

SECTION 13 1404 – WATER FEATURE WHITE GOODS

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes the following:
 - 1. Prefabricated Skimmers
 - 2. Prefabricated Bottom Drains
 - 3. Prefabricated Gutter
 - 4. Gutter Drains
 - 5. Perimeter Grating
 - 6. Large Drain Sump Grating
 - 7. FRP Balance Tanks
 - 8. Floor and Wall Inlet Jets
 - 9. Hydrotherapy Jets
 - 10. Hydrostatic Relief Valves
- B. Related Sections:
 - 1. SECTION 13 1204 – WATER FEATURE CAST IN PLACE CONCRETE
 - 2. SECTION 13 1205 – WATER FEATURE SHOTCRETE
 - 3. SECTION 13 1301 – WATER FEATURE PLASTER FINISHES
 - 4. SECTION 13 1302 – WATER FEATURE TILE FINISHES
 - 5. SECTION 13 1305 – WATER FEATURE ACCESSORIES
 - 6. SECTION 13 1401 – WATER FEATURE PIPE AND FITTINGS
 - 7. SECTION 13 1502 – WATER FEATURE PUMPS AND MOTORS
 - 8. SECTION 13 1503 – WATER FEATURE FILTERS
 - 9. SECTION 13 1511 – WATER FEATURE VALVES, GAUGES, AND METERS
- C. References:
 - 1. National Sanitation Foundation (NSF) – Standard 50 Specification
 - 2. NFPA 70 – National Electrical Code (NEC) – Article 680-21
 - 3. Underwriters Laboratories (UL)
 - 4. Virginia Graeme Baker Pool and Spa Safety Act (VGB)

1.2 SUBMITTALS FOR REVIEW

- A. SECTION 01 3300 – SUBMITTAL PROCEDURE.
- B. Product Data: Submit manufacturer's literature including printed recommendations, compliance with Standards and Testing Agencies, dimensions and sizes of products.
 - 1. Indicated on submittal which materials, models, data, ratings, and options are being selected.
- C. Shop Drawings: Indicated layout, general assembly, components, dimensions, clearances, and method of assembly.
- D. Maintenance Data: Include manufacturer's literature, maintenance recommendation, and replacement parts list.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Accept components on site in factory packing and inspect for damage.
- B. Protect components received at site from physical damage, including effects of weather, water, and construction.

PART 2 - PRODUCTS

2.1 PREFABRICATED SKIMMERS

- A. Approved Manufacturers and Suppliers
 - 1. Pentair Pool Products
 - 2. Hayward Industries
 - 3. Waterway Plastics
 - 4. Recreonics
 - 5. Lincoln Aquatics
- B. Prefabricated Skimmers shall be NSF 50 approved.
- C. Skimmer body shall be constructed of molded non-corrosive material such as ABS, PVC, or HDPE and designed to be cast into concrete with a minimum of 4-inches (0.1m) concrete covering the basket housing.
- D. A floating removable weir that automatically adjusts to variations in the water level shall be provided and installed in the skimmer.
- E. An equalizer valve assembly shall be installed in the wall of the pool or into the bottom drain and piped to the skimmer as noted on the Contract Documents.
 - 1. All equalizer pipes shall have a VGB Compliant cover when installed in the wall of the pool.
- F. A removable debris basket shall be provided. Basket shall be constructed of a non-corrosive material such as nylon or stainless steel and shall be access by removal of a cover plate.
- G. Provide an adjustable deck collar with cover plate. Cover plate shall be heavy duty, non-corrosive, and of a non-slip design. The cover plate shall be secured to the collar and skimmer body with stainless steel locking screws or clips. The Contractor shall provide extension collars as required.

2.2 PREFABRICATED BOTTOM DRAINS

- A. Approved Manufacturers and Suppliers
 - 1. Pentair Pool Products
 - 2. Hayward Industries
 - 3. ASA Manufacturing, Incorporated
 - 4. Lawson Aquatics
 - 5. Recreonics
 - 6. Lincoln Aquatics
- B. Prefabricated Drains shall be certified as compliant to VGB requirements and applicable NSF 50 Standards.
- C. Prefabricated Drains shall be constructed of non-corrosive and non-conductive materials, such as fiberglass, PVC, or HDPE and suitable for continuous exposure to chlorinated water environments. Materials shall be UV stabilized. The interior finish shall be smooth and finish color to match the color of the bottom of the pool.
- D. Each prefabricated drain shall have pipe side outlets (FIP) as specified on the Contract Documents. In addition, 2-inch (50mm) bottom outlets (FIP) shall be provided for the placement of hydrostatic relief valves. The Contractor shall verify all pipe connection sizes as shown on the Contract Documents.
- E. Bottom Drain Grates shall be certified as compliant to VGB requirements. Each grate shall be constructed of non-corrosive and non-conductive materials, such as FRP or PVC and shall have a minimum open area of 50-percent. Grate color shall match the finish of the bottom of the pool or as specified by the architect/landscape architect.
- F. Grates shall be fastened to the frame with 316L stainless steel fasteners. Removal of grate fastener shall require the use of a tool.

2.3 PREFABRICATED GUTTER

- A. Approved Manufacturers and Suppliers
 - 1. ASA Manufacturing
 - 2. Lawson Aquatics
- B. Prefabricated Gutters shall be constructed of multiple layers of premium fiberglass and resin. Interior of gutters shall have a smooth gel coat finish. A water stop flange shall be integral to the gutter construction
- C. Individual fiberglass sections to be available in either straight or curved sections in lengths up to 10-feet (3m) and are to be flanged, pre-drilled, and include the necessary stainless-steel hardware for bolting the sections together.
- D. Gutter outlets shall be sized as shown on the Contract Documents. The Contractor shall verify all pipe connection sizes.
- E. Gutter shall be installed as per manufacturer's recommendations for leveling and assembly. All gutters shall be level within 1/8-inch (3mm) along the entire perimeter.
- F. The Contractor shall provide Perimeter Grating that is compatible with the gutter system.

2.4 GUTTER DRAINS

- A. Approved Manufacturers and Suppliers
 - 1. Pentair Pool Products
 - 2. Hayward Industries
 - 3. Recreonics
 - 4. Lincoln Aquatics
- B. Gutter Drain fittings shall be NSF 50 approved.
- C. Gutter Drain fittings shall be constructed of a non-corrosive and non-conductive material, such as ABS or PVC.
- D. The Contractor shall provide gutter drain fittings as shown on the Contract Documents and shall verify the pipe connection sizes.

2.5 PERIMETER GRATING

- A. Approved Manufacturers and Suppliers
 - 1. Lawson Aquatics
 - 2. RenoSys
 - 3. Natare
 - 4. Recreonics
 - 5. Lincoln Aquatics
- B. Perimeter grating shall be constructed of UV stabilized PVC, FRP, or other non-corrosive and non-conductive material. Stone or precast concrete grating shall be non-porous.
- C. The top surface must have a raised, non-slip pattern to meet the static coefficient of friction when wet or dry.
- D. The space between the pieces must not exceed 3/8-inches (10mm) and provide a minimum open area of 37.5-percent per foot to allow unrestricted water flow.
- E. The grate color shall be as specified by the architect/landscape architect.
- F. The Contractor shall verify the thickness of the grate is compatible with the construction of the gutter.

2.6 Large Drain Sump Grating

- A. Approved Manufacturers and Suppliers
 - 1. Seasafe Grating
 - 2. Grating Systems Incorporated
 - B. Large Drain Sump Grating shall be custom fabricated from molded or pultruded FRP or PVC, of sufficient strength to support a live load of 40 lbs/sq. foot (366 kg/sq. m), maximum deflection of L/360, maximum clearance space of 3/8-inches (10mm), and a minimum clear open area of 50-percent. The grate color shall be as determined by the architect/landscape architect.
 - C. Custom fabricated grating shall meet the requirements of the VGB and shall be provided with the appropriate identification of compliance.
 - D. The Contractor shall provide all recommended support structure as determined by the manufacturer.
 - E. The grating shall be fastened to the frame with 316L stainless steel screws or clips. All fasteners shall require the use of a tool to remove.
- 2.7 FRP Balance Tanks
- A. Approved Manufacturers
 - 1. ASA Manufacturing, Incorporated
 - 2. Vakpak, Incorporated
 - 3. Mer-made Filter, Incorporated
 - B. FRP Balance Tanks may also be referred to as surge tanks or collector tanks and used for gravity flow and non-suction aquatic applications.
 - C. FRP Balance Tanks shall be constructed of premium fiberglass and resin and structurally self supporting. Interior of the tank shall be a durable, smooth, non-porous gelcoat coating.
 - D. All penetrations shall be integrally formed socket to socket Schedule 40 PVC couplings, located as per the Contract Documents. Flanged connections may be used when tanks are installed above grade.
 - E. Provide a solid fiberglass hinged cover with locking mechanism and handle for tanks located in landscape areas. For pedestrian areas, provide an aluminum cover. Fiberglass grate covers may be used when the tank is in back-of-house areas where debris is not likely to fall into the tank.
 - F. The Contractor shall provide all required concrete ballast support for tanks in potential ground water installations.
- 2.8 FLOOR AND WALL INLET JETS
- A. Approved Manufacturers and Suppliers
 - 1. Pentair Pool Products
 - 2. Hayward Industries
 - 3. Waterway Plastics
 - 4. Lawson Aquatics
 - 5. Recreonics
 - 6. Lincoln Aquatics
 - B. Floor Inlets or Returns shall be fully adjustable molded white PVC or Cycloc body with diffuser plate to provide uniform distribution.
 - C. Wall Inlets or Returns shall be non-directional flow PVC or Cycloc wall fittings with internal threads that allow interchangeable eyeball fittings.
 - D. The Contractor shall verify all pipe connection sizes as shown on the Contract Documents.
- 2.9 HYDROTHERAPY JETS

- A. Approved Manufacturers and Suppliers
 - 1. Waterway Plastics
 - 2. Recreonics
 - 3. HydroAir
 - B. Body: Molded white PVC hydrotherapy body with internal threads that allow interchangeable fittings. Body style shall provide a venture for air mixing.
 - C. Jet Type and Nozzle Sizes shall vary as indicated on the Construction Documents. If information is not provided on the Construction Documents, the Contractor shall provide the following:
 - 1. Internal Jet: 3/8-inch (10mm) diameter orifice
 - 2. Provide 1/3 of hydrotherapy jets with power massage style jet; 1/3 with pulsator style jet; and 1/3 with roto-style jet
 - 3. All but one of the hydrotherapy jets shall be fully adjustable from full open to full close. One of the jets shall be non-adjustable.
 - D. Hydrotherapy jets shall be located at various elevations within plus or minus 2-inches (50mm) of the location shown in the Contract Documents to allow variety of jet position for the bather
 - E. The Contractor shall verify the size and number of hydrotherapy jets with the Contract Documents
- 2.10 HYDROSTATIC RELIEF VALVES
- A. Approved Manufacturers and Suppliers
 - 1. Pentair Pool Products
 - 2. Waterman Valve
 - 3. Recreonics
 - 4. Lincoln Aquatics
 - B. For Prefabricated Drain boxes provide 1-1/2- to 2-inch (40-50mm) threaded Cicolac hydrostatic relief valve with a Cicolac collector tube, as shown in the Contract Documents.
 - C. Cast in Place Drain boxes provide a 2-inch (50mm) commercial grade, heavy duty cast bronze body and valve plate, valve seal gasket and brass cover plate with compatible collector tube, as shown in the Contract Documents.
 - D. The Contractor shall provide hydrostatic relief valves as indicated on the Contract Documents and whenever ground water is present. Hydrostatic relief valves shall be located in the bottom drain boxes.

PART 3 - EXECUTION**3.1 GENERAL**

- A. Install products, equipment, and accessories in accordance with manufacturer's recommendations, local building codes, and Public Health Department requirements.
- B. Locate skimmers, inlets, jets, drains, and etc. in locations shown on the Contract Documents.

3.2 PREFABRICATED SKIMMERS

- A. Skimmers shall be installed in accordance with the manufacturer's recommendations and in accordance with the Contract Documents.
- B. Locate Skimmers in the pool shell as shown in the Contract Documents. Provide a minimum of 4 inches (0.1m) concrete coverage around the body of the skimmer.
- C. Skimmers shall be set to the correct elevation, leveled, and held in place during application of shotcrete, or concrete for the pool shell. Skimmers that are not level will be removed, replaced, and reinstalled at the Contractor's expense.

- D. Skimmers shall be flush with the finish of the pool surface and Skimmer access lids shall be flush with the pool deck.
- E. The Contractor shall install water stop flanges on the pipes connecting to the Skimmer.
- F. The Contractor shall provide a VGB compliant cover for all equalizer lines that are installed in the pool wall.

3.3 PREFABRICATED BOTTOM DRAINS

- A. Install drains as shown on the Contract Documents. Provide at a minimum one (1) bottom drain in the deepest areas of the pool.
- B. Drain shall be level with the top of the drain and grate edges flush with the finish of the pool surface, or in accordance with the specific grate manufacturer's recommendations. Slope pool surface to drains with a minimum 1:40 slope. Pool floor shall be constructed such that the low points only occur in the location of the bottom drains.
- C. The Contractor shall provide proper reinforcing steel and concrete cover as per the Contract Documents.
- D. The Contractor shall install water stop flanges on the pipes connecting to the bottom drains.

3.4 PREFABRICATED GUTTER SYSTEM

- A. Install gutter system as per manufacturer's recommendations, including leveling and support devices.

3.5 GUTTER DRAINS

- A. Install gutter drains as shown on the Contract Documents. The Contractor shall verify the spacing of the gutter drains.
- B. The Contractor shall slope the gutter to the gutter drains.

3.6 PERIMETER GRATING

- A. Install Perimeter Gutter as shown on the Contract Documents. The Contractor shall install the grating as recommended by the manufacturer.
- B. The Contractor shall verify that the grating thickness is compatible with the gutter installation.
- C. The grating shall be flush with the pool deck or pool shell as per installation condition.

3.7 LARGE DRAIN SUMP GRATING

- A. Install grating as shown on the Contract Documents. Contractor shall obtain manufacturer's fabrication and support drawing and install per manufacturer's recommendations.
- B. The grating shall be flush with the pool finish.
- C. The Contractor shall properly anchor grating to frame with 316L stainless steel screws or clips as per manufacturer's recommendations. Fastener shall require the use of a tool to remove.

3.8 FRP Balance Tanks

- A. Install FRP Balance tanks in accordance with the Contract Documents.
- B. The Contractor shall obtain manufacturer's shop drawing showing penetration locations, sizes, and elevations.
- C. The Contractor shall provide concrete ballast for tanks installed in locations where ground water may be present.
- D. The Contractor shall provide the appropriate cover for the surrounding area, whether in landscape, pedestrian, or back of house spaces.

- E. The Contractor shall notify the Engineer of Record if the tank is installed four (4) or more feet below the bottom of the pool, as this may create a potential suction condition.
- F. Enclosed FRP balance tanks shall have a vent pipe, of sufficient diameter, that extends above the water surface of the pool. The vent shall be configured to prevent obstruction, whether by manmade means or natural means.
- G. The Contractor shall provide necessary float control valves as specified in the Contract Documents or as per Manufacturer recommendation.

3.9 FLOOR AND WALL INLET JETS

- A. Install floor and wall jets in accordance with manufacturer's recommendation and as indicated on the Contract Documents.
- B. Install jets in locations as shown on the Contract Documents. Jets shall be installed flush with the finished surface of the pool.
- C. The Contractor shall make the necessary adjustments to the floor inlet jets to provide a balance and even distribution throughout the pool.

3.10 HYDROTHERAPY JETS

- A. Install hydrotherapy jets in accordance with manufacturer's recommendations and as indicated on the Contract Documents.
- B. Install hydrotherapy jets in locations as shown on the Contract Documents. Jets shall be installed flush with the finishes surface of the pool.
- C. Install hydrotherapy jets with the air line port on the top. The Contractor shall install the air supply line at the highest possible elevation between the pool and the Hartford Loop.
- D. The Contractor shall install a Hartford Loop in a location that has been coordinated with the landscape architect/architect to provide as much concealment as possible. The Hartford Loop shall be in close proximity of the pool.

3.11 HYDROSTATIC RELIEF VALVES

- A. Install hydrostatic relief valves in accordance with the manufacturer's recommendations and as indicated on the Contract Documents.
- B. The Contractor shall prepare an area around the collector tube that provides free draining material and filter fabric between the native material and the free draining material.

END OF SECTION