Grand Effects

Rock Inserts (Automated Operation)

Operating and Maintenance Instructions

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WARNING! If you smell gas, immediately take the following actions:

1. Shut off the gas to the appliance.
2. Extinguish any open flame near the unit.
3. If odor lingers, call your gas supplier.

Do not store or use any gasoline or other flammable vapors and/or liquids in the vicinity of this or any other appliance.

This manual should remain with the homeowner or parties responsible for operation.

Section 1: Gas and Electric Requirements

Input Voltage	120 Vac / 60 Hz to Grand Effects Control Panel	
Output Voltage	12 Vac	
Gas Type	Natural	Propane
Gas Pressure (Nominal)	7″ wc	11″ wc
Gas Flow	1 Bowl System:	60,000-80,000 btu/hr
	2 Bowl System:	120,000-160,000 btu/hr
	3 Bowl System:	180,000-240,000 btu/hr
	4 Bowl System:	240,000-320,000 btu/hr

Note: Check with your gas supplier to verify gas flows and pressures available at the location of your installation. In many cases utility companies will install larger meters at no charge to accommodate larger flows.

Section 2: Installation

WARNING! This unit is for outdoor use only.

Do not install near any combustibles such as wood structures, fuels, clothing, fabrics, or dry vegetation.

A LP gas regulator should never be installed in the rock cavity. It should be installed by a gas expert in a remote location away from the heat source.

Install rock inserts out of the way of pedestrian traffic.

Installation shall be performed by a licensed contractor. All aspects of installation must conform to local or national codes, or in the absence of codes, with Natural Fuel Gas Code ANZI Z223.1.

The control panel and approved gas valve must be located where they can be easily accessible so that the gas can be shut off quickly in case of an emergency.

1. Install the control panel and gas piping as shown in Figure 1: Natural Gas, Figure 2: Propane Gas, or Figure 3: Commercial Installation. Gas lines must be clean and free from any dirt, debris, or contamination.

   Note: Propane piping is different than natural gas piping (shown in Figure 1 and Figure 2).

2. The gas piping must be installed underground between the control panel and each fire bowl, as shown in Figure 1.

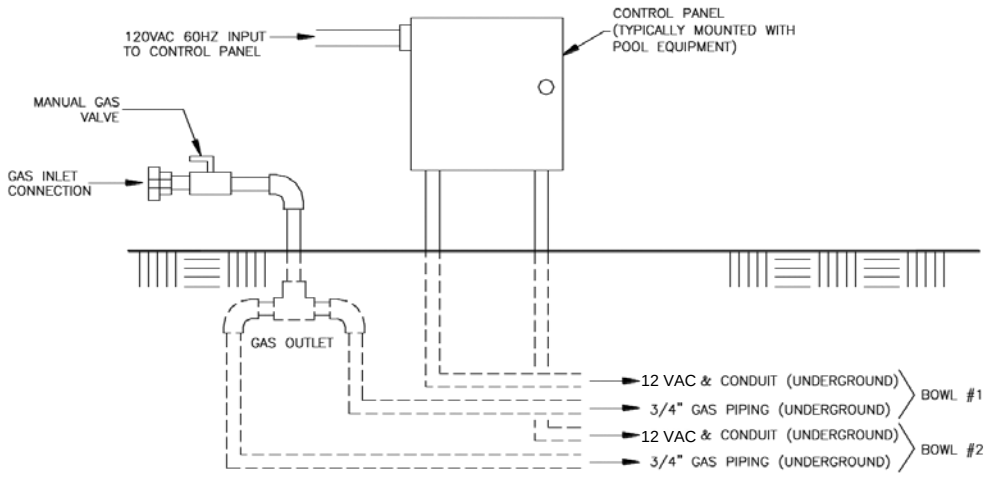


Figure 1: Natural Gas

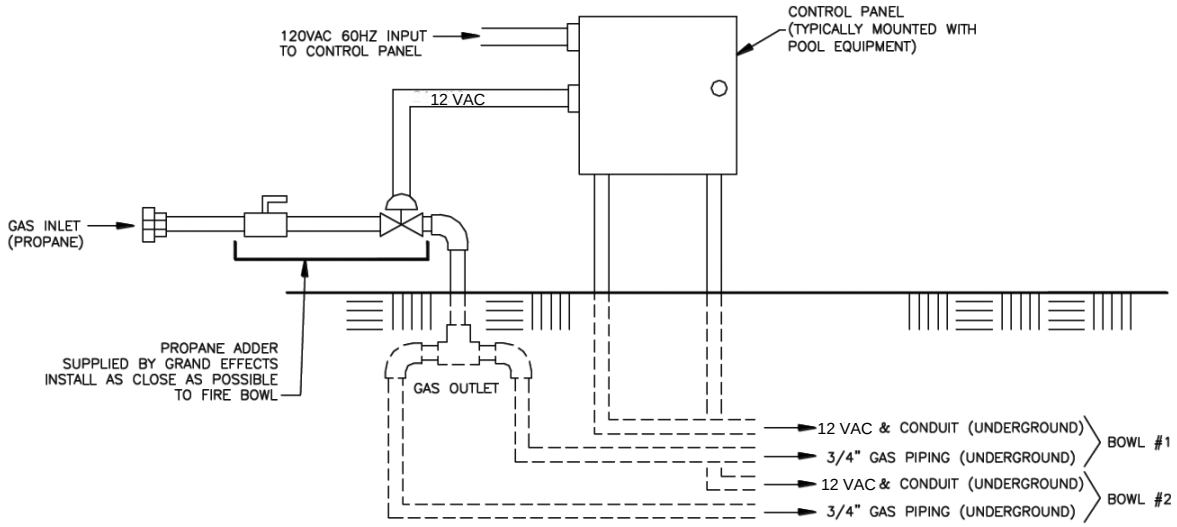


Figure 2: Propane Gas

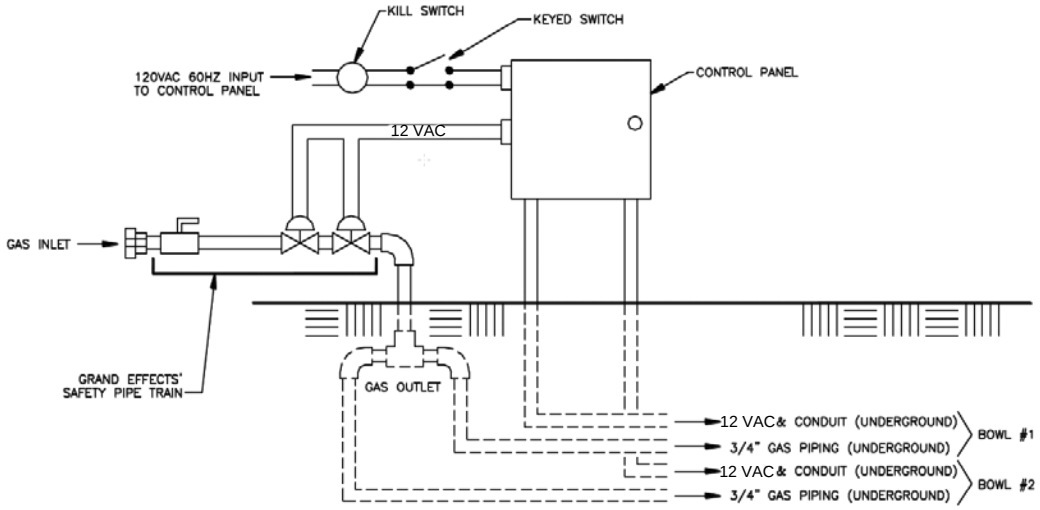


Figure 3: Commercial Installation

3. The piping must be reduced to 1/2″ NPT or larger at each bowl, as shown in Figure 4.

4. At each bowl, install a 90° gas pipe elbow on the gas line for proper installation of a gas hose. Do not kink or make a tight radius bend on the gas hose.

   Note: The gas and electrical connection at each bowl must be located at the center of each bowl. The connections must be installed as shown in Figure 4.

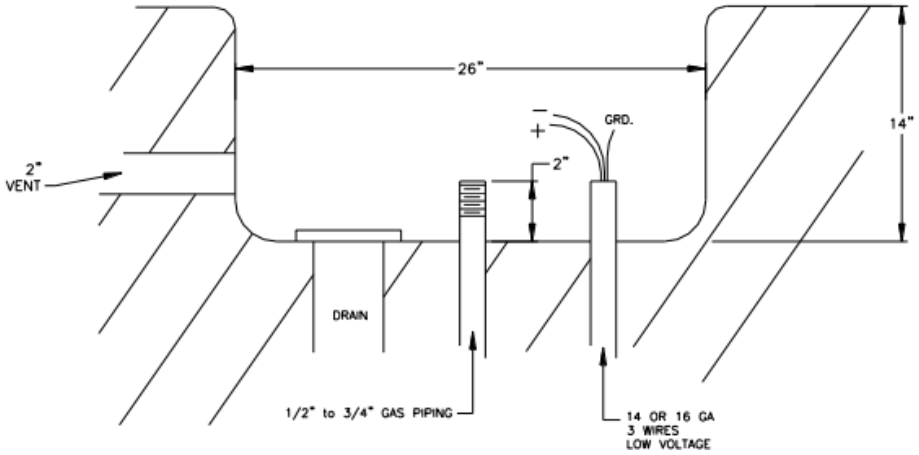


Figure 4: Space Required for Model 100 Burner Assembly in Rock Cavity

5. Install low voltage wiring (14 or 16 ga. 12VAC) underground between the control panel and each bowl. Wire per Grand Effects wiring diagram. 120v source into the control panel can come from any 120v source, including auxiliary relay from the pool controller or home system. Typically, the pool controller is the device that turns the unit on and off. If a pool controller is not available, Grand Effects can provide a hand held remote system or an electrician can wire a decorative switch for on/off control up stream of the Grand Effects Control Panel.

6. Maintain good piping practice by keeping pipe length and elbows to a minimum to eliminate unnecessary pressure drops. Corrugated flex gas lines should not be used.

7. Gas and electric should be centered in the middle of the column.

8. On commercial installations, it is recommended to install a keyed switch and kill switch located in close proximity and in visible sight of feature or features. The keyed and kill switches are supplied by Grand Effects.

9. Install 90° pipe elbow and gas hose at the gas connection as shown in Figure 5.

10. Connect gas hose to the burner assembly.

11. Install wire nuts on wires from the control panel and burner assembly. Be careful to hook up the “positive” to the “positive” and the “negative” to the “negative.” Wrap wire nuts with electrical tape or some means to prevent moisture from getting in. Make sure wire nuts are positioned at the bottom of the bowl, away from the bottom of the burner assembly.

12. With all gas connections tight, position the burner assembly so that it sits level in the bowl. Rotate as required so that the gas hose rests in a compact position.

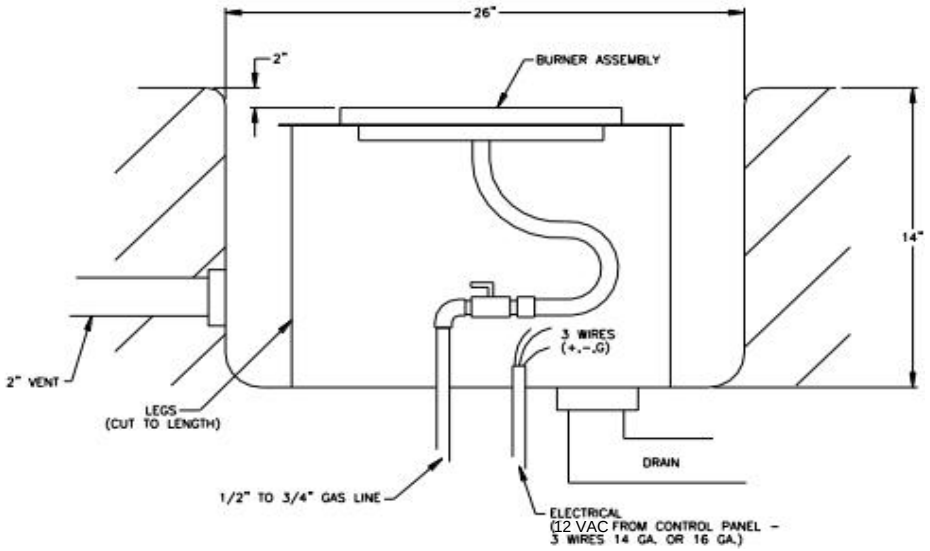

26"
2"
BURNER ASSEMBLY
14"
3 WIRES
(+,-,G)
2" VENT
LEGS
(CUT TO LENGTH)
DRAIN
1/2" TO 3/4" GAS LINE
ELECTRICAL
(12 VAC FROM CONTROL PANEL -
3 WIRES 14 GA. OR 16 GA.)

Figure 5

Section 3: Burner Setup and Adjustment

1. At the control panel, turn the manual gas valve to the “Off” position.

2. With 120VAC coming into the control panel, turn the burner switch “On.”

3. At each burner assembly, check that the spark electrode is arcing across to the pilot hood. You should be able to hear and see the electrode spark. If there is no spark, make sure that the burner assembly is receiving 12VAC from the control panel. Check that the main gas adjusting valve is in the full open position. It is located at the bottom of the burner assembly.

4. Reposition the burner assembly so that it is sitting level in the bowl.

5. At the control panel, open the manual gas valve.

6. In the control panel, turn the burner switch to the “On” position.

7. After all rock inserts have been lit, they can be adjusted for flame size.

   Important: At this time, the corresponding fire bowl should ignite. If the burner does not light, it may be a result of air in the gas line. If this happens, carefully purge the air from the gas line by disconnecting the gas hose from the burner assembly. The end of the gas hose should be outside of the bowl when purging air from the gas line.

CAUTION! When purging air from a propane system, disconnect wires going to the burner assemblies (terminals X1/X2) located in Grand Effects control panel. There should be no power at the burner assemblies when purging propane. The propane adder valve should remain wired and energized when purging. After purging is complete, make sure the area is vented and free from build-up gas. Reinstall wires at X1/X2 terminals, thus providing to burner assemblies.

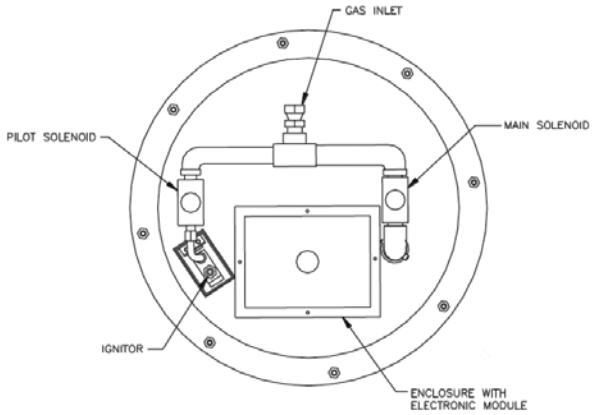


Figure 6: Bottom Side of the Burner Assembly

Burner Adjustment

Note: Each burner should have a flame height of approximately 12” – 15” from the top of the burner. If the burner is adjusted too low, it will create an unstable pilot, resulting in possible On/Off cycling.

1. The height of the flame can be adjusted at each burner by opening or closing the 1/2" gas valve or keyed valve as shown in Figure 5.

   Each burner should be adjusted as required so that the flame size at each bowl is similar in appearance to each other.

2. After all burners have been adjusted, make sure that the burner assembly is repositioned so that it is sitting level in each bowl.

3. Install decorative rock or glass on top of the “burner support” and burner assembly. Larger lava rock is recommended (2” – 4” in size). It will work better than smaller rock. Make sure that all rock is clear of the pilot area and hood area. Pilot hood area needs to remain clear of rock for proper ventilation.

   Note: Do not use glass with propane installations. (If you use glass with natural gas, you will need to lay down stainless mesh screen to prevent glass from falling through. Do not cover the burner assembly and support plate. Fire glass requires a glass pilot hood, which is different than a standard pilot hood used with lava rock. Please consult the Grand Effects Glass Install Manual. If you use1/4″ pieces of lava, it should be treated as a glass installation).

   Note: Both sides of the pilot hood need to be clear of rock for proper ventilation.

   Important: Do not use fire glass with propane installations.

⚠ **CAUTION!** Use only approved decorative media to cover the burner assembly. Lava and tumbled lava/ceramic stone and fire glass are all accepted media. However, use caution when in the immediate area, as pieces may pop or explode when exposed to heat or when wet and exposed to heat.

Section 4: Maintenance

Periodically clean the burner assembly with a wet cloth or cleaning solution to remove carbon build-up.

Frequency of the cleaning will depend on usage.

Periodically inspect the underside of the burner assembly for any signs of excessive temperatures.

Check that all gas connections are tight.

The units should be operated on a regular basis, especially after a rain. The burner assembly will not work in snow and ice conditions. The burner assembly should be covered and protected from snow and ice. The burner should not be operated in high wind conditions. High winds can limit the cooling air required for cooling of the burner assembly and cause over heating of the electronics.

Important: The system needs to be turned on/off after a rain to remove any water in the pilot area.

Note: If any problems are present, consult a licensed heating Specialist or call Grand Effects.

Section 5: Operation

WARNING! This unit is for outdoor use only.

For your safety:

- If you smell gas, shut off the gas valve immediately.
- Extinguish any open flame.
- If odor continues, immediately call your gas supplier.
- Do not store or use gasoline or other flammable vapors and/or liquids in the vicinity of this appliance.
- Do not leave flame on while unsupervised.
- Do not operate in windy or rainy conditions. If this is done, the unit will cycle on and off automatically.
- Unit should be operated only by a responsible adult.
- When in use, an open flame is present; therefore, use with extreme care and at your own risk.
- Before any inspection of the unit, always turn off power and gas supply at the control panel.
- If you experience problems with this unit, call Grand Effects or a licensed heating professional. All work on this unit must be performed by a licensed heating professional.

CAUTION! Before you turn on the Grand Effects System, make sure that features are clear of people, animals, or any objects that are combustible.

Operating Instructions

To turn unit “On”:

1. Open manual gas valve.
2. Turn burner switch “On”.

To turn unit “Off”:

1. Turn burner switch “Off”.
2. Close manual gas valve.

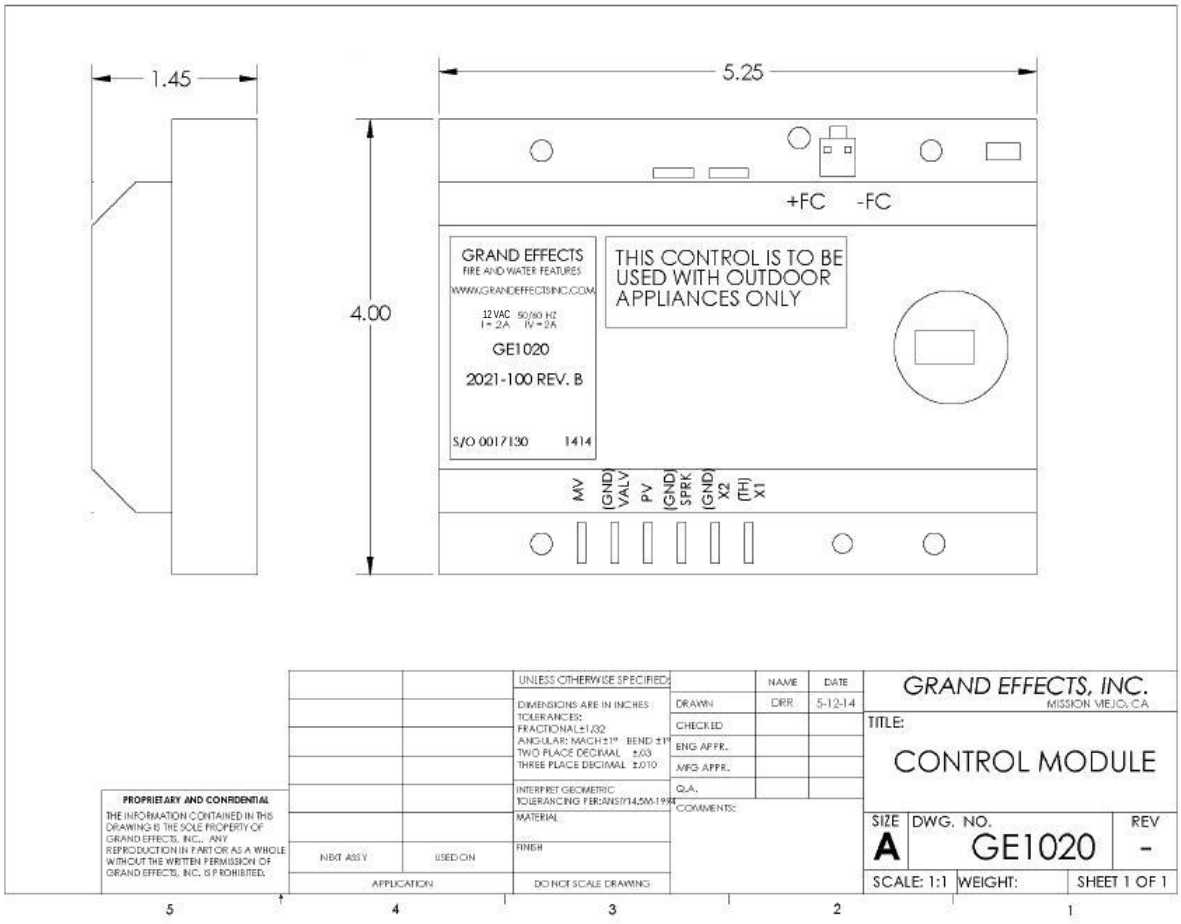
Note: If burner fails to light, turn corresponding burner switch in the control panel to the “Off” position, and then to the “On” position. This will initiate a new trial for ignition.

Section 6: Troubleshooting

Model 100/100A Burner Assembly

Main burner does not light (no spark)	1) Remove rock/glass away from pilot area. 2) Remove pilot hood. (Look for small pieces obstructing pilot.) 3) If still no spark, confirm that you have 12VAC out of the panel and at the burner (measure voltage on terminals L, N). 4) If you have voltage going out to the burner, but no spark, replace the control module. (Look for excess heat on the module.) 5) If you have no voltage out of the panel, reset fuse button on transformer and breaker switch. Confirm 110v going into panel on terminals L, N. 6) If you have 110 V on L, N and fuses check OK, but still have no 12V output on X1, X2, replace the transformer.
Spark (but no pilot)	1) Remove rock/glass away from pilot area. 2) Remove pilot hood. (Look for small pieces obstructing pilot.) 3) Confirm if gas is coming out of pilot. You can hear it. (Use BBQ lighter to determine if gas is coming out of pilot). 4) If no pilot gas, check that the gas is turned on. 5) Pilot orifice may be plugged. Replace orifice or complete pilot assembly. 6) If still no gas, pilot valve may not be opening. Turn gas off and confirm if pilot solenoid is energizing. 7) If not energizing, replace the control module. If it is energizing, clean out pilot solenoid.
Burner goes On/Off	1) Is it going off because of wind? If so, how windy? Slight breeze or gusty? (If wind, rotate burner assembly in bowl or add 3.5″ x 17″ wind band.) 2) Remove rock/glass away from pilot area. Does it get better? How much glass? Thin down glass on burner assembly. 3) Remove all rock/glass from the burner assembly. (Does the problem go away? 4) Is the main flame adjusted too low? (If burner is adjusted too low, the pilot will be too small and unstable.) 5) If burner shuts off after a 30 minute period and then goes off and doesn't come back on, replace the control module.
Pilot comes on but no main burner	1) On Model 100 burner assembly, confirm that red handled ball valve underneath the burner is open. 2) If possible, confirm that main gas solenoid is energizing. If not, replace the control module. 3) Main burner solenoid may have to be replaced if buzzing.
Main burner or pilot does not shut off	1) Remove solenoid coil and clean inside of solenoid (looking for contaminants).

Control Module Diagram



sized in accordance with 250.122 but not smaller than 12 AWG. The cord shall terminate in a grounding-type attachment plug.

(B) Double Insulated Pool Pumps. A listed cord-and-plug-connected pool pump incorporating an approved system of double insulation that provides a means for grounding only the internal and nonaccessible, non–current-carrying metal parts of the pump shall be connected to any wiring method recognized in Chapter 3 that is suitable for the location. Where the bonding grid is connected to the equipment grounding conductor of the motor circuit in accordance with the second sentence of 680.26(B)(6)(a), the branch-circuit wiring shall comply with 680.21(A).

(C) GFCI Protection. Outlets supplying pool pump motors connected to single-phase, 120-volt through 240-volt branch circuits, whether by receptacle or by direct connection, shall be provided with ground-fault circuit-interrupter protection for personnel.

680.22 Lighting, Receptacles, and Equipment.

(A) Receptacles.

(1) Required Receptacle, Location. Where a permanently installed pool is installed, no fewer than one 125-volt, 15- or 20-ampere receptacle on a general-purpose branch circuit shall be located not less than 1.83 m (6 ft) from, and not more than 6.0 m (20 ft) from, the inside wall of the pool. This receptacle shall be located not more than 2.0 m (6 ft 6 in.) above the floor, platform, or grade level serving the pool.

(2) Circulation and Sanitation System, Location. Receptacles that provide power for water-pump motors or for other loads directly related to the circulation and sanitation system shall be located at least 1.83 m (6 ft) from the inside walls of the pool. These receptacles shall have GFCI protection and be of the grounding type.

(3) Other Receptacles, Location. Other receptacles shall be not less than 1.83 m (6 ft) from the inside walls of a pool.

(4) GFCI Protection. All 15- and 20-ampere, single-phase, 125-volt receptacles located within 6.0 m (20 ft) of the inside walls of a pool shall be protected by a ground-fault circuit interrupter.

(5) Measurements. In determining the dimensions in this section addressing receptacle spacings, the distance to be measured shall be the shortest path the supply cord of an appliance connected to the receptacle would follow without piercing a floor, wall, ceiling, doorway with hinged or sliding door, window opening, or other effective permanent barrier.

(B) Luminaires, Lighting Outlets, and Ceiling-Suspended (Paddle) Fans.

(1) New Outdoor Installation Clearances. In outdoor pool areas, luminaires, lighting outlets, and ceiling-suspended (paddle) fans installed above the pool or the area extending 1.5 m (5 ft) horizontally from the inside walls of the pool shall be installed at a height not less than 3.7 m (12 ft) above the maximum water level of the pool.

(2) Indoor Clearances. For installations in indoor pool areas, the clearances shall be the same as for outdoor areas unless modified as provided in this paragraph. If the branch circuit supplying the equipment is protected by a ground-fault circuit interrupter, the following equipment shall be permitted at a height not less than 2.3 m (7 ft 6 in.) above the maximum pool water level:

(1) Totally enclosed luminaires
(2) Ceiling-suspended (paddle) fans identified for use beneath ceiling structures such as provided on porches or patios

(3) Existing Installations. Existing luminaires and lighting outlets located less than 1.5 m (5 ft) measured horizontally from the inside walls of a pool shall be not less than 1.5 m (5 ft) above the surface of the maximum water level, shall be rigidly attached to the existing structure, and shall be protected by a ground-fault circuit interrupter.

(4) GFCI Protection in Adjacent Areas. Luminaires, lighting outlets, and ceiling-suspended (paddle) fans installed in the area extending between 1.5 m (5 ft) and 3.0 m (10 ft) horizontally from the inside walls of a pool shall be protected by a ground-fault circuit interrupter unless installed not less than 1.5 m (5 ft) above the maximum water level and rigidly attached to the structure adjacent to or enclosing the pool.

(5) Cord-and-Plug-Connected Luminaires. Cord-and-plug-connected luminaires shall comply with the requirements of 680.8 where installed within 4.9 m (16 ft) of any point on the water surface, measured radially.

(6) Low-Voltage Luminaires. Listed low-voltage luminaires not requiring grounding, not exceeding the low-voltage contact limit, and supplied by listed transformers or power supplies that comply with 680.23(A)(2) shall be permitted to be located less than 1.5 m (5 ft) from the inside walls of the pool.

N **(7) Low-Voltage Gas-Fired Luminaires, Decorative Fireplaces, Fire Pits, and Similar Equipment.** Listed low-voltage gas-fired-luminaires, decorative fireplaces, fire pits, and similar equipment using low-voltage ignitors that do not require grounding, and are supplied by listed transformers or power supplies that comply with 680.23(A)(2) with outputs that do not exceed the low-voltage contact limit shall be permitted to be located less than 1.5 m (5 ft) from the inside walls of the pool. Metallic equipment shall be bonded in accordance with the requirements in 680.26(B). Transformers or power supplies supplying this type of equipment shall be installed in accordance with the requirements in 680.24. Metallic gas piping shall be bonded in accordance with the requirements in 250.104(B) and 680.26(B)(7).

(C) Switching Devices. Switching devices shall be located at least 1.5 m (5 ft) horizontally from the inside walls of a pool unless separated from the pool by a solid fence, wall, or other permanent barrier. Alternatively, a switch that is listed as being acceptable for use within 1.5 m (5 ft) shall be permitted.

(D) Other Outlets. Other outlets shall be not less than 3.0 m (10 ft) from the inside walls of the pool. Measurements shall be determined in accordance with 680.22(A)(5).

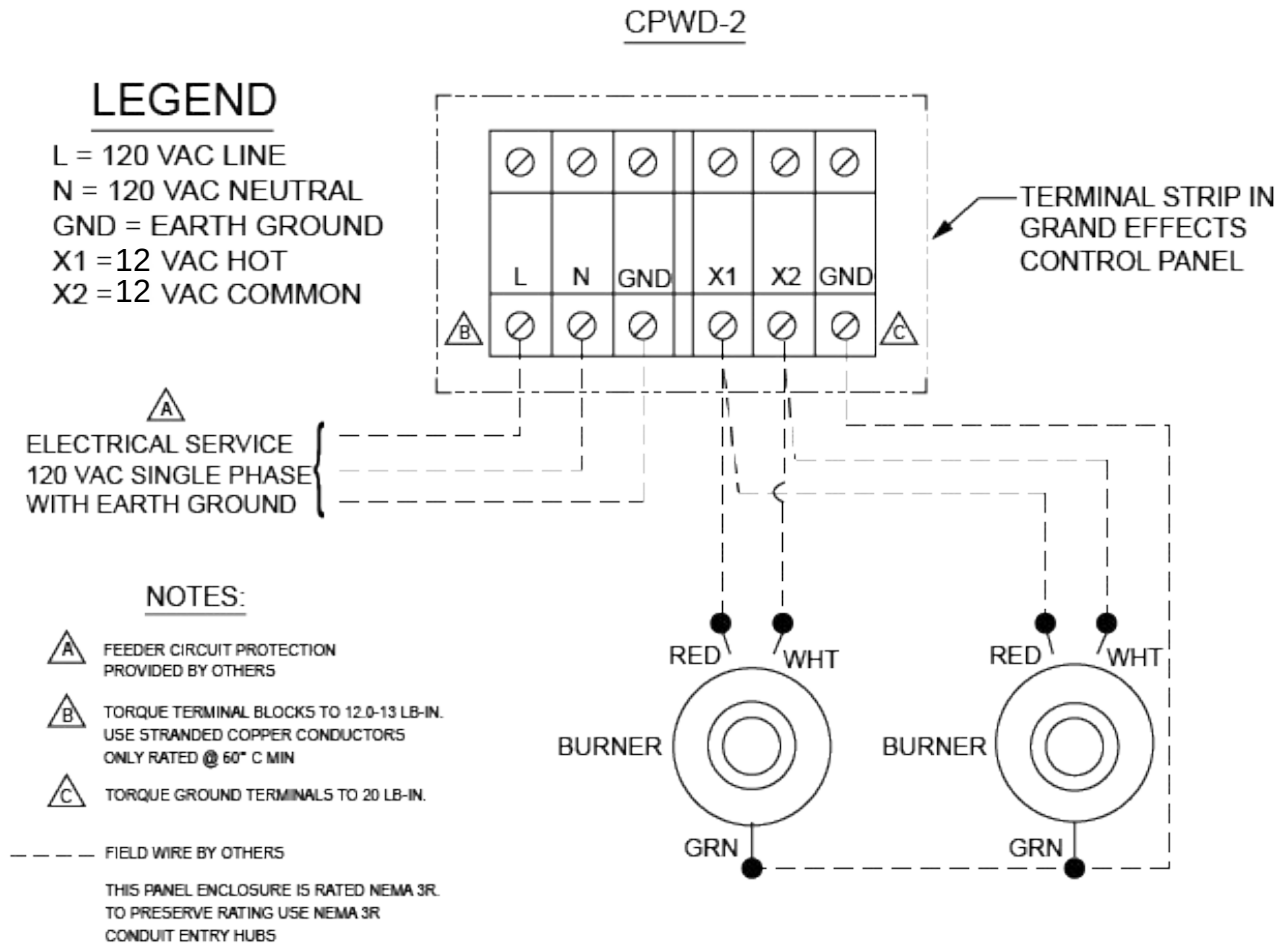
Informational Note: Other outlets may include, but are not limited to, remote-control, signaling, fire alarm, and communications circuits.

680.23 Underwater Luminaires. This section covers all luminaires installed below the maximum water level of the pool.

(A) General.

(1) Luminaire Design, Normal Operation. The design of an underwater luminaire supplied from a branch circuit either

Wiring Diagram



Grand Effects Warranty
(1 Year Residential; 6 Months Commercial)

Grand Effects will attempt to repair, at its expense, any unit, which in normal use, has proven to be defective in workmanship or material, provided that the Buyer provides or arranges for the return of the product prepaid to Grand Effects with proof of product date of delivery to the end user of the product and provides Grand Effects with reasonable opportunity to verify the alleged defect by inspection, which shall not be more than 15 days after receipt by Grand Effects. If the unit is deemed defective and cannot be repaired, Grand Effects will replace. Grand Effects will not be responsible for any asserted defect, which has resulted from misuse, abuse, repair or alteration. Under no circumstances will Grand Effects be liable for incidental or consequential damage resulting from defective products. This warranty is Grand Effects' sole warranty and sets forth the exclusive remedy, with respect to defective products, all other warranties, expressed or implied, whether of merchantability, fitness for purpose or otherwise, are expressly disclaimed by Grand Effects. Grand Effects is not responsible for any injury or mishap related to misuse, abuse or lack of judgment choosing fire display locations.

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