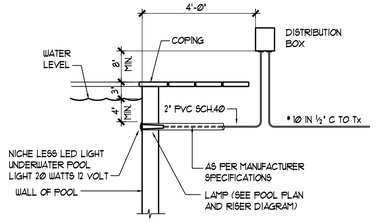
EQUIPOTENTIAL BONDING DETAIL

680.26 N.E.C. 2020 EDITION
ALTERNATE EQUAL POTENTIAL BONDING GRID OF ONE # 8 SOLID COPPER PLACED 18" TO 24" FROM THE INSIDE EDGE OF POOL ENCOMPASSING 360 DEGREES WITH 4 EQUAL BONDING POINTS TO THE POOL STEEL. THE EQUAL POTENTIAL BONDING NEEDS TO BE 4' TO 6' BELOW THE SUBGRADE AND SECURED IN PLACE
(All the components that are part of it for this specific design according NEC-2020 article 680.26 (a), (b) & (c) requirements)

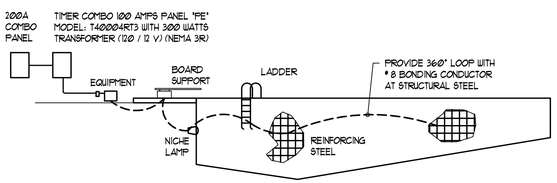


INTENTIONAL BONDING DETAIL

2020 N.E.C. 680-26(C) POOL WATER. AN INTENTIONAL BOND OF A MINIMUM CONDUCTIVE SURFACE AREA OF 5800 MM2 (9 IN2) SHALL BE INSTALLED IN CONTACT WITH THE POOL WATER. THIS BOND SHALL BE PERMITTED TO CONSIST OF PARTS THAT ARE REQUIRED TO BE BONDED IN 680.26(B).



UNDERWATER LAMP DETAIL



N.E.C. 2020 EDITION CHAPTER 680-25

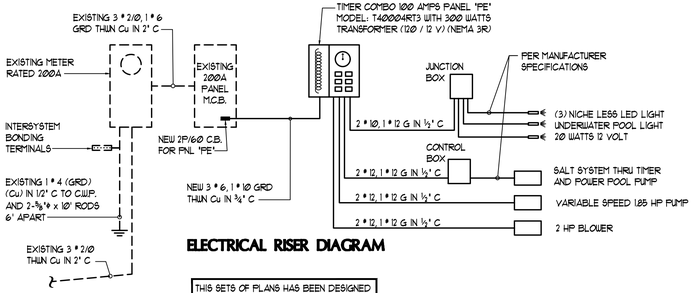
(A) Wiring Methods. Feeder conductors to panel boards containing permanently installed pool, outdoor spa, or outdoor hot tub equipment circuits must be installed in rigid metal conduit, intermediate metal conduit, liquid tight flexible nonmetallic conduit, or PVC conduit. Electrical metallic tubing is permitted where installed on or within a building, and electrical nonmetallic tubing is permitted where installed within a building.
Exception: Branch circuits for permanently installed pool, outdoor spa, or outdoor hot tub equipment can originate from an existing panel board where the existing feeder contains an equipment grounding conductor within the outer sheath of a cable.
(B) Equipment Grounding Conductor. An insulated copper or aluminum equipment grounding conductor must be installed with the feeder conductors between the grounding terminal of the pool, outdoor spa, or outdoor hot tub equipment panel board and the grounding terminal of the applicable service equipment

ELECTRICAL NOTES:

1. ALL ELECTRIC WIRING SHALL BE IN ACCORDANCE WITH NEC-NFPA-70-2020-680
2. PROVIDE GROUND WIRE SYSTEMS LOOP WITH # 8 COOPER WIRE FOR THE POOL DECK WIRE MESH AND STRUCTURAL STEEL.
3. ALL WIRING SHALL BE COPPER THWN
4. ALL SWIMMING POOL EQUIPMENTS SHALL BE THRU GFCI BREAKER (NEC 680.22(b))
5. CONTRACTOR SHALL ESTABLISH LOCATIONS OF UTILITIES AT THE SITE. MINIMUM CLEARANCE DIMENSIONS SHALL BE HELD AND SHALL BE AS REQUIRED BY THE LOCAL REGULATORY AGENCY IN GENERAL, HOLD A DISTANCE OF 10 FEET FROM OVERHEAD ELECTRIC LINES TO OPEN POOL WATER EDGE AND 5 FEET FROM UNDERGROUND ELECTRIC LINES.
6. ELECTRICAL EQUIPMENT- METAL PARTS OF ELECTRICAL EQUIPMENT ASSOCIATED WITH THE POOL WATER CIRCULATING SYSTEM, INCLUDING PUMP MOTORS AND METAL PARTS OF EQUIPMENT ASSOCIATED WITH POOL COVERS, INCLUDING ELECTRIC MOTORS, SHALL BE BONDED. EXCEPTION: METAL PARTS OF LISTED EQUIPMENT INCORPORATING AN APPROVED SYSTEM OF DOUBLE INSULATION SHALL NOT BE BONDED. (NEC 680.26.5.)
7. POOL MOTORS REQUIRE OVERLOAD PROTECTION TO COMPLY WITH NEC 430.32 AND MUST BE PROVIDED WITH GFCI PROTECTION PER NEC 680.21(C.)
8. BURIAL DEPTH OF ELECTRICAL CONDUIT AND GROUNDING WIRES TO COMPLY WITH NEC 300-5 TABLE. PROTECT THE GROUNDING WIRE WHERE SUBJECT TO DAMAGE.
9. ALL JUNCTION BOXES , EQUIPMENT, LIGHTING, ECT SHALL BE UL LISTED
10. METAL WIRING METHODS AND EQUIPMENT, METAL SHEATHED CABLES AND RACEWAYS, METAL PIPING, AND ALL FIXED METAL PARTS THAT ARE WITHIN THE FOLLOWING DISTANCES OF THE POOL, EXCEPT THOSE SEPARATED FROM THE POOL BY A PERMANENT BARRIER, SHALL BE BONDED.
    (a) WITHIN 1.5 M (5 FT) HORIZONTALLY OF THE INSIDE WALLS OF THE POOL
    (b) WITHIN 3.7 M (12 FT) MEASURED VERTICALLY ABOVE THE MAXIMUM WATER LEVEL OF THE POOL, OR ANY OBSERVATION
11. AT LEAST ONE GFCI PROTECTED, 125v RECEPTACLE OUTLETS REQUIRED BETWEEN 6' AND 20'OF THE INSIDE WALL OF THE POOL NEC 680.22 (A) (1)
12. LIGHTING OUTLETS MUST BE LOCATED A MINIMUM OF 5 FEET FROM THE INSIDE WALL OF A POOL OR MOUNTED A MINIMUM 12 FEET ABOVE THE MAXIMUM WATER LEVEL. NEC 680.22 (B) (1)
13. OVERHEAD CONDUCTORS ARE NOT BE PERMITTED OVER THE POOL OR WITHIN 10 FEET HORIZONTALLY FROM THE EDGE OF THE POOL FBC 424.2.1.1.9
14. WHEN USING EXIT ALARMS SHALL COMPLY WITH THE PROVISIONS OF FBC 424.2.1.1.9, DOORS AND WINDOWS REQUIRE PROTECTION. ALARM MUST BE CONTINUOUS WHEN DOOR OR WINDOW IS OPEN
15. ALL METAL PARTS WITHIN 5 FEET OF THE POOL MUST BE BONDED TO A COMMON BONDING GRID NEC 680-26 (B) (5)
16. A CONDUCTIVE ELEMENT THAT IS PART OF THE POOL BONDING SYSTEM MUST BE IN DIRECT CONTACT WITH THE POOL WATER IN THE ABSENCE OF RAILS, LADDERS OR NICHES, A WATER BONDING SHALL MEET THE REQUIREMENTS NEC 680-25 (C.)
17. THE EQUIPMENT GROUNDING CONDUCTORS MUST BE A MINIMUM 12 AWG COPPER NEC 680-21 (C), 680-23 (F), 680-25 (B) (1)

Completion Requirements 2023 EC FBC 8th EDITION

C4.05.5.4.1 Drawings.
Construction documents shall require that within 30 days after the date of system acceptance, record drawings of the actual installation shall be provided to the building owner, including:
1.a single-line diagram of the building electrical distribution system and 2.floor plans indicating location and area served for all distribution.
C4.05.5.4.2 Manuals.
Construction documents shall require that an operating manual and maintenance manual be provided to the building owner. The manuals shall include, at a minimum, the following:
1.Submittal data stating equipment rating and selected options for each piece of equipment requiring maintenance.
2.Operation manuals and maintenance manuals for each piece of equipment requiring maintenance. Required routine maintenance actions shall be clearly identified.
3.Names and addresses of at least one qualified service agency.
Note: Enforcement agencies should only check to be sure that the construction documents require this information to be transmitted to the owner and should not expect copies of any of the materials.



ELECTRICAL RISER DIAGRAM

THIS SETS OF PLANS HAS BEEN DESIGNED UNDER 680.26 N.E.C. 2020 EDITION AND RESIDENTIAL 2023 FBC 8th EDITION

EXISTING 200A SERVICE ELECTRICAL CALCULATIONS

TOTAL AREA: 1,958 SQFT.

3W / SQFT.	5.87	KW
MICROWAVE	1.2	KW
APPLIANCES	3.0	KW
DISHWASHER	1.0	KW
GARBAGE DISPOSAL	1.0	KW
HOOD	0.5	KW
CLOTHES WASHER	1.5	KW
DRYER	5.0	KW
WATER HEATER	4.5	KW
REFRIGERATOR	1.0	KW
RANGE	12.0	KW
OTHER LOADS	2.5	KW
POOL PANEL "PE"	3.86	KW
TOTAL CONNECTED LOAD =	42.93	KW
FURTHER DEMAND		
FIRST 10.0 KW @ 100%	10.0	KW
REST @ 40%	13.17	KW
A/C @ 100 %	10.0	KW
TOTAL DEMAND LOAD =	33.17	KW

33.17 KW / 240 v = 139 AMPS

EXISTING ELECTRICAL SERVICE HAS ENOUGH CAPACITY TO HANDLE ALL ELECTRICAL LOADS ADDED

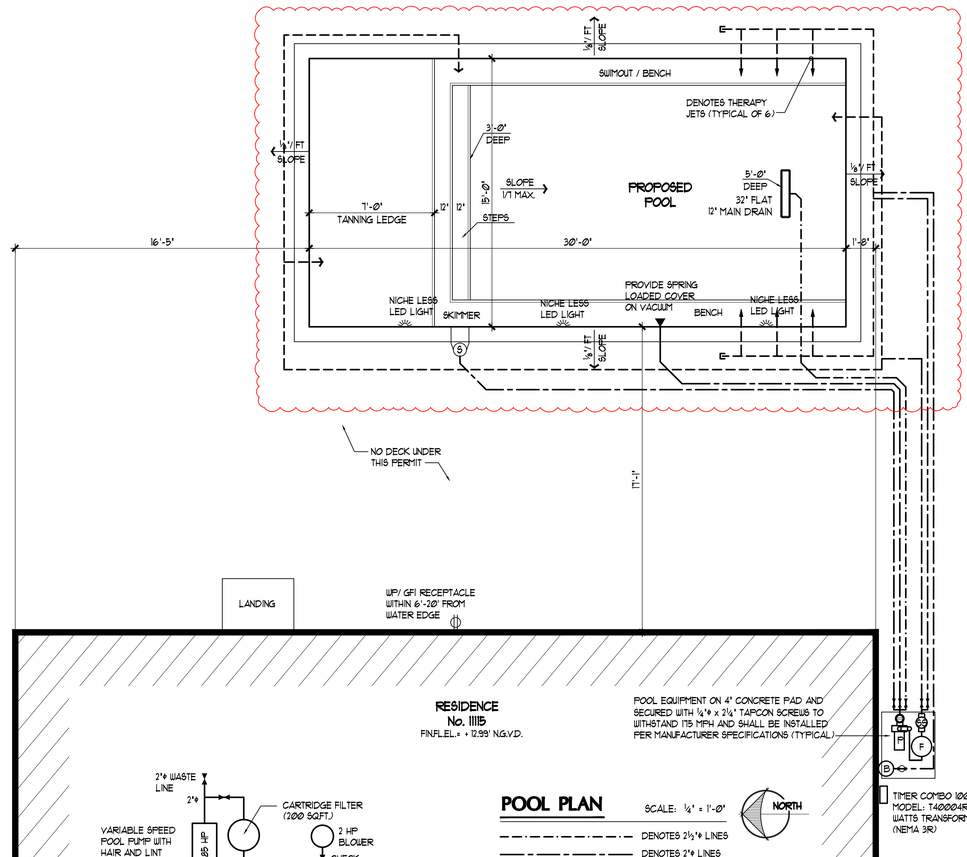
ELECTRICAL DATA NEW 100A PANEL "PE"

FEEDER: THRU 2P/60A IN 200A PANEL WITH 3 # 6, 1 # 10 THUN Cu IN ¾" C — 120 / 240V 1Φ 3W NEMA 3R

CKTS	SERVES	C.B.	P	KW	WIRE - COND.
CKT- 1, 3	POOL PUMP (GFCI)	20	2	2.23	# 12 - 1/2" C
CKT- 2, 4	BLOWER (GFCI)	20	2	1.32	# 12 - 1/2" C
CKT- 5	POOL LIGHTS (GFCI)	20	1	0.3	# 12 - 1/2" C

3.86 KW @ 100% / 240v = 16 AMPS

(GFCI) GROUND FAULT CIRCUIT INTERRUPTER



POOL PLAN

SCALE: ¼" = 1'-0"

NORTH

DENOTES 2½"ø LINES
DENOTES 2"ø LINES
DENOTES 1½"ø LINES

PIPING DIAGRAM

WATER VELOCITY TO COMPLY 2023 FBC 8th EDITION R.45.01.6.3 AND ANSI INSPI-5 2003-9.2

IMPORTANT SAFETY NOTES:

1. DO NOT USE OR OPERATE POOL OR SPA IF THE SUCTION INLET FITTING IS MISSING, BROKEN, OR LOOSE.
2. VACUUM SHALL BE EQUIPPED WITH SELF-CLOSING SAFETY COVER REQUIRING TOOLS FOR REMOVAL
3. ENTRAPMENT PROTECTION DESIGN CRITERIA AND INSTALLATION IN ACCORDANCE WITH ANSI/APSP/ICC 2013 FBC-R 8th EDITION 45.01.6.1/R45.01.6.6

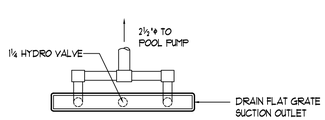
POOL DATA & EQUIPMENT

SIZE & DEPTH	15' x 30'	3' TO 5'
CAPACITY	9,669 GALLONS	
PERIMETER/AREA	90 L.F. / 450 SQFT.	
PUMP *	1.85 HP. (VARIABLE SPEED)	
FILTER *	CARTRIDGE (200 SQFT.)	
TILE	6" CHOICE	
TYPE OF PATIO	SLIP RESISTANT	
EXIT RAILINGS	-	
COPING	STONE	
TURNOVER	1.9 HOUR	

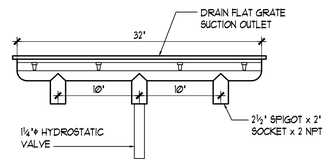
* 9,669 GALLONS RE-CIRCULATED IN 1.9 HOUR 200 SQFT. FILTER AREA @ 1 GPM / SQFT FILTER RATED AND 1.85 HP RE-CIRCULATION POOL PUMP 1 PHASE, 230V, 84 GPM @ 50' TDH

PLUMBING NOTES:

1. ALL POOL AND EQUIPMENT PIPING SHALL BE SCHEDULE 40, PVC-PW, NON-THREADED, NSF APPROVED SUPPORTED CONTINUOUSLY ON GROUND OR ON MAXIMUM 4'-0" CENTERS WITH CLEVIS HANGERS.
2. ALL SUCTION PIPING SHALL BE 2" DIAMETER AND ALL PRESSURE PIPING 1 1/2" DIAMETER UNLESS OTHERWISE NOTED.
3. POOL WATER DISPOSAL SHALL BE IN ACCORDANCE WITH LOCAL BUILDING DEPARTMENT REQUIREMENTS.
4. ANTI VORTEX MAIN DRAIN SHALL HAVE ITS PLATE SECURELY FASTENED WITH TAMPERPROOF SCREWS.
5. POOL VACUUM SHALL HAVE SPRING LOADED CAP IN ACCORDANCE WITH THE FLORIDA BUILDING CODE.
6. ALL PIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE-PLUMBING SECTION 309.
7. THE WATER VELOCITY THROUGH ALL SUCTION PIPING SHALL BE LESS THAN 8 FEET PER SECOND.
8. THE WATER VELOCITY THROUGHOUT ALL PRESSURE PIPING SHALL BE LESS THAN 10 FEET PER SECOND.
9. ALL PIPING SHALL BE SUITABLE FOR EXPOSURE TO ULTRA VIOLET RADIATION AND NORMAL OPERATING TEMPERATURES.
10. VACUUM SHALL BE EQUIPPED WITH SELF-CLOSING SAFETY COVER REQUIRING TOOLS FOR REMOVAL
11. PLUMBER CONTRACTOR SHALL PROVIDE HARTFORD LOOP WHEN BLOWER IS INSTALLED



32" CHANNEL DRAIN FLAT CONNECTION DETAIL



32" CHANNEL DRAIN FLAT DETAIL

MAIN DRAIN OUTLET IS IN COMPLIANCE WITH THE NEW VIRGINIA GRAEME-BAKER POOL & SPA SAFETY ACT (ASME/ANSI A112.19.8A-2008 AND 2013 FBC/B 454.1.6.5.1.02.
MAIN DRAIN WATER VELOCITY TO COMPLY WITH 2023 FBC/B 454.1.6.5.1.02 & FBC/R45.01.6.3.
UNBLOCKABLE DRAIN (NO SECOND SUCTION OUTLET OR BACKUP SVRS REQUIRED

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY OLGA V. CORDERO P.E. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED IN ANY ELECTRONIC COPIES.

REVISIONS	BY
1 12-10-25	RM.
2 01-09-26	RM.

2 01-09-26 POOL HAS BEEN INVERTED

Olga V. Cordero, P.E.
Structural Engineer, P.E. No. 58582
12200 SW 39th Terrace Miami, Fl 33175
olgavictoria@aol.com / Ph: (305) 310-1638

OLGA V. CORDERO LICENSE No. 58582 STATE OF FLORIDA PROFESSIONAL ENGINEER

Olga V Cordero

PROPOSED POOL PLAN FOR:
Michael Anthony Villanueva
LOCATED AT:
11115 SW 78th Court Village of Pinecrest, FL 33156

DRAWN : R.M.G.
CHECKED : O.V.C.
DATE : July '25
SCALE : SHOWN
JOB NO.: 25-107
SHEET 2
OF 2 SHEETS