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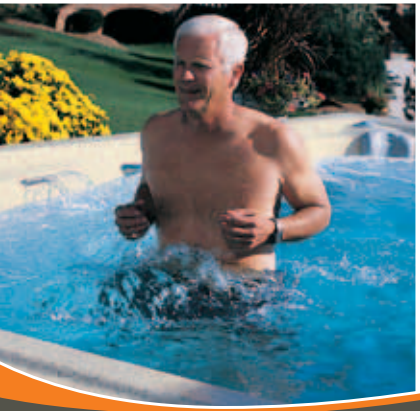

OWNER'S MANUAL

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MASTER SPAS®

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Overall Design Information

Description of Spa

The Master Spa Inc. Spa is a high grade acrylic with an underlying fiberglass reinforced shell, self contained frame, therapy jets and patented propulsion swim system. This spa may be installed completely in ground, partially in ground, or above ground level. The associated mechanical and electrical components are normally installed in a separate equipment room or in a lower level mechanical room below the floor surface.

Since code and regulation requirements vary between states and local agencies, permits and compliance with these varying health, electrical, plumbing, building, and safety, agencies is solely the responsibility of the owner. It is imperative that the owner or the design representative consult with all local and state regulatory agencies that have jurisdiction over installation of factory built commercial spas (see final section of installation guide). Should any of these codes require that installation vary from the recommendations in this guide, contact Master Spas Inc. for assistance.

Serviceability and Equipment Access

The design information relating to structural, electrical, architectural, and plumbing design should be adhered to so as to insure serviceability of the spa in the future. Non compliance with these requirements could result in the warranty being voided.

PREPARATION OF THE SPA SITE

The owner will be responsible for all site preparation before and after delivery of the spa. All utilities (water, sanitary, electrical, and etc.), mechanical pit, and applicable spa area structures must be designed and installed by the owner. For information concerning details of these requirements, consult the technical specifications included in this manual.

SPECIFICATIONS FOR SPA ROOM AREA

The body of water in the spa can accommodate from 1 to 5 persons depending on the method of exercise being done in the spa. The recommendations for the area in which the spa is contained at minimum should be 24 feet long by 14 feet wide and 8 feet high. This is to allow adequate room for installation and proper deck space in the spa area. Extra space for shower, storage cabinets, dehumidifiers, changing areas, and showers should be integrated into these plans.

Temperature control and proper air handling (which should include humidity control) in the spa room must be integrated into the room design to maintain a comfortable and safe environment for the room occupants. Spa rooms are normally kept at 85 degrees Fahrenheit and spa water temperatures are typically kept below 93 degrees Fahrenheit. This helps keep the differential between the spa and room temperatures to a minimum. The surface area of the water is 93 square feet. Under these conditions the evaporation rate per day will be approximately 15-20 gallons per day.

Overall Design Information

UTILITIES

Water Supply: The owner will need to provide a fresh water source to the spa room for replenishing the water in the spa.

Sanitary: A sump pit (if applicable) that includes a pump or floor drains that connect to the main drainage system must be provided by the owner.

Gas: The spa can be heated by a gas heater. When using any gas fired appliance care must be taken to provide adequate combustion air and also proper ventilation of flue gases. See appliance manufactures recommendations for information guidelines.

Electrical Service: Electrical service must be provided by the owner.

Communications: It is highly recommended that a telephone line be installed in the area of the control panel for communication in case of emergencies.

MECHANICAL AREA

The area in and around the spa must be accessible for maintenance on spa shell, electrical control system, and equipment pack (pumps, filter, chlorinator, and heater). Included in this manual are drawings that show minimum dimensions for this area. Sump pumps, drains, lighting, and HVAC controls must be designed before installation to ensure proper operation once the spa is installed.

The spa should be drained using a portable sump pump that is to be supplied by the owner. Care must be taken during the planning stages to make sure that drains are adequate to carry the sump discharge when the spa is drained for maintenance.

The spa weight is 2,700 pounds. The spa holds 2,200 gallons of water which is 18,360 pounds. This is a combined weight of 21,060 pounds. The floor of the spa area should designed by a structural engineer to carry the combined weight of the spa, water and bather load. This floor area must be completely level to support the spa correctly.

Should the mechanical area be enclosed care must be taken to maintain an ambient temperature that is typical for enclosed mechanical rooms containing pool equipment. The equipment list below can be used to help determine the correct HVAC requirements during the design stages. This is a recommended list of standard and optional equipment in a typical swim spa installation:

1- 11 kw electric and or gas heater

1- 1.5 hp filter pump

1- 1.5 hp therapy pump

1- 2.0 hp therapy pump

1- 24 amp propulsion drive assembly

1- Freeze Protect Circuit

Typical Work Involved for Installation of Master Spas Spa

GENERAL CONTRACTOR INSTALLATION

The spa room and mechanical area are to be constructed as per the owners design and following the guidelines set forth by local codes and the Master Spas Installation Guide.

All shipping and delivery fees are the responsibility of the owner, unless otherwise specified.

An opening in the building large enough to accommodate the spa will have to be planned for. The spa is 94 inches wide by 202 inches long by 52 inches high. The minimum path dimensions for the spa from the unloading site to the spa area should be 10 feet wide by 6 feet 8 inches high. The spa is supported by its own steel frame and should remain upright to avoid damage to the acrylic shell. In the event that the spa would have to be set into a different attitude so as to allow entry, care must be taken to insure that no damage is done to the acrylic shell or supporting metal frame work.

Once the spa has been moved to the designated area it must be set on the previously constructed structural floor area. If the unit is to be recessed below the spa room floor, rigging will be needed to set it properly.

The acrylic on the spa should be protected during the construction process at all times. A temporary platform constructed of plywood and floor joists covered with a tarp is recommended. This will keep construction debris from accumulating in the spa and mechanical areas. Never use clear materials to protect the spa shell. Any damage caused by the use of clear protective materials, will not be covered by the warranty.

A chase running from the spa to the control area will be needed. This chase should be 2 inched in diameter to allow for the control and VFD power cables to be routed.

Once the electrical and plumbing phases are completed, the spa will need to be cleaned, filled and the operation sequence started.

Typical Work Involved for Installation of Master Spas Spa

ELECTRICAL CONTRACTOR INSTALLATION

The spa comes with its own GFCI breaker and must be wired according to the wiring diagram supplied in the drawings section. This GFCI is a special device that is unique to this spa. This special GFCI is designed to protect the patented propulsion system drive only. It must be wired directly to the incoming electrical service. Do NOT install a separate GFCI breaker on this system. The installation will require the purchase of a separate sub panel to feed the swim spa control panel. An electrical wiring schematic is supplied in the drawings section.

All materials, equipment and labor needed to connect each electrical component must be provided.

Wiring and conduit must be installed as required by local codes to all of the system components listed below:

1- 11 kw electric and or gas heater

1- 1.5 hp filter pump

1- 1.5 hp therapy pump

1- 2.0 hp therapy pump

1- 24 amp propulsion drive assembly

1- Freeze Protect Circuit

The low voltage system interface wiring connecting the timer, emergency shut off, and swim spa control must also be installed as per code.

The conduit termination point should be sealed with a UL Listed sealing device. All wiring must be routed through metal conduit that is sized for the wire gauge being used. The conduits shall be terminated using a Liquidtite conduit. GFCI nuisance tripping and motor noise is reduced when using the metal conduit. In the event that local codes have additional requirements they must be followed.

The spa equipment must be grounded by way of a bonding wire. The use of this bonding wire will reduce nuisance tripping of the GFCI breaker. The gauge of this bonding wire must be the same gauge as the live conductor to insure that it is capable of carrying the current in the case of a short circuit.

Wire used must be a minimum of 75 degree centigrade stranded copper rated MTW or THHN. Solid copper wire of any kind is NOT to be used.

Before connecting to the swim spa control pack, check the incoming power to confirm a voltage level of 216 – 264 VAC.

Typical Work Involved for Installation of Master Spas Spa

PLUMBING CONTRACTOR INSTALLATION

Provide all materials, equipment and labor needed to fulfill requirements set forth in the owner's contract. Install all interconnecting plumbing between the swim spa and the spa equipment as per the installation guide.

Install proper drains for maintenance and overflow. Provide drains in the sump area (if applicable), floor drains in the spa room and also a gravity drains capable of handling the portable sump pump used to drain the swim spa.

All of the valves, fittings, and piping. must be at minimum Schedule 40 PVC attached with appropriately rated glue.

When the electrical contractor has confirmed operation of the motors and associated equipment, the spa is to be filled and all plumbing hydrostatically tested.

MECHANICAL CONTRACTOR INSTALLATION

Provide all materials, equipment and labor needed to fulfill requirements set forth in the owner's contract. This will be done to satisfy conditions identified in the installation guide so as to provide proper ventilation, heating, dehumidifying, and air conditioning of the spa room. This also must be done in accordance with all applicable codes.

INITIALIZATION REQUIREMENTS

Electrical Contractor:

- Confirm power to systems.
- Before spa is filled confirm that all systems wiring conforms to installation guide wiring schematics.

General Contractor:

- Clean and fill the spa.
- Confirm that all work has been completed and spa is functioning correctly.

Plumbing Contractor:

- Confirm that all floor drains and sump pumps (if applicable) are fully operational
- Confirm that all plumbing is installed and conforms to proper configurations and that all valves are in the correct positions.
- Confirm that there are no leaks in the system.

Typical Work Involved for Installation of Master Spas Spa

POSSIBLE AREAS OF CONCERN CHECK LIST

Requirements dealing with setbacks not followed causing problems accessing equipment for service and inspection or failures of specific components due to poor design layout.

Poor air circulation around swim spa equipment due to inadequate estimation of heat loads.

All applicable codes must be considered during the early design stages. Failure to do so will many times result in last minute changes that will hold up the final occupancy permits and cause work order changes.

Installation parameters must be clearly defined in bid orders to ensure that changed work orders do not cause delays and add excessive costs to the project.

An overall access plan that will be used throughout the construction project should be in place before beginning. Responsibility for this plan rests with the architect/general contractor. As work will have to be done by several contractors at varying times the importance of this plan is paramount. Considerations for covering the acrylic spa shell, provisions for sealing areas open to adverse weather, etc. must be taken.

Should the spa be installed in an existing building care must be taken to consider all of the factors involved during the design and bid stage. Potential problem areas can be, existing plumbing and electrical wiring, heating and air-conditioning runs, structural barriers, etc. Care must be taken to insure that all of the afore mentioned are addressed when planning for the delivery and moving the spa to its final location.

Typical Code Requirements

The Inspection. The spa owner or builder shall notify the authority having jurisdiction at specific, predetermined stages of construction and at the time of completion of the spa to permit inspections as may be required.

Installation. The spa and its equipment shall be supported to prevent damage from misalignment, settling, etc., and located in such a manner to allow access for inspection, servicing, removal and repair of component parts.

Sand or earth. Sand or earth shall not be used as an interior finish in a public spa.

Direct sunlight. Manufacturer's specifications shall be followed for providing a means to protect the spa when not in use from direct sunlight exposure.

Roofs or canopies. Solid roofs or canopies over spas shall be constructed so that water run-off does not drain into the spa.

Ladders. The design and construction of spa ladder(s), where used, shall conform to articles 5.6.3.1 through 5.6.3.6. As per BSR/APSP-2 Standard for Public Spas.

Spa ladder(s) shall be made entirely of corrosion-resisting materials.

Ladder treads shall have a slip-resisting surface.

Ladder(s) shall be provided with two (2) handholds/handrails.

The outside diameter of a ladder rail shall be between a minimum of one inch (1") [2.54 cm] and a maximum of one and nine-tenths inches (1.9") [4.826 cm].

Below the water level, there shall be a clearance of not more than six inches (6") [15.24 cm] nor less than three inches (3") [7.62 cm] between any ladder tread edge, measured from the spa wall side of the tread and the spa wall.

The clear spread between ladder handrails shall be a minimum of 17 inches (43.18 cm) and a maximum of 24 inches (60.96 cm).

Recessed treads. The design and construction of recessed treads, where provided, shall conform to Articles 5.6.4.1 through 5.6.4.5. As per BSR/APSP-2 Standard for Public Spas.

Recessed treads at the centerline shall have a uniform vertical spacing of 12 inches (30.48 cm) maximum and 7 inches (17.78 cm) minimum.

The Vertical distances between the spa coping edge, deck or step surface and the uppermost recessed tread shall be a maximum of 12 inches (30.48 cm).

Recessed treads shall have a minimum depth of 5 inches (12.7 cm) and a minimum width of 12 inches (30.48 cm).

Recessed treads shall drain into the spa to prevent the accumulation of dirt, and shall be slip-resisting.

Each set of recessed treads shall be provided with a set of handrails/grabrails/handholds to serve all treads and risers.

DECKS

New construction areas. These guidelines shall apply to deck area at or around immediately around the spa.

Work for concrete deck(s) shall be performed in accordance with local construction practices and the recommendations of the latest American Concrete Institute (ACI) Standard 302.1R-80, "Guide for Concrete Floor and Slab Construction".

Slip-resisting. All deck surfaces shall be of slip resisting materials, including but not limited to special deck features such as markers and brand insignias.

Special features. Special features in or on decks such as markers, brand insignias or similar items shall conform to this article.

Riser dimensions. Risers for deck steps shall be uniform and have a maximum height of 71/2 inches (19.05 cm). The minimum tread depth shall be 10 inches (25.4 cm).

Subgrade. The subgrade for decks shall be prepared and/or installed in accordance with engineering practices required in the area of installation or methods required by the authority having jurisdiction.

Unobstructed deck. A minimum 4 feet (1.2192 m), unobstructed deck, including the coping, shall be provided around at least 50 percent of the spa.

Slope. Decks shall be sloped to effectively drain towards the perimeter areas or to deck drains.

Typical slopes for immediate spa decking are:

a) 1/8 inch per 1 foot (1.04166 cm: 1 m) shall be provided for textured, hand-finished concrete decks;

b) 1/4 inch per 1 foot (2.08333 cm: 1 m) for exposed aggregate concrete decks;

c) 1/2 inch per 1 foot (4.1666 cm: 1 m) for indoor/outdoor carpeted concrete decks, unless an alternative drainage method is provided.

The maximum slope for wood decks shall be 1/8 inch per 1 foot (1.04166 cm: 1 meter).

Gaps shall be based on good engineering practices with respect to the type of wood used.

Expansion joints. Expansion control joints shall be provided to help control cracks due to expansion, contraction, and movement of the slab.

Sharp corners. Decks shall be chamfered or otherwise relieved to eliminate sharp corners.

Drainage. Site drainage shall direct all deck drainage as well as general site and roof drainage away from the spa or swimspa. Where required, yard drains shall be installed to prevent the accumulation or puddling of site water in the general area of the deck(s) and related improvements.

Backwash sump. If used, a backwash sump shall be located so that it falls completely below adjacent deck(s) and fully outside a line projected 45˚ downward and away from the deck(s) or shall be designed to accommodate local soil conditions and the volume of backwash.

Typical Code Requirements

Circulation system piping. Circulation system piping, other than that integrally included in the manufacture of the spa, shall be subject to an induced static hydraulic pressure test (sealed system) at 25 pounds per square inch (1.7577035 kg/sq. cm) for 30 minutes. This test shall be performed before the deck is poured, and the pressure shall be maintained throughout the deck pour.

Valves installed in or under any deck(s) shall provide a minimum of 9 inches (22.86 cm) diameter access cover and valve pit to facilitate servicing.

Hose bibb. A hose bibb with a vacuum breaker shall be provided for washing down the entire deck area.

Circulation system components. Components which require servicing shall be accessible for inspection and repair, and shall be installed in accordance to the manufacturer's specifications.

Spa equipment shall be properly supported to prevent damage from misalignment, settlement, operational movement, etc. The equipment shall be mounted so as to minimize the potential for the accumulation of debris and moisture, following manufacturer's specifications.

Equipment shall be designed and fabricated to drain the spa water from the equipment, together with the exposed face piping, by removal of drain plugs and by manipulating valves or by other methods. The system shall be drained in accordance with the manufacturer's specifications on draining the system.

In addition to programmed filtration times, recirculation equipment shall be in operation during the hours the spa is accessible for use.

Maintenance instructions. Written operation and maintenance instructions shall be provided for the circulation system.

All filter elements, media and other components which require servicing shall be accessible for inspection, removal and repair, and shall be installed in accordance with the filter manufacturer's instructions.

Pumps shall be accessible for inspection, service and maintenance

Grounding and bonding. Grounding and bonding required in a public spa or swimspa shall comply with the requirements of the National Electrical Code (NEC) ®, ANSI/UL 1563 Standard for Electric Hot Tubs, Spas and Associated Equipment and the authority having jurisdiction.

IMPORTANT NOTE. Requirements for grounding and bonding are particularly important and shall be adhered to.

Maintenance Disconnect Means. Disconnecting means shall be accessible, located within sight of the electrical equipment and shall be located at least 5 feet (1.524 m) horizontally from the inside walls of the spa.

Emergency Shut-off Switch. A clearly labeled emergency shutoff or control switch for the purpose of stopping the motor(s) that provide power to the re-circulation system and jet system shall be installed readily accessible to the users and at least 5 feet (1.524 m) away, adjacent to and within sight of the spa.

Typical Code Requirements

Installation. Heaters shall be installed in accordance with the authority having jurisdiction and in accordance with the manufacturer's specifications.

Support. Heaters shall be installed on a surface with sufficient structural strength to support the heater when it is full of water and operating. The heater shall be stable and not able to move after plumbing, gas and/or electrical connections are completed.

Combustible surfaces. If the heater requires a non-combustible mounting surface per the manufacturer's specification, it shall be placed on a concrete or other listed surface and comply with ANSI Z21.56a-1996 or with the authority having jurisdiction.

Clearances. All heaters shall be installed and maintained with the minimum clearances to combustibles for which the heater has been tested as specified by the manufacturer's specification.

Ventilation. All spas and their related components installed in an indoor spa environment, shall comply with the ventilation requirements of ANSI/ASHRAE 62-2001, Ventilation for Acceptable Indoor Air Quality, Table 2-Section 2.1. (For additional information on ventilation/ humidity guidelines for indoor spas, see the 1999 ASHRAE Handbook, HVCA Applications, I-P Edition, 4.5, 4.6. and 4.7*)

Make up air. When installing a fossil fuel heater indoors, proper openings to the room are required. The heater shall be installed in accordance with the authority having jurisdiction and the manufacturer's specifications for properly sized and located air openings to the enclosure.

Important safety consideration. Fossil fuel appliances like spa heaters produce poisonous carbon monoxide gas as a by-product of combustion. Proper venting of exhaust gases and the correct sizing of gas meters, gas supply piping, make-up air intake, etc. are critical installation considerations in preventing potential carbon monoxide gas poisoning or loss of life.

HEATING ENERGY SOURCE

Natural gas energy supply. The heater gas supply piping shall comply with manufacturer's specifications and ANSI/NFPA 54, National Fuel Gas Code.

Important safety note. Install a gas cock, properly sized and readily accessible outside the jacket, to stop the flow of natural gas at the heater for service or emergency shutdown.

Propane energy supply. Whenever a propane (LPG) appliance is installed, special attention shall be given to ensure that the storage tank, supply piping and regulator shall be adequately sized to ensure operating fuel pressures as specified by the appliance manufacturer. Consult the fuel supply company and ensure that the system is installed in accordance with the National Fuel Gas Code (ANSI Z223.1/NFPA 58-2004, or equivalent.

Important safety note. Propane gas is heavier than air and therefore can create an extreme hazard of explosion or suffocation if the heater is installed in a pit or enclosed area. NFPA -58 contains provisions for installing valves and other controls in pits and similar areas.

Important safety note. Install a gas cock, properly sized and readily accessible outside the jacket to stop the flow of propane (LPG) at the heater for service or emergency shutdown.

Electrical supply. Electric heating appliances shall be installed in accordance with the National Electrical Code (NEC) ® and with the requirements of the authority having jurisdiction.

Important safety note. The requirements for grounding and bonding are particularly important and shall be adhered to.

Treatment. The spa manufacture shall provide instructions stating that the water shall be tested and treated to meet the guidelines of Appendix A before the bather uses the spa.

Backflow. No direct mechanical connection shall be made between the potable water supply and spa, sanitizing equipment or the system of piping for the spa, unless it is protected against backflow and back-siphonage in a manner approved by the authority having jurisdiction or through an air gap, meeting the latest ANSI A112.1.2 (R1991) standard.

Water temperature. The spa manufacture shall provide instructions stating that the temperature of the in-coming make-up water shall not exceed 104°F (40°C) as recommended in ANSI/UL 1563, Standard for Electric Hot Tubs, Spas and Associated Equipment.

WASTE WATER DISPOSAL

Backwash water is permitted to be discharged into a sanitary sewer through an approved air gap into an approved subsurface disposal system or by other means approved by the authority having jurisdiction.

SANITIZING, OXIDATION EQUIPMENT AND CHEMICAL FEEDERS

Compliance. Sanitizing equipment, oxidation equipment and chemical feeders, shall comply with the most recent edition of ANSI/NSF-50 Circulation System Components and Related Materials for Swimming Pools, Spas/Hot Tubs. The sanitizing equipment and the chemical feeders shall be capable of introducing a sufficient quantity of a sanitizer to maintain the provisions as outlined in Appendix A.

Chemical feeders. The installation and use of chemical feeders shall conform to articles 17.2.1 through 17.2.2. As per BSR/APSP-2 Standard for Public Spas.

A chemical feed system shall be installed in accordance with the manufacturer's specifications.

Chemical feed pumps shall be wired so they cannot operate unless there is adequate return flow to properly disperse the chemical throughout the spa as designed.

Training. Personnel responsible for the operation of the sanitizing agent equipment shall be properly trained in the operation of that equipment, the procedure for performing and interpreting the required onsite chemical tests, and the appropriate emergency procedures. (See article 18.)

If the equipment is located in a closed room and capable of exposing maintenance or service personnel to ozone concentrations exceeding federal, state, or local air standards, a self-contained breathing apparatus approved for ozone usage shall be provided. If a distinct, pungent odor is smelled when the ozone generating equipment is operating, the equipment shall be shut down and the area shall be ventilated. The equipment shall be inspected and repaired as required per the manufacturer's specifications.

SAFETY FEATURES

Public spas and swimspas are for swimming, exercising, hydrotherapy and wading only. No diving boards, slides or other equipment are to be added to a public spa that in any way indicates that it may be used or intended for diving or sliding purposes.

Unauthorized access. The spa shall be secured to protect against unauthorized access. Consult the authority having jurisdiction for barrier guidelines. (See also ANSI/APSP-8, Model Barrier Code for Residential Swimming Pools, Spas and Hot Tubs).

Maintenance disconnect switch. Disconnecting means shall be accessible, located within sight of the spa electrical equipment and shall be located at least 5 feet (5') [1.524 m] horizontally from the inside walls of the spa.

The disconnecting means shall be clearly labeled "Safety Disconnecting Switch Use only." It shall not be used an emergency switch.

Emergency shut-off switch. A clearly labeled emergency shutoff or control switch for the purpose of stopping the motor(s) that provide power to the re-circulation system and jet system shall be installed readily accessible to the users and at minimum of 5 feet (1.52m) away, adjacent to and within sight of the spa.

Safety literature. The spa owner, or their representative shall be advised by the installing agent of the available publications related to spa or swimspa safety. These documents may include but not limited to APSP booklets entitled: "Children Aren't Waterproof", "Pool and Spa Emergency Procedures for Infants and Children", "Layers of Protection" and "The Sensible Way to Enjoy Your Spa."

Instructions/safety signs. The installing agent shall provide instructions to inform the owner to post signage in a prominent location which states the safety, emergency and operational aspects of the spa. As a guide for language and layout of the safety signs, reference ANSI Z-535, Series of Standards for Safety Signs and Colors and ANSI/UL 1563, Standard for Electric Hot Tubs and Associated Equipment.

Spa or swimspa use sign. The spa instructions shall inform the operator to post the spa use parameters sign in a prominent location adjacent to the entrance of the spa.

Safety signs shall include but not be limited to the messages below and shall comply with Appendix B.

1. Risk of Fetus Injury - Hot water exposure limitations vary from person to person. Pregnant women and small children should not use spa prior to medical consultation.
2. Risk of Drowning - Persons suffering from heart disease, diabetes, high or low blood pressure and other health problems should not enter the spa or swimspa without prior medical consultation and permission from their doctor.
3. Risk of Drowning - Do not use the spa while under the influence of alcohol, narcotics, or other drugs that cause sleepiness, drowsiness or raise/lower blood pressure.

4. Risk of Child Drowning -Unsupervised use of spa by children is prohibited.
5. Risk of Injury - Before entering, check spa or temperature. Do not use the spa if the temperature is above 104°F (40°C).
6. Risk of Drowning - Use caution when bathing alone. Overexposure to hot water may cause nausea, dizziness and fainting. Lower water temperatures are recommended for extended use (exceeding 10-15 minutes) and for young children.
7. Risk of Injury - Enter and exit slowly.
8. Risk of Injury - Keep all breakable objects out of the spa.
9. Risk of Shock - Never place electrical appliances (telephone, radio, television, etc.) within 5 feet (1.524 m) of the spa.
10. Risk of Shock - The spa shall not be operated during severe weather conditions, i.e. electrical storms, tornadoes, etc.
11. Secure the facility against unauthorized access. (See also ANSI/APSP-8 Model Barrier Code for Residential Swimming Pools, Spas and Hot Tubs).
12. Risk of Drowning - Do not allow the use of or operate spa if the suction outlet cover is missing, damaged or loose.

Emergency telephone signs. A sign shall be posted in the immediate vicinity of the spa, stating the spa or swimspa address, the location of the nearest telephone, and that emergency telephone numbers are posted by this telephone. Those emergency telephone numbers shall include the name and phone number of the nearest available police department, fire department, ambulance service, and/or rescue unit, and/or "911," if available.

Operational signs. Operational signs shall include but not be limited to the following messages:

1. Do not allow the use of or operate spa if the suction outlet cover is missing, damaged or loose.
2. Check spa temperature before each use. Do not enter the spa or if the temperature is above 104˚F (40˚C).
3. Secure the facility against unauthorized access. (See ANSI/APSP-8, Model Barrier Code for Residential Swimming Pools, Spas and Hot Tubs).
4. Keep all breakable objects out of the spa.
5. Spa shall not be operated during severe weather conditions, i.e. electrical storms, tornadoes, etc.
6. Never place electrical appliances (telephone, radio, television, etc.) within 5 feet (1.524 m) of the spa.

Depth markers shall be positioned on the deck within 18 inches (45.72 cm) of the waterline.

Depth markers shall be positioned to be read while standing on the deck facing the water.

Depth markers in or on the deck surfaces shall be slip-resisting.

Clock. All public facilities shall have a clock which is visible to spa.

The spa operator shall be provided with an accurate thermometer ± 1˚F (±0.56 ˚C) tolerance and shall periodically check to ensure that the maximum temperature does not exceed 104˚F (40˚).

A means to determine the spa temperature with a ± 1˚F (± 0.56 ˚C) tolerance shall be provided to the user.

DRESSING FACILITIES FOR PUBLIC SPAS

The minimum criteria for dressing and sanitary facilities shall be based upon the anticipated maximum attendance of users and their gender.

OPERATION AND MANAGEMENT

Supervision/training. Public spas shall be maintained under the supervision and direction of a properly trained and certified operator who shall be responsible for the sanitation, safety, and proper maintenance of the spa and all physical, mechanical equipment and records. (Training can be obtained by completion of the National Swimming Pool Foundation's Pool/ Spa Operator's Training Course CPO), and the National Parks and Recreation (AFO)

INSTRUCTIONS

Upon completion of construction of any public spa, the manager and the operators shall be given complete written and oral instructions by the builder as well as instructions for operating the spa and all equipment and for the continuous sanitation of the spa water.

Water temperature. Owner/operator should routinely check the in-spa water to ensure that the temperature does not exceed 104˚F (40˚C), as recommended in ANSI/UL 1563, Standard for Electric Hot Tubs, Spas and Associated Equipment. If adjustments are necessary, those adjustments shall be performed in accordance with manufacturer's specifications.

Rules and regulations for users shall be posted in a conspicuous place.

User load. The maximum user load shall not exceed one (1) person per 9 square feet (0.8361 sq. m) of surface area..

The user load limit shall be observed by the management. The maximum number of users to be allowed in the spa at one time shall be determined and will depend on a number of factors such as the design of the spa, user's use pattern, surface area of the spa, operating characteristics of the water purification system with the significant factors being the spa area and the sanitary and physical condition of the spa water under maximum usage.

OPERATING PERMITS

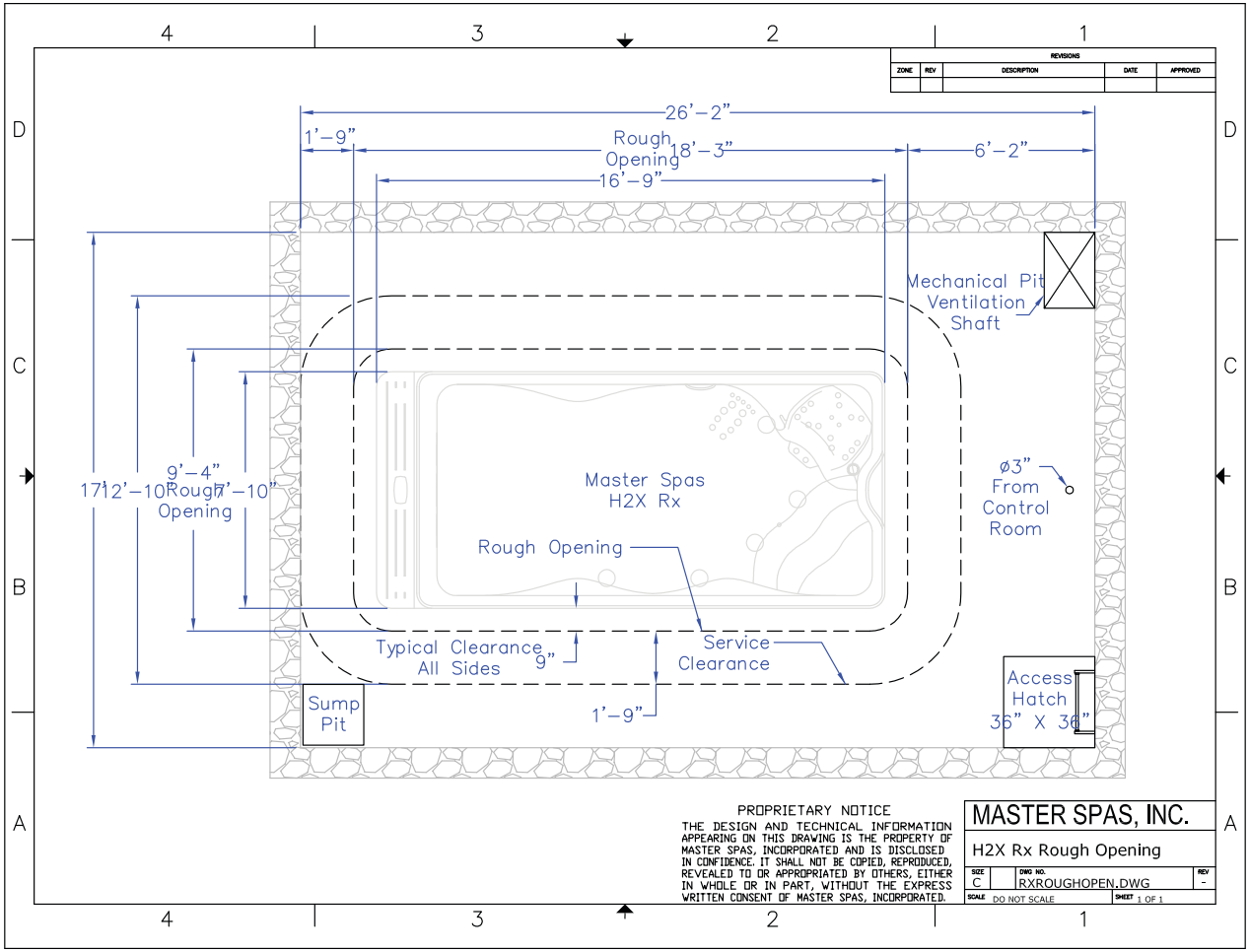
A public spa shall not operate until such time as the appropriate permit required has been submitted to the authority having jurisdiction.

The spa shall not be placed in operation until appropriate inspections show compliance with the guidelines of this standard. (Refer to articles 3.1.1 and 3.1.2). As per BSR/APSP-2 Standard for Public Spas

If the authority having jurisdiction makes a regular inspection of the spa to determine compliance with applicable permit or requirements, the spa owner and/or operator shall correct all noted deficiencies before placing the spa in operation and accessible to users. In the absence of such an inspection, the owner and/or operator shall perform a documented self-inspection of the spa and file in their records a checklist noting each deficiency noted and a follow-up statement after these have been corrected, and to maintain records for a period of three (3) years.

Should any inspections, including self-inspection, of the spa reveal a condition which does or may constitute a health or safety hazard for users, the owner and/or operator shall prevent any person from using it until the hazard has been satisfactorily corrected. If the authority having jurisdiction cited the violation, that agency shall be notified to make a follow-up inspection before the spa is reopened.

The revoked or suspended permit shall not be reissued or reinstated unless presented with evidence that the deficiencies which caused the revocation or suspension have been corrected. Such evidence shall be in the form of a re-inspection by the authority having jurisdiction.


REVISIONS
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REV
DESCRIPTION
DATE
APPROVED
26'–2"
1'–9"
Rough Opening
18'–3"
6'–2"
16'–9"
Mechanical Pit Ventilation Shaft
17'–10"
12'–10"
9'–4"
Rough Opening
7'–10"
Master Spas H2X Rx
Rough Opening
ø3" From Control Room
Typical Clearance All Sides
9"
Service Clearance
1'–9"
Sump Pit
Access Hatch 35" X 36"
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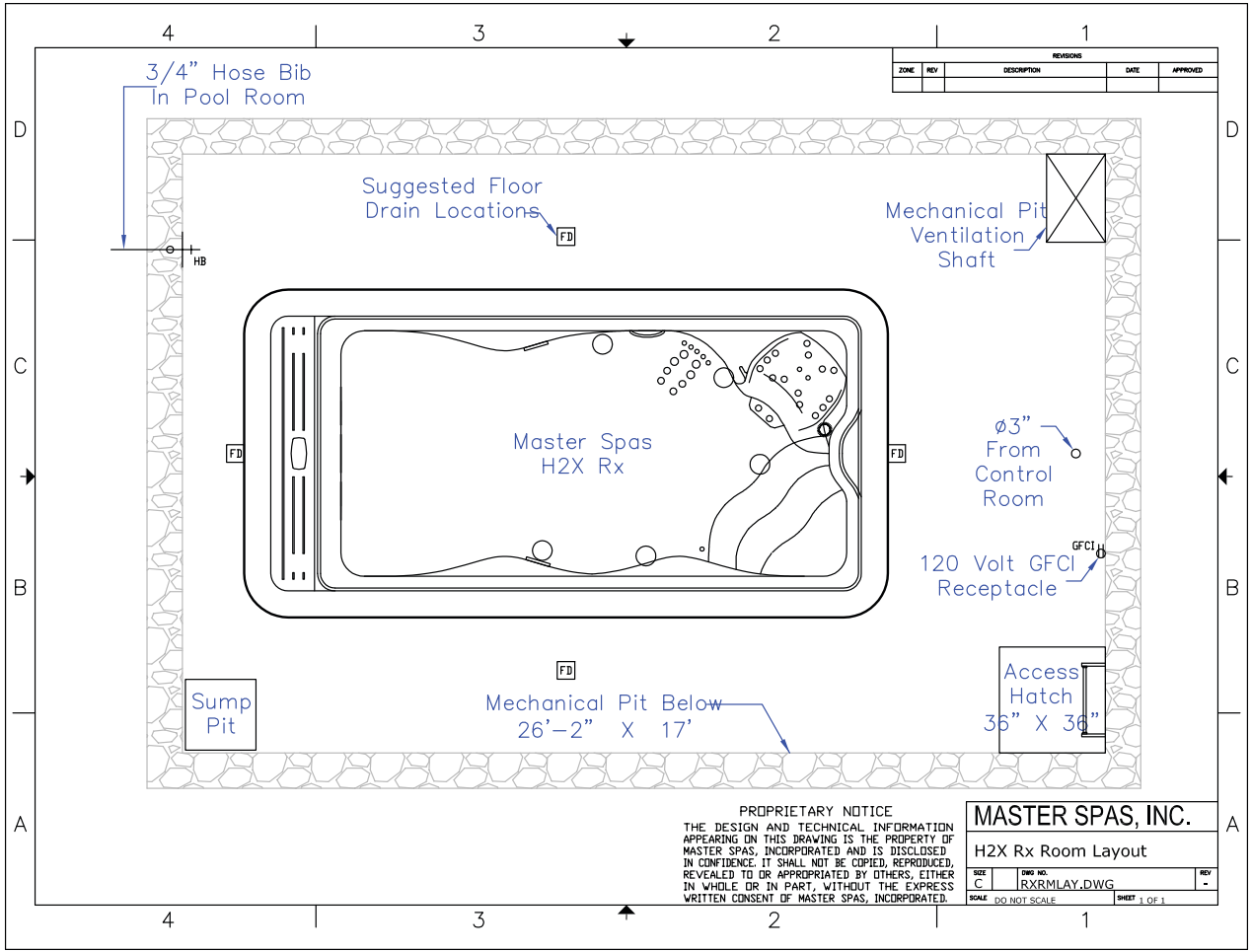
MASTER SPAS, INC.
H2X Rx Rough Opening
SIZE C
DWG NO. RXROUGHOPEN.DWG
REV -
SCALE DO NOT SCALE
SHEET 1 OF 1


3/4" Hose Bib
In Pool Room
HB
Suggested Floor
Drain Locations
FD
Mechanical Pit
Ventilation
Shaft
Master Spas
H2X Rx
FD
FD
ø3"
From
Control
Room
GFCI
120 Volt GFCI
Receptacle
FD
Sump
Pit
Mechanical Pit Below
26'–2" X 17'
Access
Hatch
36" X 36"
REVISIONS
ZONE
REV
DESCRIPTION
DATE
APPROVED
PROPRIETARY NOTICE
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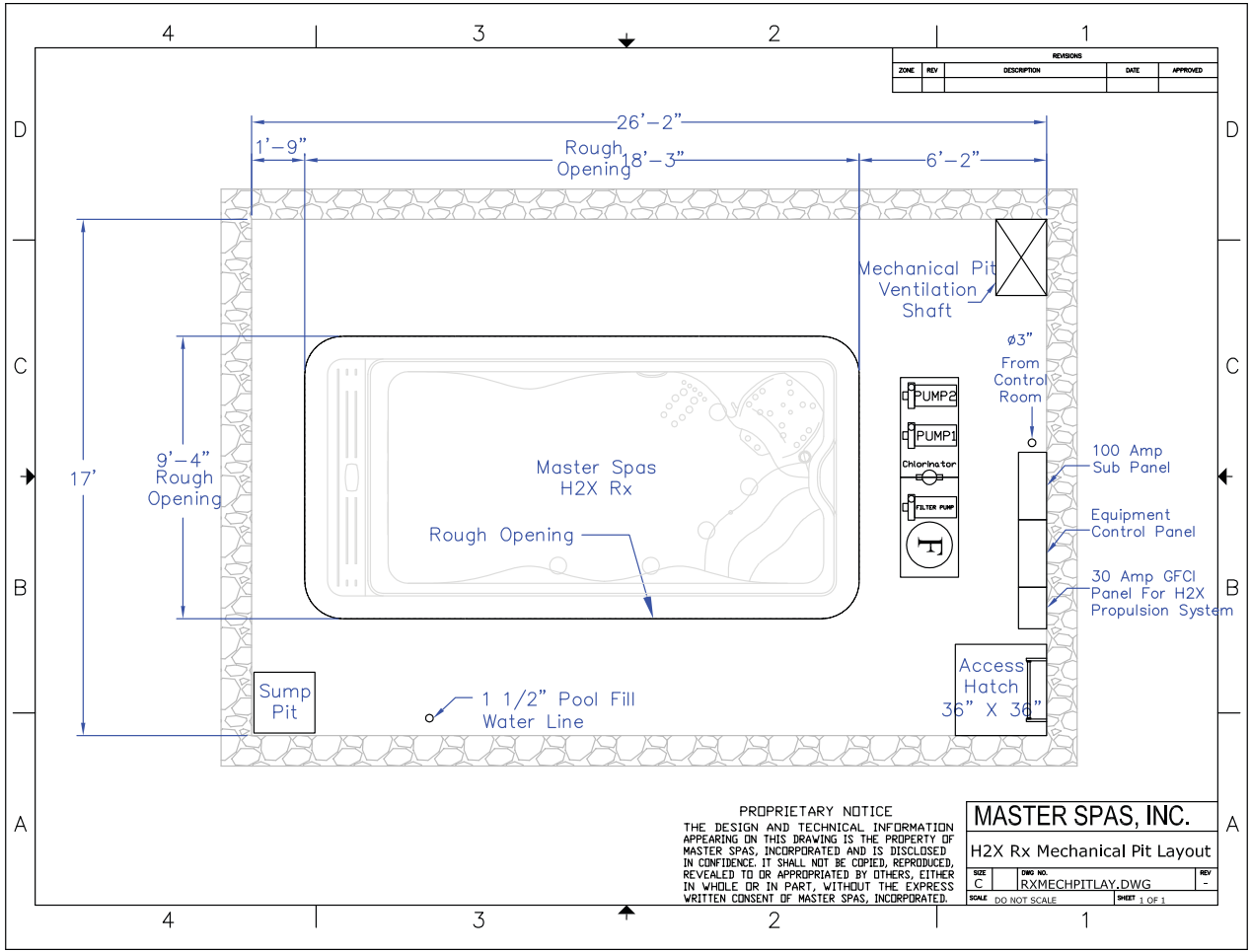
MASTER SPAS, INC.
H2X Rx Room Layout
SIZE
C
DWG NO.
RXRMLAY.DWG
REV
-
SCALE
DO NOT SCALE
SHEET
1 OF 1


REVISIONS
ZONE
REV
DESCRIPTION
DATE
APPROVED
26'–2"
1'–9"
Rough Opening
18'–3"
6'–2"
17'
9'–4" Rough Opening
Master Spas H2X Rx
Rough Opening
Mechanical Pit Ventilation Shaft
ø3" From Control Room
PUMP2
PUMP1
Chlorinator
FILTER PUMP
100 Amp Sub Panel
Equipment Control Panel
30 Amp GFCI Panel For H2X Propulsion System
Sump Pit
1 1/2" Pool Fill Water Line
Access Hatch 36" X 36"
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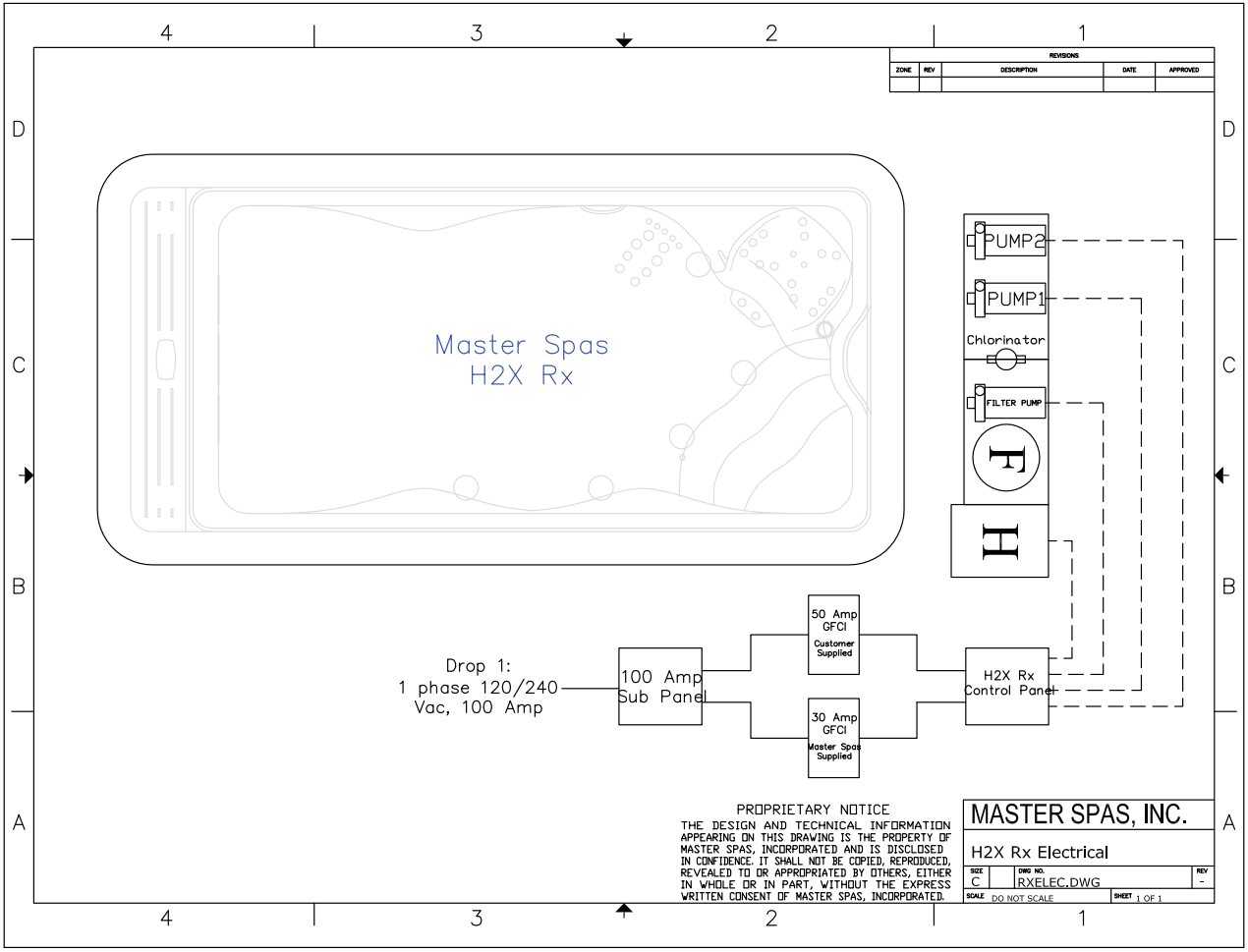
MASTER SPAS, INC.
H2X Rx Mechanical Pit Layout
SIZE C
DWG NO. RXMECHPITLAY.DWG
REV -
SCALE DO NOT SCALE
SHEET 1 OF 1


REVISIONS
ZONE
REV
DESCRIPTION
DATE
APPROVED
Master Spas
H2X Rx
PUMP2
PUMP1
Chlorinator
FILTER PUMP
Drop 1:
1 phase 120/240
Vac, 100 Amp
100 Amp
Sub Panel
50 Amp
GFCI
Customer
Supplied
30 Amp
GFCI
Master Spas
Supplied
H2X Rx
Control Panel
PROPRIETARY NOTICE
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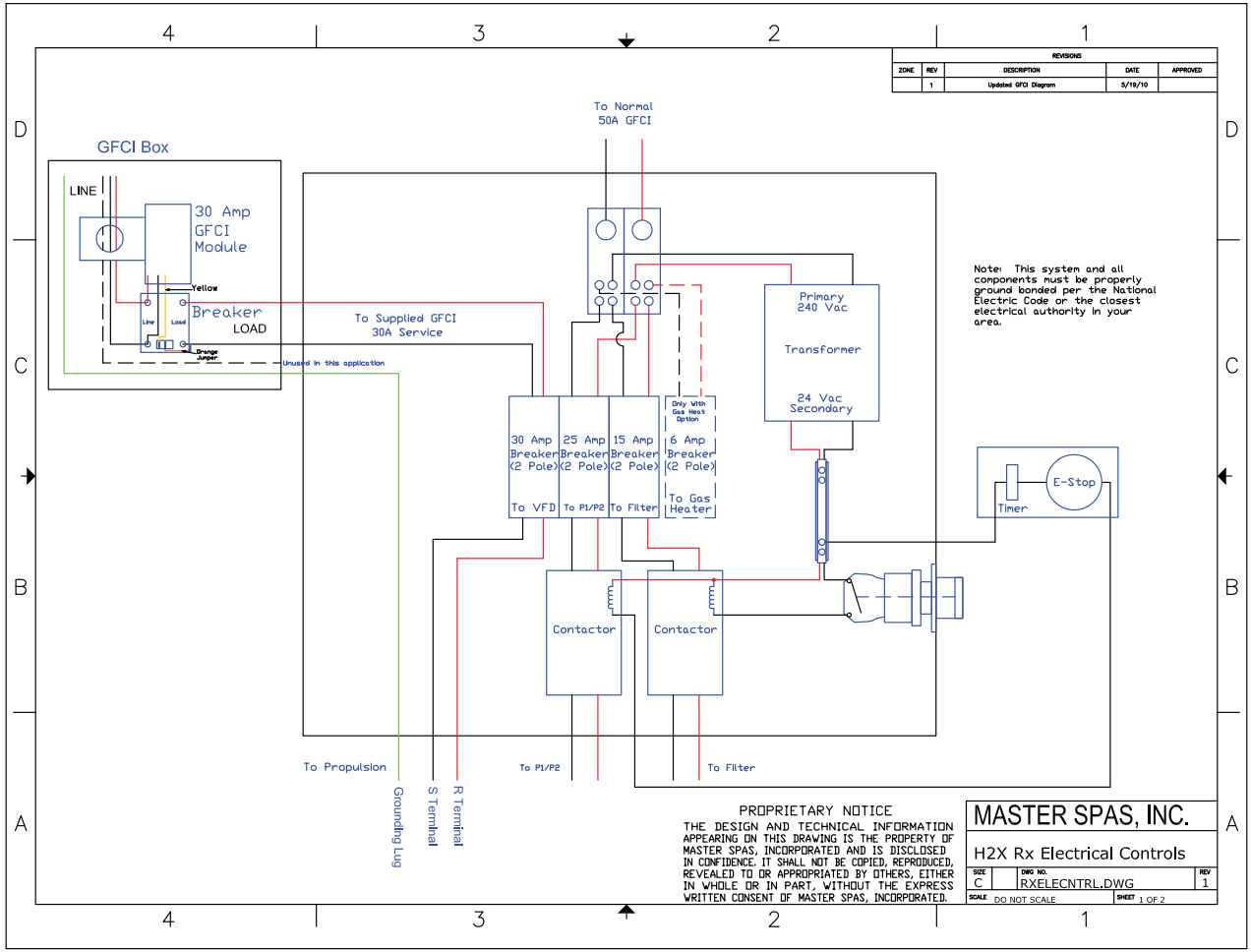
MASTER SPAS, INC.
H2X Rx Electrical
SIZE
C
DWG NO.
RXELEC.DWG
REV
-
SCALE
DO NOT SCALE
SHEET
1 OF 1


REVISIONS
ZONE | REV | DESCRIPTION | DATE | APPROVED
1 | Updated GFCI Diagram | 5/19/10
To Normal
50A GFCI
GFCI Box
LINE
30 Amp
GFCI
Module
Yellow
Breaker
LOAD
Line
Load
Orange
Jumper
Unused in this application
To Supplied GFCI
30A Service
Primary
240 Vac
Transformer
24 Vac
Secondary
Note: This system and all components must be properly ground bonded per the National Electric Code or the closest electrical authority in your area.
Only With Gas Heat Option
30 Amp Breaker (2 Pole)
25 Amp Breaker (2 Pole)
15 Amp Breaker (2 Pole)
6 Amp Breaker (2 Pole)
To VFD
To P1/P2
To Filter
To Gas Heater
Timer
E-Stop
Contactor
Contactor
To Propulsion
To P1/P2
To Filter
Grounding Lug
S Terminal
R Terminal
PROPRIETARY NOTICE
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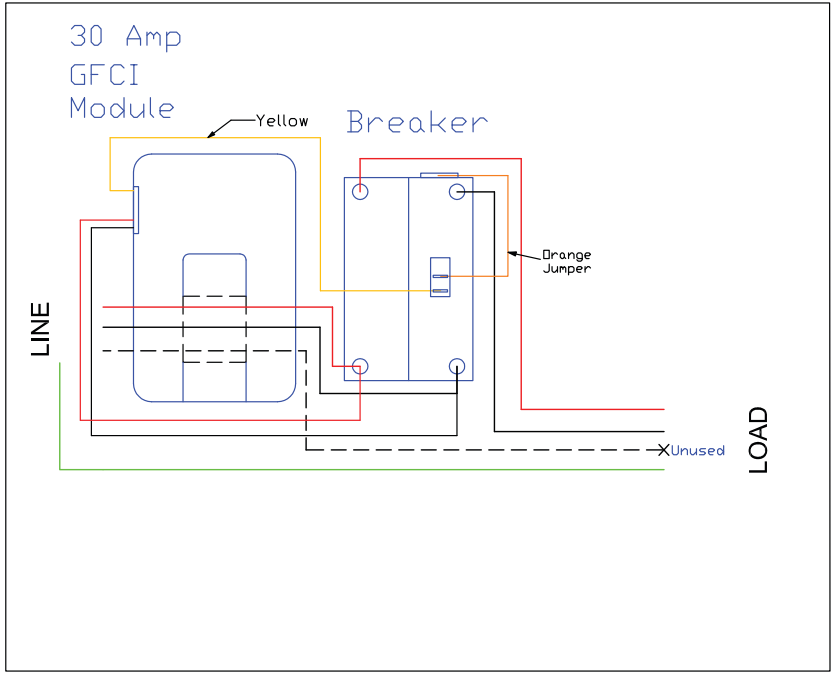
MASTER SPAS, INC.
H2X Rx Electrical Controls
SIZE C
DWG NO. RXELECNTRL.DWG
REV 1
SCALE DO NOT SCALE
SHEET 1 OF 2

GFCI Box



REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

MASTER SPAS, INC.

H2X Rx GFCI BOX

SIZE		DWG NO.	REV
C		RXGFCIBOX.DWG	0

SCALE DO NOT SCALE SHEET 1 OF 1

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

Recommended Parts List H2X Rx Controls

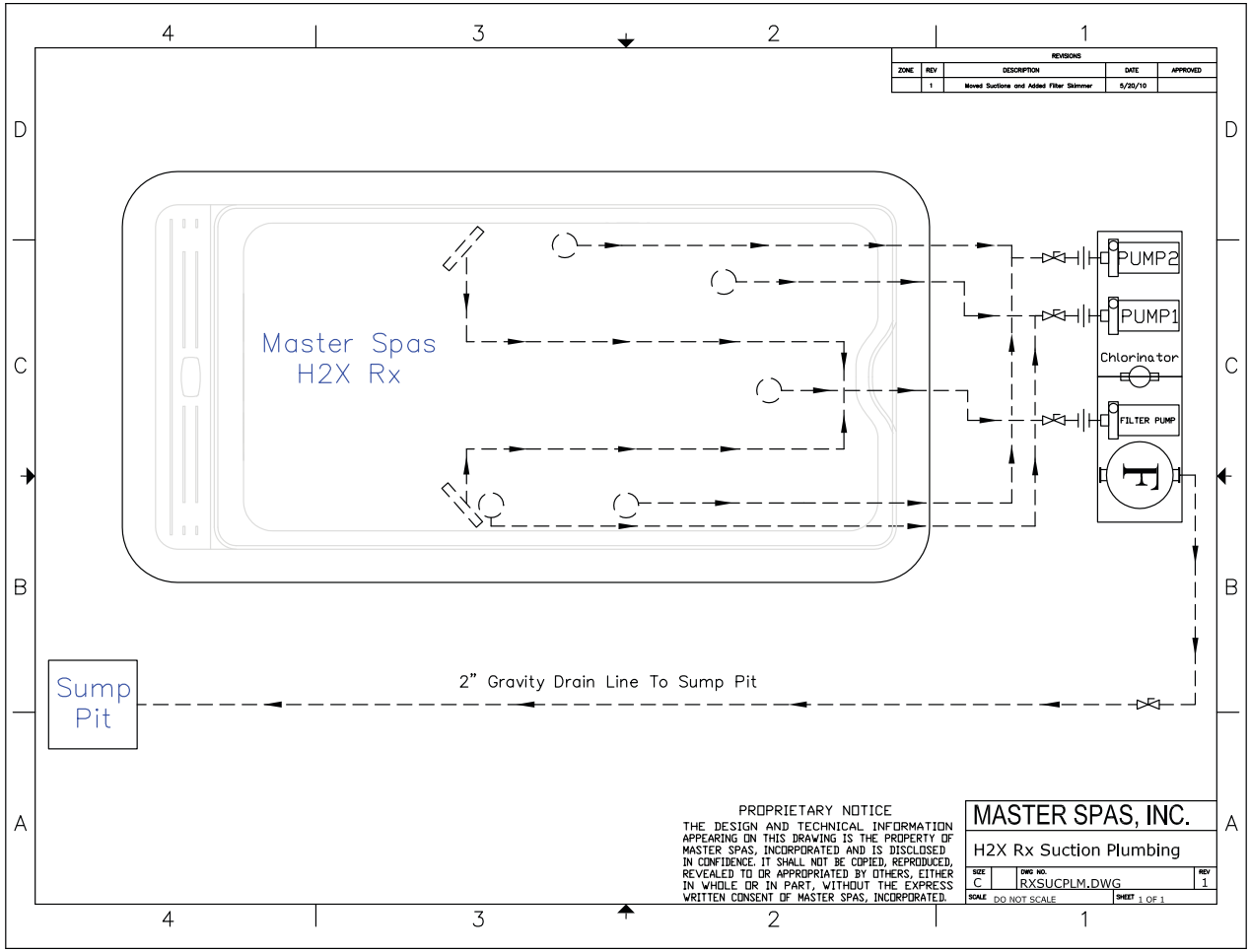
Quantity	Short Description
2	DIST BLK,FINGER SAFE,175A, 1 POLE,1 OPEN LINE,4 OPEN LOAD,QTY1
2	CONTACTOR 32A, 24VAC COIL, 54mm
1	CONTROL TRANSFORMER 75VA, 120x240VAC TO 12x24VAC
1	PB 22MM 4SCREWS W/ HOLES FOR 2PB 1ROW
1	2SCREWS OPQ CVR GRY 4X HINGE 18X16X8IN
1	SUB-PANEL ALUMINUM FITS 18X16IN
1	SUPPLEMENTARY PROTECTOR 2 POLE 25A D CURVE
1	SUPPLEMENTARY PROTECTOR 2 POLE 30A D CURVE
1	SUPPLEMENTARY PROTECTOR 2 POLE 15A D CURVE
1	LEGEND PLATE, 60mm, 1/PK,E-STOP,YELLOW
1	PB, 22mm, PLASTIC, RED, TWST-REL, 60mm OPERATOR, 1 N.C.
1	PB, 22mm, PLASTIC, GRN, ON/OFF, 24V, LED ILLUM, FLUSH, 1 N.O.
0.02	TERMINAL BLOCK, GRY, 50/PK, 2-LEVEL, 30A, 10AWG, 600V
1	CTRL TRANS FUSE KIT UP TO 100VA FOR PRIMARY SIDE
0.1	HCTR 1 AMP CURRENT LIMITING CLASS CC FUSE 10 PACK
0.1	MEN 3 AMP TIME DELAY FUSE 10 PACK

MASTER SPAS, INC.

H2X Rx Electrical Controls

SIZE	DWG NO.	REV
C	RXELECNTRL.DWG	-

SCALE DO NOT SCALE SHEET 2 OF 2


REVISIONS
ZONE | REV | DESCRIPTION | DATE | APPROVED
1 | Moved Suctions and Added Filter Skimmer | 5/20/10
Master Spas
H2X Rx
PUMP2
PUMP1
Chlorinator
FILTER PUMP
Sump Pit
2" Gravity Drain Line To Sump Pit
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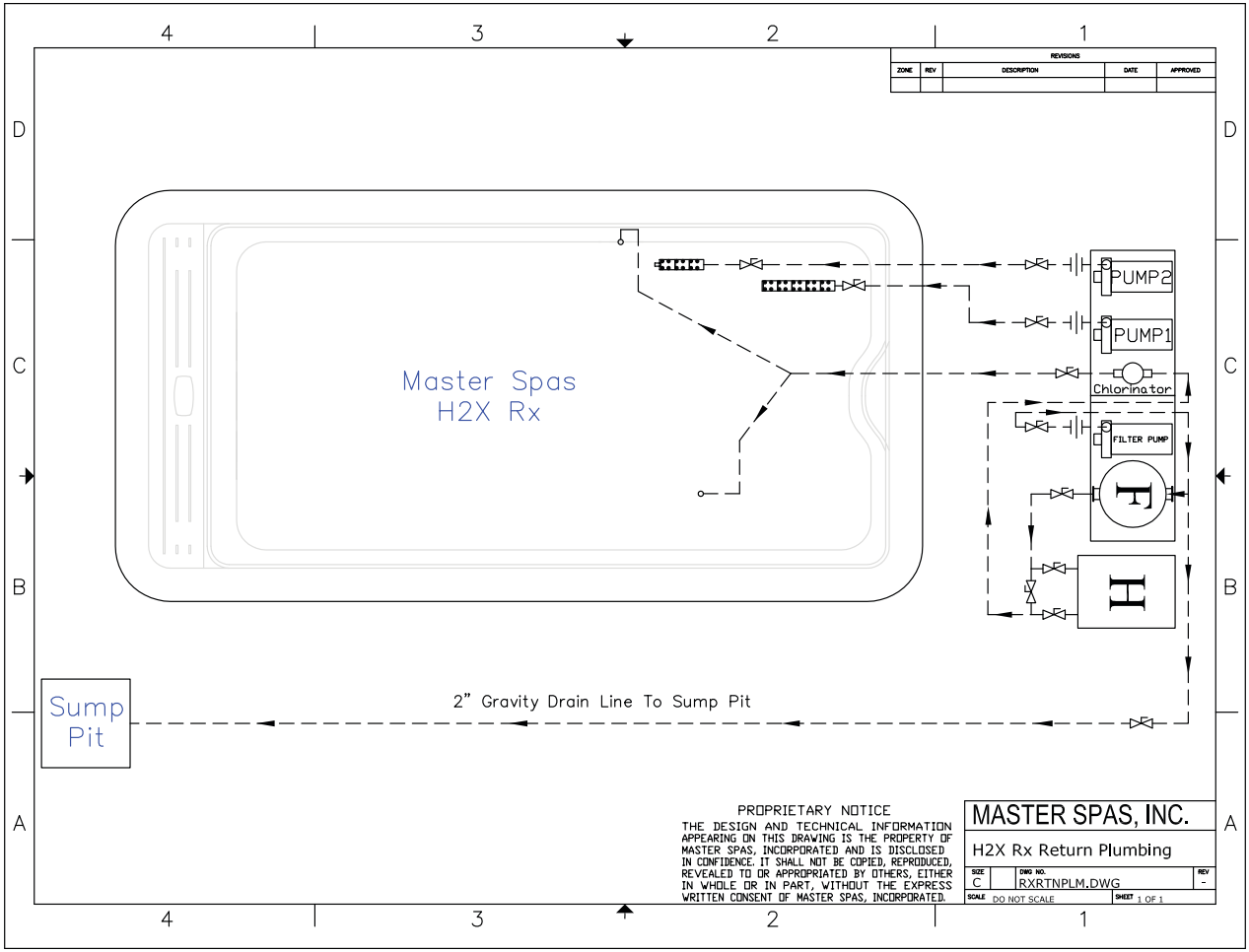
MASTER SPAS, INC.
H2X Rx Suction Plumbing
SIZE C
DWG NO. RXSUCPLM.DWG
REV 1
SCALE DO NOT SCALE
SHEET 1 OF 1


REVISIONS
ZONE
REV
DESCRIPTION
DATE
APPROVED
Master Spas
H2X Rx
PUMP2
PUMP1
Chlorinator
FILTER PUMP
Sump Pit
2" Gravity Drain Line To Sump Pit
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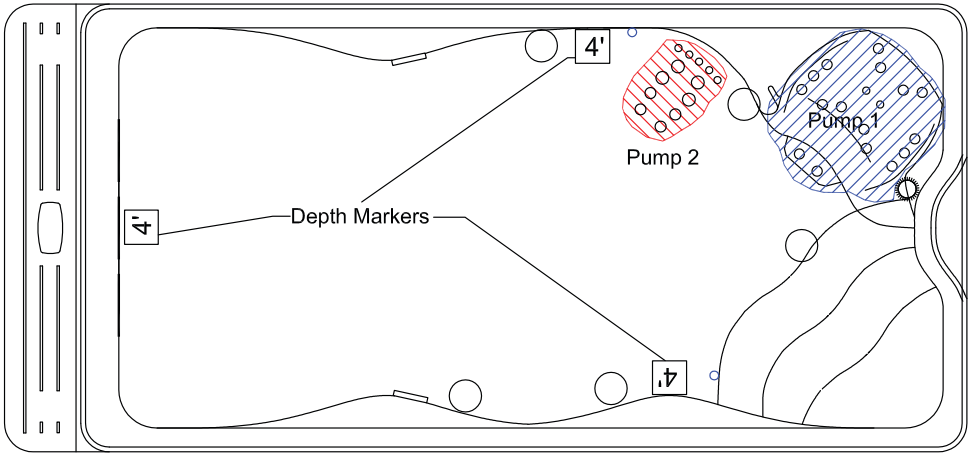
MASTER SPAS, INC.
H2X Rx Return Plumbing
SIZE C
DWG NO. RXRTNPLM.DWG
REV -
SCALE DO NOT SCALE
SHEET 1 OF 1

2010 H2X RX



Rev 1: Added Depth Markers (5/24/10)
Rev 0: Original Drawing (10/15/09)

Engineering Approval:

Master Spas

Model Number	Date	Revision
H2X RX	5/24/10	1
Process: Controls R-U	Drawn by: Valmassoi	

OWNER'S MANUAL

Manufactured by Master Spas,
one of the world's leading spa manufacturers.

6927 Lincoln Parkway
Fort Wayne, IN 46804
800.860.7727

Rev 4/2010