P.O. Box 420 ♦ 420 N. State Road 25 ♦ Rochester, IN 46975
Toll Free (800) 354-4534 ♦ Fax (219) 223-6106
E-mail: toppindutries@toppindustries.com ♦ Web-site: www.toppindustries.com

24” dia.

SPECIFICATIONS

Filament Wound Fiberglass Basin With Fiberglass Anti-Float

Solid Fiberglass Cover

(for 24” dia. Fiberglass basin)

“Where Your Priorities become TOPP Priorities”

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General Specifications

- Fiberglass Basin, with Fiberglass Anti-Float, Manufactured by Topp Industries, Inc.
  - Basin Wall Color – Blue, code TII30026 CT
  - Filament hoop-wound

- Cover and Anti-Float Flange
  - Color – Blue, code TII30026 CT
  - Cover flange molded in inserts
  - Torque requirements for compression molded inserts

- Fiberglass Anti-Floatation Flange
  - Color – Blue, code TII30026 CT
  - Compression / Molded non-skid (X) raised tread pattern on the bottom of the anti-floatation flange.

- Solid Fiberglass Cover
  - Cover – green
  - Recessed bolt holes
  - Compression / Molded non-skid (X) raised tread pattern on the top of the cover

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Filament Wound Fiberglass Basin Manufacturing Specifications

The resins used shall be commercial grade polyester and shall be evaluated as a laminate test or determined by previous service to be acceptable for the intended environment.

The reinforcing material shall be a commercial grade of glass fiber (continuous strand, chopped-strand, continuous mat and/or non-continuous mat) having a coupling agent, which will provide a suitable bond between the glass reinforcement material and resin.

The FRP* laminate wall thickness shall vary with the wet well height to provide the aggregate strength necessary to meet the tensile and flexural physical properties requirements. The wet well FRP* wall laminate must be designed to withstand wall collapse or buckling based on:

- Wall thickness
  - Will vary with the wet well height to provide the aggregate strength to meet the tensile and the flexural physical property requirements.
- Hydrostatic pressure of 62.4 lbs. per square foot
- Saturated soil weight of 120 lbs. per cubic foot
- Soil modulus of 700 lbs. per square foot
- Pipe stiffness values as a specified in ASTM D3753

The wet well FRP* laminate must be constructed to withstand or exceed two times the assumed loading on any depth of the wet well.

The finished FRP* laminate will have a Barcol hardness of at least 90% of the resin manufacturer's specified hardness for the fully cured resin. The Barcol hardness shall be the same for both the interior and exterior surfaces.

*Fiberglass Reinforced Polyester

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Basin Cover Flange Specifications

- Manufacturing Process
  - Compression Molding
- Material
  - SMC
- Color
  - Blue, code TII30026 CT
- Attachment
  - The basin cover flange must be attached only by filament hoop-winding process with a commercial grade of continues strand fiberglass. Which must have a suitable bond between the glass reinforcement materials and resin
- Outside diameter
  - No larger than 2 inches greater than the inside diameter of the wet well
- Six hole bolt pattern
  - Basin cover flange shall accommodate the mounting of a cover and using 1/4-20 300 Series Stainless Steel Hex Head Bolts and Washers
- 1/4-20 Knurled 300 Series Stainless Steel Inserts
  - MUST be installed during the SMC process
  - DO NOT attempt inserting after the flange has been manufactured, if you attempt to insert after the flange is manufactured, it may not meet the torque requirements of 49 to 50 lbs. (average)
  - Inserts that require secondary glassing is unacceptable for a SMC compression molding process.
    - Secondary glassing can and may cause insert to slip, turn, or plug, and may cause problems in setting this size of a tank
- The use of helicoils with a SMC cover flanges
  - Will not meet the required torque test requirements
  - Will slip during cover hardware installation
  - Will Strip out during installation of cover hardware

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Basin Anti-Floatation Specifications

- Manufacturing Process
  - Compression Molding
- Material
  - SMC
- Color
  - Blue, code TII30026 CT
- Attachment
  - The basin anti-floatation must be attached only by filament hoop-winding process with a commercial grade of continues strand fiberglass. Which must have a suitable bond between the glass reinforcement materials and resin

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Basin Anti-Floatation Flange Specifications

- Outside diameter shall be no larger than 2 inches greater than the inside diameter of the wet well

- Manufacturing Process
  - Compression Molding

- Material
  - BMC

- Color
  - Blue, code TII30026 CT

- Design
  - Compression / Molded raised (X) non-skid tread pattern with a minimum height of 0.062”
  - Recess for bolt down attachment must be molded in place so the head of the bolt does not extend above the surface of the cover
  - Covers must withstand a load of 2,500 pounds applied to the center of the cover on a 14” x 9” footprint. The outer ring must support the cover.
  - Gasket groove must be molded into the cover to protect and position the seal.

BMC – Glass 22%

Physical Property	Test	BMC
Flexural Strength	ASTM D-79C	20,000
Flexural Modulus, psi x 10°	ASTM D-79D	1.5
Tensile Strength, psi	ASTM D-638	8,000
Compressive Strength, psi	ASTM D-98S	24,000
Impact Strength, Izod	ASTM D-256	8
Water Absorption, %	ASTM D-790	0.1
Heat Deflection, °F @ 264, psi	ASTM D-648	500
Specific Gravity	ASTM D-792	1.81
Shrinkage, in./in.	ASTM D-955	0.001

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Fiberglass Basin Installation Reference Guide

- **Purpose**

  The purpose of this guide is to provide a brief reference to the recommended methods and procedures for installing Topp Industries, Inc. under ground sump and sewage basins to ensure that damage or premature failure of the basin does not occur.

  Studies conducted by both environmental regulatory agencies and trade organizations demonstrate that the most significant source of leaks and failures in underground storage systems is improper handling and installation. Proper handling and installation requires practical experience combined with strict adherence to proven methods and procedures.

  This guide is **not** intended to serve as a basic instructional manual. The installation of our sump and sewage basins is a specialized skill; it is assumed that the individuals who install our products and refer to this guide will have a basic understanding of such procedures as exacting, backfilling, pipefitting, and electrical work. No amount of written instruction by a manufacture or a regulatory agency will convert an inexperienced, under-supervised laborer into a skilled, experienced mechanic. The ability to recognize and correctly respond to abnormal conditions during a basin installation requires field experience as well as mechanical aptitude.

  In addition to proper system engineering and competent manufacturing, the use of basin installers who have both practical experience and integrity to insist that the basin be installed properly constitutes the greatest protection from catastrophic basin failure and liability exposure.

- **Disclaimer**

  Topp Industries, Inc. and its agents to ensure the accuracy and reliability of the information contained in this reference guide have put every reasonable effort forth. However, neither Topp Industries, Inc., its agents, nor its consultant make any effort representation, warranty, or guarantee in connection with the publication of these recommended methods and procedures. Topp Industries, Inc. hereby disclaims any reliability for loss or damage resulting from their use; for the violation of any federal, state, county, or municipal regulations with which these recommended methods and procedures may conflict; or for the infringement of any patent resulting from use of these recommended methods and procedures.

  These handling and installation instructions are **not** intended to preclude normal safety procedures, which should be followed to prevent injury to personnel.
  SAFE INSTALLATION PROCEDURES SHALL BE ENTIRELY THE RESPONSIBILITY OF THE INSTALLER.

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Fiberglass Basin Installation Reference Guide, continued

- **Material Handling**
  - General Handling

    Although the exterior surfaces of our fiberglass reinforced plastic (FRP) sump and sewage basins are designed to withstand normal handling, they can be damaged during transportation and installation. Basins must no be dropped, dragged, or handled with sharp objects and with the exception of minimal movement involved in a visual inspection, should not be rolled.

    If the basin or its shell is damaged, installation should be suspended until Topp Industries, Inc. or its agent can make a determination of the extent of damage. All repairs must be authorized in writing by Topp Industries, Inc. and then be done in accordance with Topp Industries, Inc. instructions.

  - Unloading, Lifting, and Lowering

    The proper way of moving a basin is by lifting it, using chains or cables with the optional lifting lugs (not more than 30° included angle) or by using a non-marring sling around the basin. Before any attempt is made to move a basin, it should be established that all of the equipment and accessories have sufficient capacity and reach to lift and lower the basins without dragging and/or dropping. Basins should be maneuvered with guide ropes attached to the sides.

  - **WARNING!**

    Under no circumstances is the use of chains or cables around the basin shell permitted.

  - Storage

    Basins should be stored in a secure, controlled area where the potential for accidental damage or vandalism will be minimized. The storage area should be free from sharp objects, rocks and any other foreign solutions or materials that could cause damage to the basins. Chock the basins until needed for installation and if windy conditions are possible, secure the basins with non-marring restraints of a size and number adequate for securing the basin.

  - Pre-installation Inspection

    Basins, valves, equipment, and piping materials should be physically and visually inspected before installation. Adherence to the project's specifications should also be confirmed before installation. If damage to the basin or any of its internal components, installation should be suspended until Topp Industries, Inc. or its agent can make a determination of the extent of damage. Any repairs must be first authorized in writing by Topp Industries, Inc., and then completed in accordance with Topp Industries, Inc. instructions.

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Fiberglass Basin Installation Reference Guide, continued

- **Excavating**
  - Excavating

    Excavating should provide adequate space for the basin, piping, and other buried equipment and for the replacement and compaction of backfill materials particularly around the basin walls. The size, shape, and wall slope of the excavation should be determined by soil conditions, depth of excavation, shoring requirements, and if workers are required to enter the excavation, safety considerations and federal, state, county, and municipal regulations.

  - **WARNING!**

    Locate all overhead and underground utilities before excavating.

  - Location of Excavation

    Excavation for an underground basin should be made with due care to avoid undermining foundations of an existing structures and contact with underground utilities. In the absence of building codes or regulations, maintain a minimum distance of five feet plus, a slope of 45° from the bottom of the compacted sub-base to the bottom of the adjacent structures, foundations, footings, and property lines (as shown on page 13). Additional distances may be required to assure that any loading carried or created by the foundations and supports cannot be transferred to the basin(s).

  - Maximum Burial Depth

    If burial depth is greater that the basin height, contact Topp Industries, Inc. to determine if additional wall reinforcement is required and secure written authorization.

  - Handling of Excavated Materials

    Excavated, materials, which cannot be removed from the jobsite, should be carefully stored as far from the edge of the basin excavation as possible. Unless approved for use as backfill, excavation materials should be securely stored separate from approved backfill materials.

  - Work Area Safety

    Safe installation procedures shall be the sole responsibility of the basin installer. Work safety requirements are defined in U.S. Department of Labor 29 CFR part 1926, subpart P, Excavations.

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Fiberglass Basin Installation Reference Guide, continued

- **Backfilling**
  - General

    Careful selection, placement, and compaction of approved backfill material is critical to a successful basin installation. Among the common problems associated with basin leaks and premature failures are:
    - Use of an incorrect backfill material
    - Inadequate or improper placement or compaction
    - Rocks, clods, or debris left in the excavation or basin
    - Voids under or around the perimeter of the basin
    - Failure to prevent the migration of backfill materials

  - Placement of Basin

    The bottom of the basin excavation should be covered with suitably graded, leveled, and compacted backfill material to a depth of at least 12 inches (compacted sub-base). If a concrete hold-down.anti-floatation pad is required, this bedding can be reduced to a depth of 6 inches. The basin should then be carefully lowered into the excavation and centered on the compacted backfill or concrete pad (as shown on page 13).

  - **WARNING!**

    Placement of a basin on a concrete pad or compacted sub-basin smaller that the total basin bottom area or on intermediate supports (saddle) will cause uneven distribution of loads. This may contribute to structural failure, and is never permitted.

  - Backfill Material

    Backfill material should be clean, well granulated, free flowing, non-corrosive, and inert. It should be free of ice, snow, debris, rock, or organic material, all of which could damage the basin and interfere with the compaction of the backfill material. The largest particles should not be larger than 3/4 inches. Not more than 3% (by weight) should pass through a #8 sieve, and the backfill material should conform to ASTM C-33, Paragraph 9.1 requirements. Approved backfill materials include:
    - Pea Gravel, naturally rounded particles with a minimum diameter of 1/8 inch and a maximum diameter of 3/4 inch.
    - Crushed Rock, washed and free flowing angular particles between 1/8 inch and 1/2 inch in size

  - Placement and Compaction of Backfill

    Compaction of backfill materials should be adequate to ensure the support of the basin, and to prevent movement or settlement. Backfill materials should be placed in 12 inch lifts and compacted to a minimum soil modulus of 700 pounds per square inch (psi)

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Fiberglass Basin Installation Reference Guide, continued

- **Backfilling,** continued
  - Supporting Piping, Equipment, and Accessories

    Support for piping, equipment, and other accessories must be provided during backfilling. Using the basin to support piping, equipment, cribbing, bracing, or blocking is never **permitted.** During backfilling, temporary supporting materials must be carefully installed and removed to prevent damage to the basin, piping, or equipment.

  - **WARNING!**

    Using the basin to support any loading carried or created by piping, equipment, cribbing, bracing, or blocking is never permitted.

- Anchorage
  - General

    When basin installations are located in areas subject to high water tables or flooding, provisions should be made to prevent the basins, either empty or filled, from floating. The buoyancy force to be offset is determined primarily by the volume of the basin. The principal offsetting factors include:
    - Backfill materials
    - Concrete hold-down pad
    - Friction between the basin, backfill materials and the surrounding soil

  - Methods of Anchorage

    All methods of anchoring basins use weight of the backfill materials to offset the buoyancy forces. The use of supplemental mechanical anchoring methods (a concrete hold-down pad) increases the amount of backfill ballast, which is mechanically attached to the basin. The recommended method of attachment is to pour concrete grout over the basin's anti-floatation flange and concrete hold-down pad (as shown on page 13).

  - Anchorage Requirements

    Requirements for anchorage, thickness of concrete hold-down pads, as well as the size of anchors and reinforcement must be calculated for each installation based in the environmental conditions of that specific installation.

  - **WARNING!**

    Use "submerged" material weights when calculating anchorage requirements. EXAMPLE: weight of concrete (150 pounds per cubic foot) minus the weight of the water (62.4 pounds per cubic foot) equals a "submerged" weight of 87.6 pounds per cubic foot.

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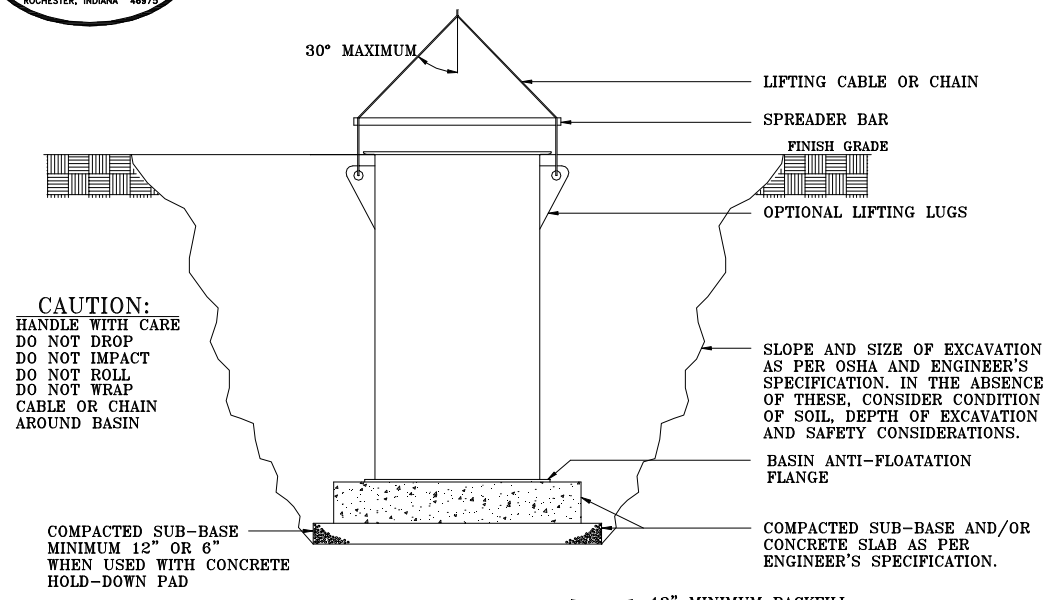
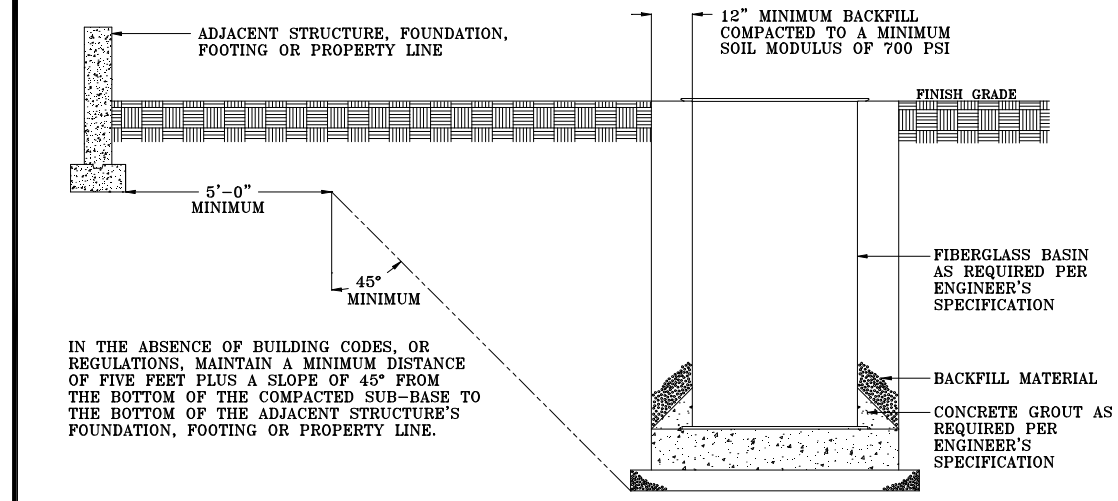
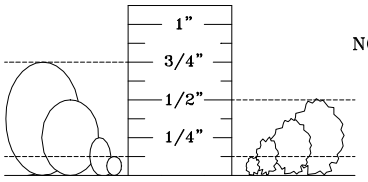
FIBERGLASS BASIN INSTALLATION REFERENCE GUIDE



CAUTION:
HANDLE WITH CARE
DO NOT DROP
DO NOT IMPACT
DO NOT ROLL
DO NOT WRAP
CABLE OR CHAIN
AROUND BASIN



IN THE ABSENCE OF BUILDING CODES, OR REGULATIONS, MAINTAIN A MINIMUM DISTANCE OF FIVE FEET PLUS A SLOPE OF 45° FROM THE BOTTOM OF THE COMPACTED SUB-BASE TO THE BOTTOM OF THE ADJACENT STRUCTURE'S FOUNDATION, FOOTING OR PROPERTY LINE.



BACKFILL MATERIAL REQUIREMENTS

NOTE:

The intent of these installation instructions and illustrations is to ensure that damage or premature failure to the basin will not occur. These installation instructions and illustrations are NOT intended to preclude normal safety procedures which should be followed to prevent injury to personnel. SAFE INSTALLATION PROCEDURES SHALL BE ENTIRELY THE RESPONSIBILITY OF THE INSTALLER.

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