FORT MILLER PRECAST

# SERVING LOCAL MARKETS

**Fort Miller Precast**
A Fort Miller Group Company

FORTMILLER.COM
INFO@FORTMILLER.COM
(518) 695-5000

FORTMILLER.COM

# CONTENTS

# FORT MILLER PRECAST

## (LEGAL NAME: THE FORT MILLER CO., INC. A FORT MILLER GROUP, INC. COMPANY)

**Fort Miller specializes in precast concrete solutions for the construction industry. From our design engineering capabilities to our highly flexible manufacturing facilities and option for delivery, we offer you a complete service. Customer needs clearly are the driving force behind our company. At Fort Miller, we are committed to solving construction challenges with practical precast concrete solutions.**

In every area of the company, we take pride in our ability and willingness to find innovative solutions to our customers' on-site challenges. In fact, many of our engineering designs have gone on to become trademarked industry standards. Small or large, every project we undertake is measured against the same high standard of excellence.

To serve you better, we have extended our product offerings to be the most diversified supplier in the marketplace. We have added resale products to our manufactured ones to allow one stop shopping and delivery for your site infrastructure needs. We operate swing boom delivery with tag trailers and we have the ability to off-load when appropriate.

At the heart of our operations lies a profound dedication to both manufacturing excellence and engineering precision. Our facilities, span an impressive 250,000 square feet across more than 500 acres, and are manned by a year-round team of over 200 highly skilled concrete manufacturing professionals. With an unwavering commitment to the local market for over 75 years, we have consistently proven our dedication to quality and reliability.

At our core, we prioritize meeting stringent deadlines, ensuring timely project completion. Beyond mere competitiveness, our pricing is fortified by a guarantee, reflecting our commitment to transparency and value. Choose us for a seamless fusion of cutting-edge manufacturing capabilities, enduring expertise, and a legacy of trust that spans generations.

**We encourage you to contact us on any construction project.**

# HOW TO ORDER FROM FORT MILLER

The Fort Miller Sales Department is your primary contact for questions relating to products, prices, and most importantly for placing orders. The Sales Department can be reached at our main office phone number **(518) 695-5000** or through our website at **www.fortmiller.com/contact**.

Sales initiates your orders and routes your inquiries and orders through our Engineering Department for design analysis, shop drawing preparation and technical interfaces. Sales works with Engineering to generate approved shop drawings for release to production. Your continual assistance with the shop drawing approval process is essential to ensure on-time production and delivery.

Once the shop drawings are completed and approved, Engineering will release your order to our Production Department for scheduling and manufacturing.

When your order is ready to ship, dispatch provides the various delivery options.

## WHEN YOU CALL THE COMPANY

When calling Fort Miller, please ask either for an individual by name or by area of responsibility:

- **Sales** for customer policies, placing orders, following up on orders, and product inquiries
- **Production Control** for manufacturing status and to set up delivery
- **Engineering** for shop drawing issues and technical questions

## PRICING POLICY

Upon inquiry, the Sales Department will provide prices. Prices are F.O.B. our plant unless otherwise specified at the time of inquiry and/or receipt of order.

## CREDIT POLICY

All accounts must have approval (of credit) prior to any deliveries and/or pick up of material. All accounts must prepare a credit application as a basis for approval. Please allow two - four weeks upon receipt of a properly submitted application for approval by Fort Miller's Credit Department. Those accounts not granted credit or those who choose not to have credit must arrange for payment in advance or at the time of delivery.

Credit terms for approved accounts are net 30 days from date of invoice unless otherwise agreed to in writing at the time the order is received. Any taxes applicable to the sale will be added to the price of the merchandise unless a properly completed tax-exempt certificate is received by Fort Miller prior to shipment.

# HOW TO ORDER FROM FORT MILLER

## CREDIT CARDS

Payments made by credit card will be charged a non-refundable convenience fee; added to your credit card payment.

Fort Miller may decline to manufacture any product or make any shipment when payment practice or other security is not satisfactory to the Credit Department.

Orders for new customers or large orders may require a deposit prior to commencement of drawings or production. These arrangements shall be made a part of the contract and agreed to at the time the order is placed.

## RETURN POLICY

No item may be returned without prior approval by the Sales Department. At the time a decision is made to accept a return, the customer will be informed of any associated charges.

## BACK CHARGE POLICY

Only the Sales Department is authorized to negotiate or review potential back charges. In no case shall monies be withheld without prior approval of the Sales Department. Under no circumstances will the value of a negotiated back charge exceed the face value of the product supplied by Fort Miller.

## WARRANTIES

As to all goods not manufactured by Fort Miller Precast, Fort Miller's only obligation shall be to make available the warranties of the original manufacturer.

As to goods manufactured by FORT MILLER PRECAST, THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, THAT EXTEND BEYOND THE DESCRIPTION OF MATERIALS ON THE FACE OF THE CONTRACT.

FORT MILLER PRECAST EXPRESSLY DISCLAIMS ANY WARRANTY, EXPRESSED OR IMPLIED, THAT THE MATERIAL SOLD HEREUNDER IS MERCHANTABLE, OR FIT FOR ANY PARTICULAR PURPOSE.

## LIMITATION OF LIABILITY; INDEMNIFICATION

Fort Miller Precast assumes no responsibility or liability for buyer's lost profits, goodwill, or any other general, special, incidental or consequential damages. Buyer further agrees to indemnify Fort Miller Precast as to any liability for personal injury or property damage that may result from the negligence of the buyer or any of the buyer's agents or employees or anyone for whose acts the buyer is responsible.

Fort Miller has no control over the placing and handling of any material after delivery and therefore will not guarantee the finished work in which it is used.

# HOW TO ORDER FROM FORT MILLER

## DELIVERY HOURS

Our main business is to service the contractor/customer. Based on your needs, we will do our best to arrange delivery at your convenience.

The hours for picking up material at our yard are more limited so as to allow maximum use of equipment and personnel in the production process. Yard hours are typically 7:00a.m. to 3:00p.m., Monday through Friday, unless special arrangements are made at least 48 hours prior to the pick-up.

## DELIVERY EQUIPMENT

We ship our products on two basic types of equipment:

- **Swing-boom trucks.** These are tandem vehicles with an unloader mounted behind the cab capable of unloading off the side. These trucks have approximately 20 feet of load bed and can carry approximately 11 tons of material. Primary use of these vehicles is for delivery of manholes, catch basins, standard light duty septic tanks, transformer pads, curb, and drywells.
- **Flatbed Tractor Trailers.** These vehicles can carry up to 22.5 tons of load and typically have bed space of up to 45 to 48 feet.

## DELIVERY

Delivery charges will be as indicated in our quotation/contract. We will attempt to ship materials via the most economical way or as requested.

Often when orders do not constitute a payload and the customer does not wish to pay the full delivery charge for a special delivery, the order can be shipped on an “as soon as possible” basis with a drop off charge applicable. At our option, we will make this delivery with another load going to the same area.

If for some reason the excavation is not ready at the time of scheduled delivery and a second trip is necessary to set the material, another delivery charge will be assessed for setting or resetting. One hour is allowed for this service, after which an additional charge at the current rate of $150.00 per hour will be made unless otherwise indicated on our contract.

To maintain our delivery schedules, required unloading equipment must be ready at the scheduled time of delivery.

Detention time for swing boom trucks and tractor-trailers will be charged at the current rate.

In the event of any delay in our performance, due in whole or in part to causes beyond our reasonable control, we shall be allowed such additional time for our performance as may be reasonably necessary. Acceptance by you of delivery of any material shall constitute a waiver by you of any claim for damages on account of any delay in delivery of such goods.

With many products, we must ship dunnage along with the material to ensure its safe arrival. If the dunnage is not returned, the buyer may be charged for it as a separate item on the invoice.

**In all instances, it is important for you to acknowledge receipt of material by signing the delivery ticket and noting any concerns on said ticket regarding the shipped product.**

# HOW TO ORDER FROM FORT MILLER

## ACCESS TO SITE

It is the buyer's sole responsibility to see that the site and unloading area are ready and safely accessible to our trucks and drivers. We can assume no responsibility for any site, labor conditions or breakdown of unloading machinery, which may cause excess waiting time, excess unloading time, or trucks returning to our plant with their loads intact. Detention time and/or additional shipping charges will be assessed in the above cases. Our drivers have the authority and responsibilities to determine whether a site is safe and accessible for delivery and setting; however, **in all cases the buyer is ultimately responsible for the safe access of our equipment and drivers.**

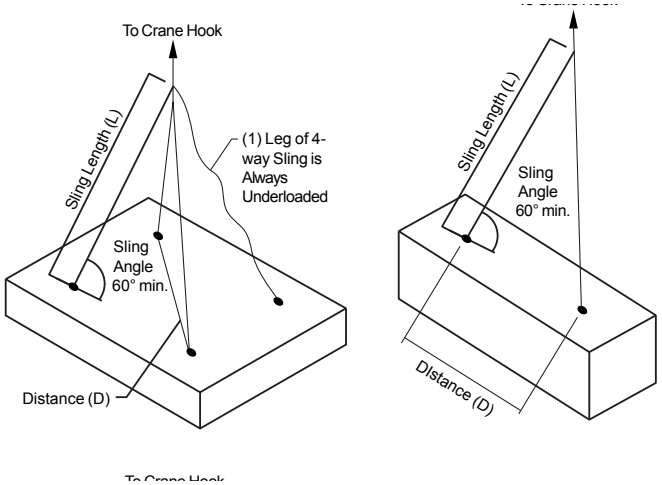
## SAFETY

Fort Miller has an ongoing, active safety policy at the Easton facility and when you enter our plant to pick up material, please abide by the safety instructions given to you by our associates.

While we are on your job site we will exercise safe procedures and comply with the safety requirements of your individual project.

## LIFTING AND OFF-LOADING

Care should be taken in lifting and off-loading precast products. All weights and volumes shown are based on the design thicknesses. Actual weights can and do vary in accordance with allowable tolerances. All lifting equipment and rigging needs to be sized taking this fact into consideration. The drawings shown illustrate recommendations for lifting. However, it is the responsibility of the installer/contractor to safely off-load the precast products from our delivery vehicle.




## LIFTING SLING RECOMMENDATIONS

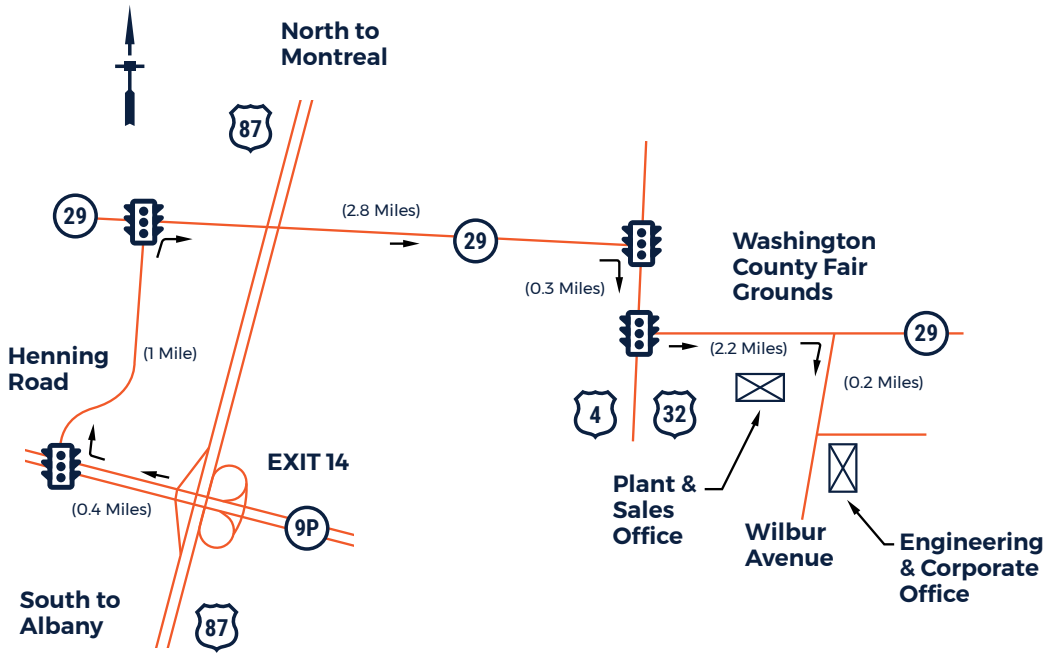
It is the responsibility of the installer/contractor of the specific precast concrete unit to safely and effectively off-load the unit from the point of delivery (truck). It is further the responsibility of the installer/contractor to properly and adequately size, inspect, and provide the appropriate unloading hardware and equipment. Fort Miller Precast assumes no responsibility or liability with regard to job site handling/unloading of the precast units.

Sling length (L) must be at least as long as the distance (D) between the farthest two lift points to result in the required minimum sling angle of 60°.

Be sure to consult your rigging handbook to determine cable diameter, chain size, or strap width for the load to be lifted as illustrated above. It is important to note and to make the proper allowances for conditions that increase the load, such as ice, mud, water, impact, etc. Also, all connecting shackles, hooks and other rigging components must be properly sized.

Never under any circumstances, allow anyone to get under or close enough to the lifted precast element that physical harm could result due to a sudden movement of the load. Tag lines and push bars should always be used to control the load. It is also the responsibility of the installer/contractor to inspect all lifting hardware and prevent the use of any lifting hardware that is suspect. Please refer to your safe rigging procedure handbook.

# WHERE TO FIND US




## DIRECTIONS TO FORT MILLER PRECAST

**From the North:**

Take the Northway to Exit 14. Bear right off the exit following signs for Route 29 East, Schuylerville. Continue following the directions from the South.

**From the South:**

Travel North on the Northway (I-87) to Exit 14, which is approximately 30 miles North of Albany, NY. At the end of the Exit 14 ramp, turn right following the signs for Route 29 East and Schuylerville.

Take your first right at the light on to Henning Road. Henning Road is directly opposite the entrance to Yaddo.

Go about 1 mile to the end of Henning Road and turn right on to Route 29 East.

Follow Route 29 East for approximately 10 miles to the traffic light in Schuylerville.

Turn right at the traffic light.

Go to the next traffic light and turn left, staying on Route 29 East.

Continue East across the Hudson River, up the hill, and look for Wilbur Avenue across from the Washington County Fairgrounds.

Turn right on to Wilbur Avenue.

**For the Plant and Sales Office:**

The entrance is on the right, next to the precast concrete sign. Enter the plant and proceed between the steel structure on your left and the masonry building on your right. The sales office and customer pick up office is located in the masonry building on the right. A sign is located on the office.

**For the Engineering and Corporate Office:**

The engineering and corporate office is located on the left, about 200 yards beyond the entrance to the plant. Drive past Bulson Road and enter the office parking lot off of Wilbur Avenue.

# PRODUCT OVERVIEW

## UNDERGROUND STRUCTURES

Fort Miller offers a wide choice of structures for use underground. Each of the following groups of structures includes various design options. However, if you face unusual problems that are not readily solved using standard units, please contact our sales department for further assistance.

- **Septic and holding tanks**
- **Drywells and well casings**
- **Chlorine contact tanks**
- **Dosing tanks**
- **Distribution boxes**
- **Grease traps**
- **Pump & lift stations**
- **Manholes, catch basins & drop inlets**
- **Square & rectangular structures**
- **Access extensions, grade extensions**
- **Cast iron frames & covers/grates & access hatches**

## ABOVE GROUND STRUCTURES

- **Precast concrete curbing – (straight and radius)**
- **Retaining walls – T-wall™**

## OTHER STRUCTURES

- **Please inquire**

# MATERIAL OFFERINGS

# UNDERGROUND STRUCTURES

Fort Miller offers a wide variety of structures for use in underground applications such as septic systems, manholes, catch basins, pump stations, oil/water/grit separators and a variety of other purposes. This section briefly describes the function of each group of structures as well as the various design options available. This section is followed by drawings, which indicate critical dimensions. As you use the catalog, we suggest that you refer often to the Design Data section, which gives design criteria and allowable loads for each structure. When you have unusual problems that are not readily solved using standard units, custom castings may be of interest. You will find that Fort Miller can supply any custom casting you require, our only limitation being your imagination.

## SEPTIC TANKS

Septic tanks are holding chambers to promote growth of the anaerobic bacteria that biologically decompose(s) raw sewage. They should be sized to handle all the normal daily flow of a household or establishment during peak times. Waste from the laundry and garbage disposal should be considered when sizing the unit, but roof, cellar drains and water softener waste should be excluded from the system. Larger tanks require less frequent cleaning and allow for expansion of the establishment at later dates. Fort Miller offers septic tanks in sizes ranging from 1,000 gallons to over 10,500 gallons Specially designed segmented tanks to fit most site conditions can also be engineered and produced.

All standard septic tanks have access openings as detailed in the catalog drawings. The tees shown on the drawings are to be furnished and installed on site by the customer. Inlet tees should project 16" below the liquid level and outlet tees should project 18" below the outlet level or as directed by the Engineer of Record. All septic tanks conform to the latest New York State Department of Environmental Conservation and Health Department regulations.

See our standard products on pages 27-34.

## DISTRIBUTION BOXES

When more than one subsurface absorption field or drywell is needed, a distribution box distributes the flow of effluent evenly among them. These boxes are also helpful for visually inspecting the clarity of septic tanks effluent and provide convenient access to eliminate any stoppage between the box and the septic tank. Liquid levelers (Tuff-Tite) are available upon request. See pages 25-39 for standard offerings.

## GREASE TRAPS AND OIL INTERCEPTORS

The function of a grease trap or oil interceptor is to remove grease or oil from influent before it is discharged into an absorption area or sewer. These units are especially desirable for use at restaurants, garages, and commercial/industrial establishments where the waste may contain large quantities of grease or oil. Grease traps are not supplied with outlet tees. It is essential that customers furnish and install an outlet tee and down standing leg that ends +/- 8" above the bottom of the tanks as directed by the Engineer. Inlet tees may also be desirable to reduce the velocity of the influent.

# UNDERGROUND STRUCTURES

Special joint sealing materials are required for structures handling oil, grease or petroleum products. See our standard product offerings on pages 40-46.

## DRYWELLS

A drywell, or seepage pit, is a covered structure with perforated walls through which liquids can pass to the surrounding soil. These structures provide effective disposal of septic tank effluent or storm water. A drywell should be backfilled with at least 12" of crushed stone around the entire unit as directed by the Engineer. We recommend that the bottom of the structure be at least 2 feet above any groundwater table. In traffic situations or unstable soil, footings should be installed. We can also supply any grade extensions needed to bring the units up to the finished grade. See standard offerings on pages 35-39.

## CHLORINE CONTACT TANKS

Chlorine contact tanks are used primarily as retention basins to maximize mixing and contact time between chlorine and the sewage to be treated. Special joint sealing materials are required for structures handling potable water. See our standard offerings on pages 49-53.

## DOSING TANKS

Dosing tanks store septic tank effluent for periodic discharge into an absorption field or sand filter. Their use allows for the rapid charging and effective distribution of effluent throughout the disposal system. Typically, New York State agencies require installation of dosing tanks with a single siphon

when the absorption field length exceeds 500 feet. A double alternating system is required if the field length exceeds 1000 feet. Please inquire with the local governing agencies and engineers as to the current standards and requirements.

Dosing tanks are cast with one or two cutouts in the bottom for insertion of siphons after the tank is placed in the excavation. The cutout for the single siphon is opposite the inlet. The standard arrangement for double alternating siphons is indicated on the drawings. Other configurations are available upon request.

Typically, for inspection, a tapered plug is cast over the inlet and an opening is cast over each siphon cutout. All sections must be sealed with the material specified. See our standard offering on pages 58-66.

## PUMP AND LIFT STATIONS

Construction of sewer systems in flat terrain often requires very deep excavations in order to maintain the required velocities of effluent. In these cases it may be more cost effective to raise the sewage by use of mechanical pumps housed in a pumping station rather than to continue deep excavations.

Pumping stations can be constructed from round or rectangular structures or can be custom designed to address job specifications. Please contact our Sales Department for assistance.

# UNDERGROUND STRUCTURES

## MANHOLES, CATCH BASINS AND DROP INLETS

Manholes are used wherever two or more sewer lines intersect or where there is a change of grade or direction. They also provide access to sewer lines for cleaning and inspection purposes. See our standard product offerings for manholes on pages 67-81 and for catch basins on pages 82-89.

Catch basins and/or drop inlets are used to collect surface water. The water is generally disposed of through an outlet pipe, however some catch basins or drop inlets are designed with drywell sections that allow the water to percolate into the soil rather than to flow out through the outlet pipe.

The butyl rubber seal generally used between precast concrete sections is shipped separately and installed in the field by the customer.

Unless otherwise specified, all round manholes or catch basin sections are manufactured using MA Industries polypropylene steps. Units can be made without steps if requested.

Fort Miller offers several means for connecting pipes to manholes. A-Lok, Z-Lok, Lock Joint Flexible Sleeves (boots), Steel or HDPE Sleeves and Link Seal Assemblies, Kor-N-Seal Flexible Connector (boots), or open holes are available. Please inquire as to the specific type of pipe connection available for your project.

Special openings, hatches, doors, platforms, and/or sleeves can be cast into any of these structures.

Manholes with extended bases are also available. In addition, many units are furnished with knockouts and openings as shown on the drawings on pages 67-81. These are particularly useful if units are required on short notice. Many of these stock sanitary units are equipped to allow the flexible connector to be inserted before shipping, thereby reducing production lead times. Consult our Sales Department for assistance on rush orders.

## SQUARE AND RECTANGULAR STRUCTURES

The structures in this section can be used for power and signal distribution manholes, meter pits, junction boxes, valve boxes, holding tanks, etc. These units can be customized as required. Various access openings can be formed into the

# UNDERGROUND STRUCTURES

top including hatches, doors, frames, covers and grates. Duct terminators, unistrut, concrete inserts, pulling eyes, sleeves, sumps, and steps can also be provided as required. We will be pleased to assist you in designing structures to meet your specific needs. See our standard product offerings on pages 92-94.

## ACCESS EXTENSIONS AND GRADE EXTENSIONS

The variety of products in this family provides the differences in grade between the top of a structure and the bottom of a frame or cover. Please refer to the catalog drawings for appropriate grade extensions. See pages 95-99 for more information.

## CAST IRON FRAMES AND COVERS/GRATES AND ACCESS HATCHES

For your convenience, we offer a wide variety of modern, high quality standard and custom cast iron frames and covers/grates for use on underground structures. Sizes range from small 8" diameter inspection covers to large 48" catch basin or electrical manhole castings, airport castings and trench drains. Our stock castings are made in the USA. We also can offer a wide range of aluminum or steel access hatches ranging in size from 24" sq. to 60" X 72" I.D. and any other custom size required. Hatches are available for Light Duty (150 or 300 psf) or Heavy Duty (H-20 wheel loads, not subject to high density traffic) applications.

# ABOVEGROUND STRUCTURES

## PRECAST CONCRETE CURB (PERMA-CURB™)

Perma-Curb™ provides an aesthetically pleasing and cost effective alternative to conventional cast-in-place and granite curb. Not only is the linear foot price competitive, but the product can also be installed by a small crew and is not inhibited by seasonal limitations. The material is produced locally and delivered quickly. A layout drawing can be supplied indicating the piece mark number and location. The wide variety of lengths, radii and shapes in stock will expedite your installation schedule. Perma-Curb™ provides a durable, consistent texture that resists abrasion and freeze-thaw cycles. See pages 100-102 for our standard offerings.

## RETAINING WALLS (T-WALL™)

The T-Wall™ retaining wall system provides cost effective and aesthetically pleasing solutions to a wide range of earth retention problems commonly encountered on highway, industrial, commercial, private and public works projects. The key to the system is simplicity... Simplicity in design, manufacturing, and installation. Quality construction is assured by the use of precast concrete and the ease of installation. Please inquire as to the availability of architectural finishes and professional services. Please contact our Sales Department for more information on retaining walls.

For other structures, please inquire.

# DESIGN DATA

# GENERAL DESIGN

The products shown in this catalog represent standard offerings by Fort Miller Precast. From time to time, job site conditions may require special design variations. Fort Miller is pleased to design and cast modifications of these standard items for special assuming that accepted structural requirements are met.

Although the drawings and specifications listed here accurately describe our products at this time, changes in the standard design may become necessary or desirable for a number of reasons. These include code changes, manufacturing and quality dictated changes. In addition, we are constantly improving our technology to provide the user with state-of-the-art products.

Finally, please note that Fort miller is not limited to the manufacture of standard products. We routinely offer specially designed products that are limited only by transportation considerations. Because of the uniqueness of these items and their specialized applications, we are unable to effectively show the complete product range in this catalog. Fort Miller takes pride being able to produce any item that could otherwise be cast-in-place, with transportation limitation being our only constraint. Should you have special requirements, please take advantage of our innovative and experienced engineering team and production capabilities to help you develop solutions.

## DISCLAIMER

References herein to design capabilities provided by Fort Miller Precast shall mean recommendations for design to be made to an independent , licensed, professional engineer for their consideration in final design. Fort Miller Precast is not a professionally licensed corporation authorized to provide engineering or architectural services under the licensing provision of Article 145 of the New York State Education Law.

# STRUCTURAL DESIGN

A standard design is provided for all products manufactured by Fort Miller Precast that meet certain standard design criteria. It is important for the specifier or the user of the product to understand those criteria. Fort Miller makes every effort to ensure its products are used properly, but it is ultimately the responsibility of the specifier or user to make sure that the imposed loads do not exceed those set by our standard criteria.

This section of the catalog shows the design cases that summarize the concepts and criteria used in the design of our products. In addition, a table of maximum section depths (Table D-1, The maximum depth of Section Table, page 25-26) shows the maximum allowable loading (depth) provided for the standard design. Should your application differ from what is shown, please consult with us. We can probably either revise the standard design or design a custom structure to meet your specific situation.

## NON-TRAFFIC LOADINGS

Non-traffic loads include dead loads-structure weight, earth cover and lateral pressure created by the earth and groundwater-plus live loads such as pedestrian traffic or machinery on or above the structure. The dead or live loads used in the design of our standard products are given on the following pages.

## TRAFFIC LOADINGS

The traffic loads applied in our designs are as set forth in the latest edition of the American Associate of State Highway and Transportation officials (AASHTO). The most common traffic design load used is for an H20-44 Truck and is considered in addition to any dead loads as described in the Non-Traffic Loading section.

## OPENINGS

Inherent in the use of underground structures are openings that provide access from the top, bottom or sides. These openings may decrease the structural capacity of a structure. Catalog sheets generally show “Normal” openings around which extra reinforcement has been added as structural compensation. If larger openings are required, please consult our engineering department for information about adequate structural compensation.

## BUOYANCY

Underground structures installed in areas with high water tables may tend to float. Fort Miller Precast is not responsible for site evaluation of water conditions as they relate to the stability of the structure. It is therefore incumbent upon the project engineer, specifier or user to check for possible buoyant conditions.

# DESIGN CASES 1 - 5 ASSUMPTIONS

The following design documents are based on the below assumptions.

## LOADS:

| | |
|---|---|
| Unit Weight of Earth | 120 pcf |
| Angle of Internal Friction | 30 Degrees |
| Unit Weight of Water | 62.4 pcf |
| Concrete Unit Weight | 150 pcf |
| Non-Traffic Live Load | 300 psf |

## MATERIALS:

| | |
|---|---|
| Cement | ASTM C150, Types 1, 2, 3, 6 |
| Sand | NYSDOT Materials Spec. #703-07 |
| Stone | NYSDOT Materials Spec. #703-02 Size 1 |
| Steel Bar Reinforcement | ASTM A615, Grade 60 |
| Wire Mesh | ASTM A185, Plain |
| Concrete Strength | 4,000 PSI |
| Entrained Air | 5% min. |

## DESIGN METHODS:

| | |
|---|---|
| Reinforced Concrete | Ultimate Strength Design |
| Lateral Earth Pressure | Rankine Theory |

## PERTINENT SPECIFICATIONS: (ALL CASES WHERE APPLICABLE)

| | |
|---|---|
| AASHTO | American Association of State Highway Transportation Officials |
| ACI | American Concrete Institute |
| NYSDOT | New York State Department of Transportation |
| ASTM | American Society for Testing and Materials |

# CASE 1
# ROUND STRUCTURES

Round structures are unique in that under normal loading conditions (when the structure is below grade) the lateral forces acting on the wall surface create only compression stresses in the concrete wall. Since concrete is strong in compression, round structures are very efficient to use underground. However when a large differential in lateral pressure on opposite sides of the structure occurs, tensile stresses may be realized. While normal traffic (e.g. AASHTO H20-44) does not create significant pressure differential, other loadings, such as buildings or railroad traffic, may cause large differentials. In such cases, a special design should be prepared.

The top slab, bottom slab, cone, cover and cover-start ring are the components that require the greatest attention. Standard designs are provided for the cases illustrated on Page 21 and listed below. For loadings other than these, a special design that accounts for the unique conditions will be necessary.

## CASE DESCRIPTIONS:

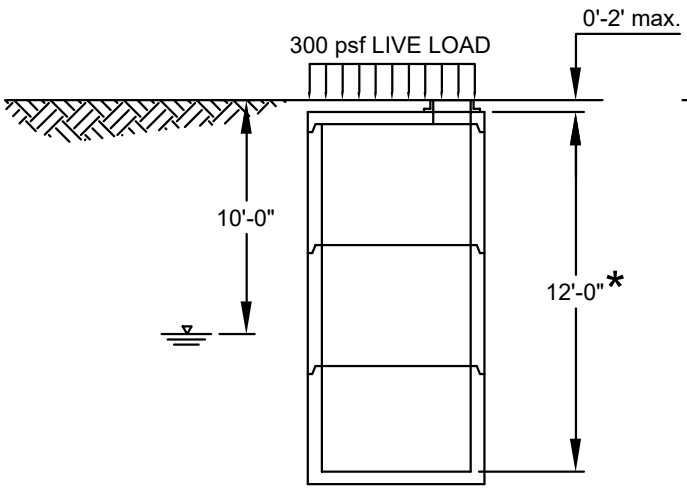
**Case 1A -** Underground Round Structure - Non-Traffic Loading

**Case 1B -** Underground Round Structure with Flat Slab Top - Traffic Loading

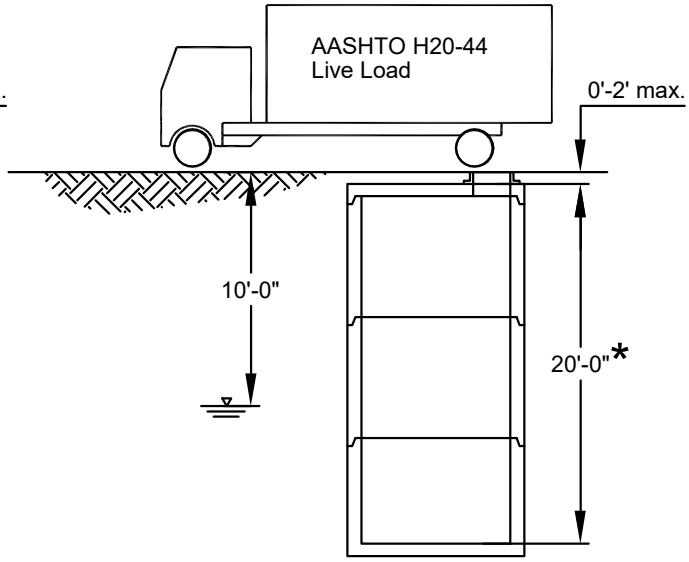
**Case 1C -** Underground Round Structure with Cone - Traffic Loading

**Case 1D -** Underground Round Structure with Cover Start-Ring - Traffic loading

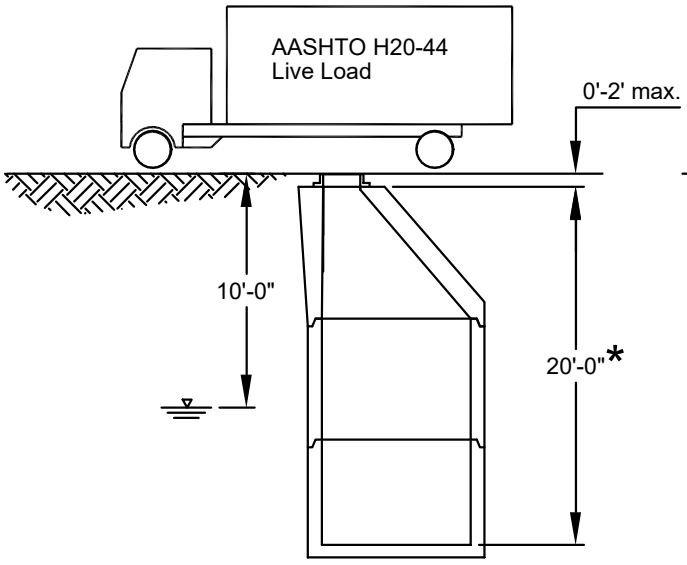
# DESIGN CASE 1



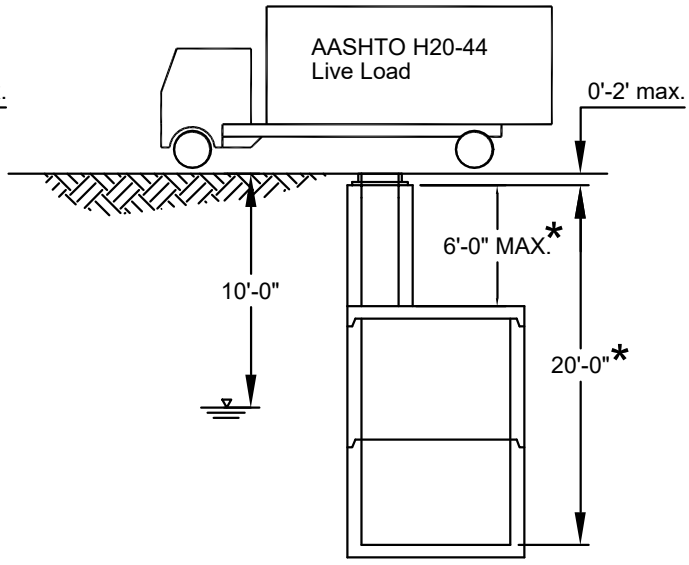

DESIGN CASE 1A, NON-TRAFFIC




DESIGN CASE 1B, TRAFFIC




DESIGN CASE 1C, NON-TRAFFIC




DESIGN CASE 1D, TRAFFIC

*NOTE:
CAN BE DEEPER WITH ADDITIONAL REINFORCEMENT OR THICKNESS. CONSULT ENGINEERING.
REFER TO DESIGN SHEETS FOR MAXIMUM PLACEMENT DEPTH.

# DESIGN CASE 2, 3, 4, 5 - UNDERGROUND SQUARE & RECTANGULAR STRUCTURES

Table D-1, the Maximum Depth of Structure Table, includes all the standard structures covered under Design Cases 2 through 5. The table summarizes the maximum depth that each standard structure may be placed below finished grade for the appropriate design case. For greater depths, a special design may be required. The depths listed for the integral top and lowest intermediate section are taken at the lowest point in the section. The integral base depth is taken at the top of the base slab. The diagrams on the pages illustrate the design cases. The maximum depth of earth cover is taken from finished grade to the top of concrete.

In some instances, the roof slab (either integral or flat slab) may be able to be placed considerably deeper without alteration. Please consult our engineering department if any section of a structure is to be placed deeper than shown in Table D-1 (Pages 25-26).

## CASE DESCRIPTIONS:

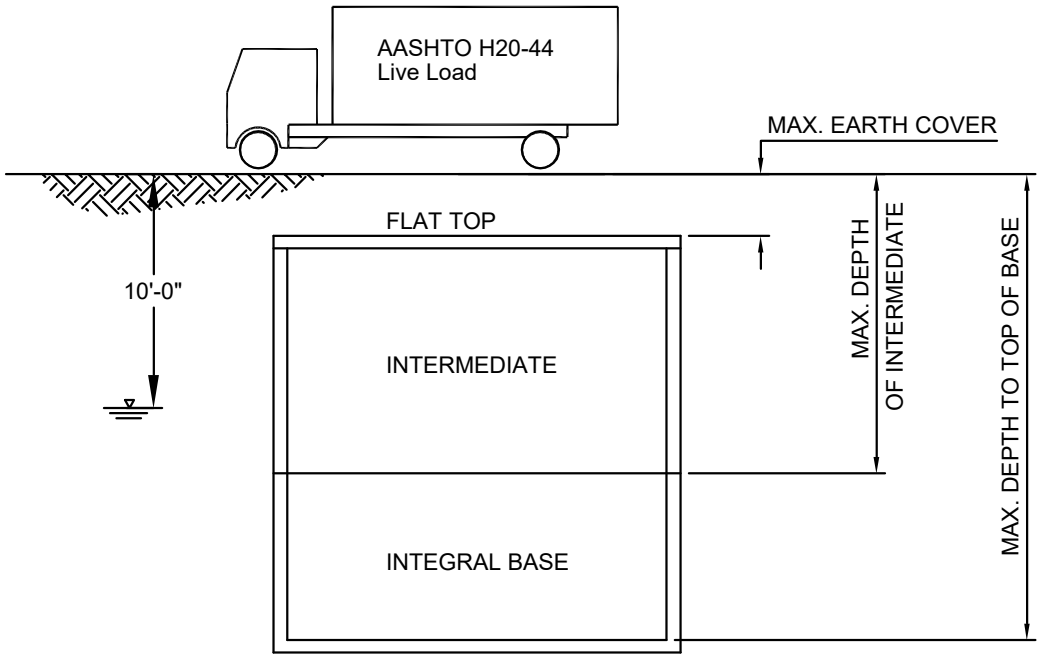
**Case 2 -** Underground Square and Rectangular Structures Flat Slab Roof- Traffic Loading

**Case 3 -** Underground Square and Rectangular Structures Integral Roof- Traffic Loading

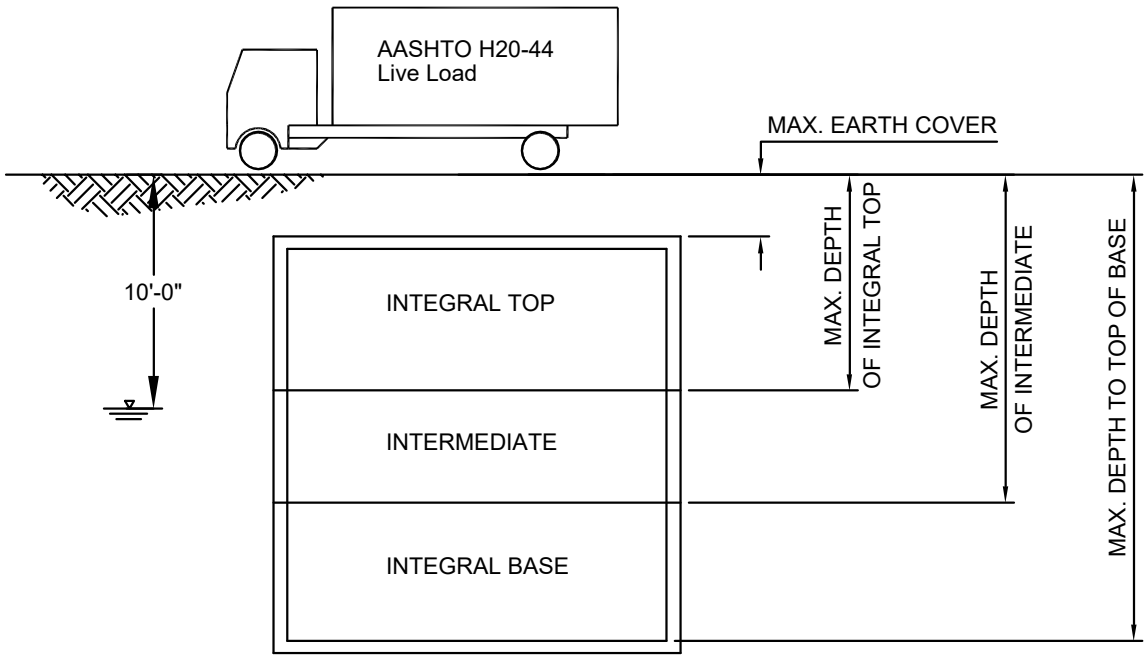
**Case 4 -** Underground Square and Rectangular Structures Flat Slab Roof- Non-Traffic Loading

**Case 5 -** Underground Square and Rectangular Structures Integral Roof- Non-Traffic Loading

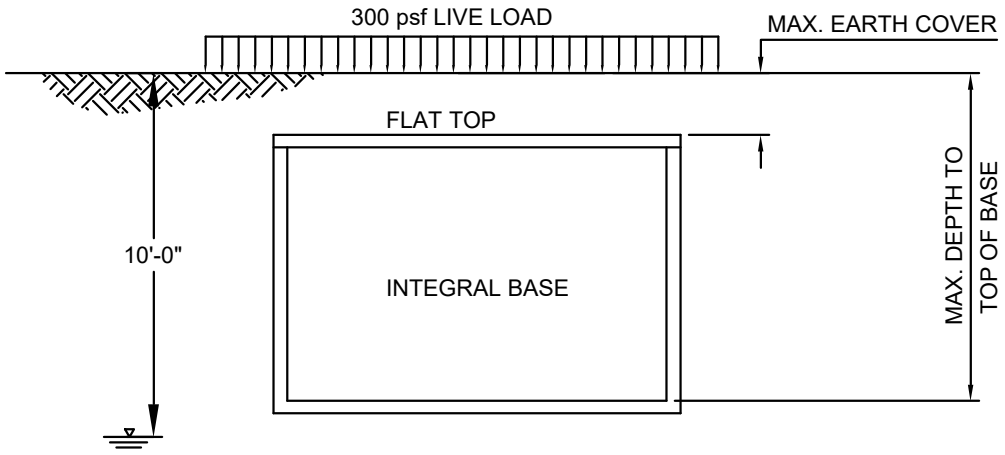
# DESIGN CASE 2, TRAFFIC



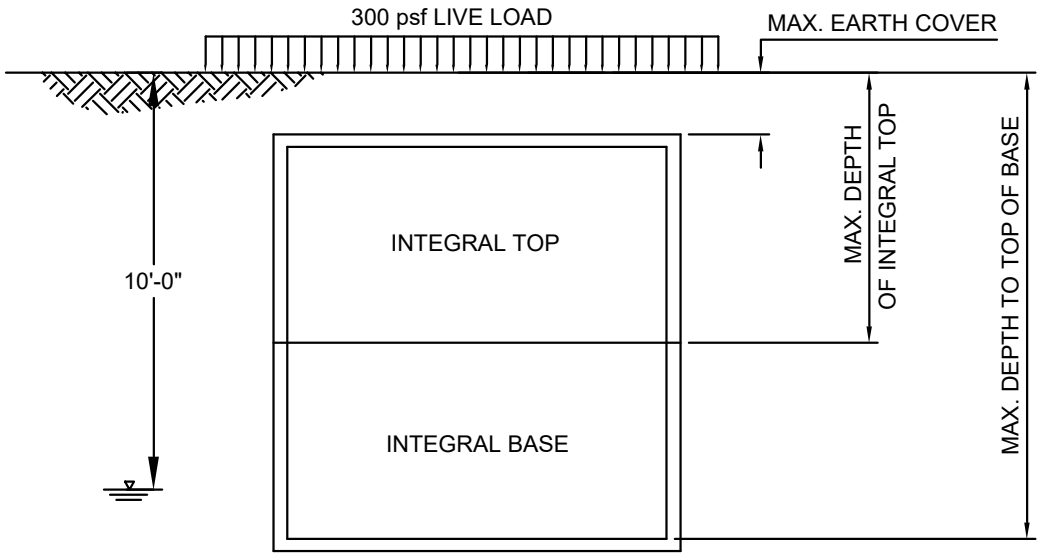

# DESIGN CASE 3, TRAFFIC



# DESIGN CASE 4, NON-TRAFFIC




# DESIGN CASE 5, NON-TRAFFIC



# TABLE D-1 MAXIMUM SECTION DEPTHS

| Structure | Page No. | Design Case | Earth Cover | Integral Top | Intermediate Section | Integral Base |
|---|---|---|---|---|---|---|
| **SEPTIC TANKS** | | | | | | |
| 1,000 Gal. Seamless | 28 | 4 | 2'-0" | N/A | N/A | 7'- 2" |
| 1,250 Gal. Seamless | 28 | 4 | 2'-0" | N/A | N/A | 7'- 2" |
| 1,000 Gal. Heavy Duty | 29 | 3 | 2'-0" | 5'- 6" | N/A | 8'- 5" |
| 1,200 Gal. Heavy Duty | 30 | 3 | 2'-0" | 4'- 1" | N/A | 6'- 11" |
| 1,500 Gal. Heavy Duty | 30 | 3 | 2'-0" | 4'- 11" | N/A | 7'- 9" |
| 2,000 Gal. Heavy Duty | 30 | 3 | 2'-0" | 4'- 1" | N/A | 7'- 5" |
| 2,500 Gal. Heavy Duty | 30 | 3 | 2'-0" | 5'- 1" | N/A | 8'- 5" |
| 3,000-4,000 Gal. H.D. | 31 | 3 | 2'-0" | 5'- 6" | N/A | 8'- 6" |
| 4,500-8,000 Gal. H.D. | 32 | 2 | 2'-0" | N/A | N/A | 9'- 0" |
| 8,500-10,500 Gal. H.D. | 33 | 2 | 2'-0" | N/A | N/A | 9'- 0" |
| **HOLDING TANKS** | | | | | | |
| 3,000 - 8,000 Gal. | 48 | 3 | 2' - 0" | 6'- 11" | 8'- 11" | 13'- 2" |
| **GREASE TRAPS** | | | | | | |
| 750 Gallon Seamless | 41 | 4 | 2' - 0" | N/A | N/A | 7'- 2" |
| 1,000 Gallon Seamless | 41 | 4 | 2' - 0" | N/A | N/A | 7'- 2" |
| 1,250 Gallon Seamless | 41 | 4 | 2' - 0" | N/A | N/A | 7'- 2" |
| 750 Gal. Heavy Duty | 42 | 3 | 2' - 0" | 4'- 8" | N/A | 7'- 5" |
| 1,000 Gal. Heavy Duty | 42 | 3 | 2' - 0" | 5'- 8" | N/A | 8'- 7" |
| 1,200 Gal. Heavy Duty | 42 | 3 | 2'- 0" | 5'- 10" | N/A | 9'- 2" |
| 1,500 Gal. Heavy Duty | 43 | 3 | 2' - 0" | 4'- 8" | N/A | 9'- 2" |
| 2,000 Gal. Heavy Duty | 43 | 3 | 2' - 0" | 6'- 2" | N/A | 9'- 8" |
| 2,500 Gal. Heavy Duty | 43 | 3 | 2' - 0" | 5'- 6" | N/A | 8'- 10" |
| 3,000 Gal. Heavy Duty | 43 | 3 | 2' - 0" | 6'- 6" | N/A | 9'- 10" |
| 3,500-5,500 Gal. H.D. | 44 | 3 | 2' - 0" | 6'- 8" | N/A | 10'- 11" |
| 6,000-8,000 Gal. H.D. | 45 | 3 | 2' - 0" | 6'- 11" | 8'- 11" | 13'- 4" |
| **CHLORINE CONTACT TANKS** | | | | | | |
| 470 Gallon | 50 | 4 | 2' - 0" | N/A | N/A | 5' 10" |
| 1,000 Gallon | 51 | 3 | 2' - 0" | 4'- 5" | N/A | 8'- 2" |
| 1,500 Gallon | 52 | 3 | 2' - 0" | 4'- 8" | N/A | 8'- 5" |
| 2,000 Gallon | 52 | 3 | 2' - 0" | 6'- 2" | N/A | 9'- 5" |
| 2,500 Gallon | 52 | 3 | 2' - 0" | 5'- 6" | N/A | 9'- 11" |

# TABLE D-1 MAXIMUM SECTION DEPTHS (CONT.)

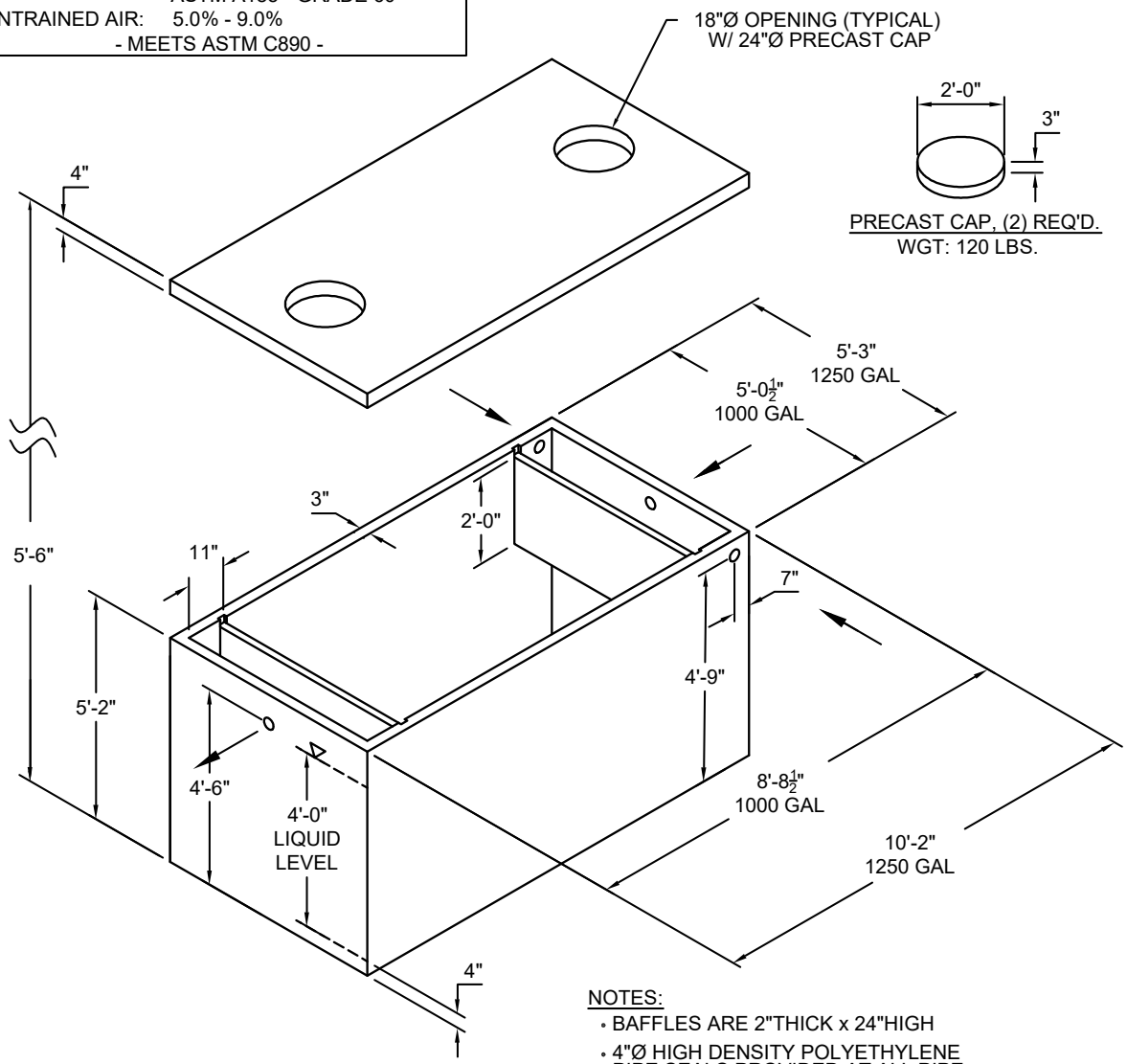
| Structure | Page No. | Design Case | Earth Cover | Integral Top | Intermediate Section | Integral Base |
|---|---|---|---|---|---|---|
| **DOSING TANKS** | | | | | | |
| A-1 Style | 59 | 2 | 2'-0" | N/A | N/A | 5'- 8" |
| A-2 Style | 60 | 2 | 2'-0" | N/A | N/A | 5'- 8" |
| B Style | 61 | 2 | 2'-0" | N/A | N/A | 6'- 9" |
| C Style | 62 | 2 | 2'-0" | N/A | N/A | 6'- 9" |
| D Style | 63 | 2 | 2'-0" | N/A | N/A | 6'- 9" |
| E Style | 64 | 2 | 2'-0" | N/A | N/A | 6'- 9" |
| G Style | 65 | 2 | 2'-0" | N/A | N/A | 6'- 9" |
| **DISTRIBUTION BOXES** | | | | | | |
| #1 | 36 | 4 | 2' - 0" | N/A | N/A | 2'- 11" |
| #2 | 37 | 2 | 2' - 0" | N/A | N/A | 2'- 11" |
| #3 | 38 | 2 | 2' - 0" | N/A | N/A | 3'- 9" |
| #4 | 39 | 2 | 2' - 0" | N/A | N/A | 4'- 0" |
| **CATCH BASINS** | | | | | | |
| 2'- 0" x 2'- 0" | 83/84 | 2 | 3'- 0" | N/A | 15'- 5" | 18'- 5" |
| 2'- 6" x 2'- 6" | 85/86 | 2 | 3'- 0" | N/A | 15'- 5" | 18'- 5" |
| 2'- 6" x 4'- 0" | 87 | 2 | 3'- 0" | N/A | 13'- 6" | 15'- 6" |
| 3'- 0" x 3'- 0" | 87 | 2 | 3'- 0" | N/A | 15'- 6" | 18'- 5" |
| 3'- 0" x 3'- 0" | 87 | 2 | 3'- 0" | N/A | 13'- 6" | 15'- 6" |
| DOT Catch Basins | 88/89 | 2 | 2'- 0" | N/A | 21'- 0" | 21'- 0" |
| Transverse Drainage Interceptor | 91 | 2 | N/A | N/A | N/A | N/A |
| **SQUARE & RECTANGULAR STRUCTURES** | | | | | | |
| 4'- 0" x 4'- 0" | 93 | 3 | 2'- 0" | 6'- 2" | 9'- 2" | 12'- 8" |
| 4'- 0" x 6'- 0" | 93 | 3 | 2'- 0" | 6'- 2" | 9'- 2" | 12'- 8" |
| 5'- 0" x 5'- 0" | 93 | 3 | 2'- 0" | 6'- 2" | 9'- 2" | 12'- 8" |
| 5'- 0" x 7'- 0" | 93 | 3 | 2'- 0" | 6'- 2" | 9'- 2" | 12'- 8" |
| 5'- 0" x 10'- 0" | 93 | 3 | 2'- 0" | 6'- 2" | 9'- 2" | 12'- 8" |
| 6'- 0" x 8'- 0" | 93 | 3 | 2'- 0" | 6'- 2" | 9'- 2" | 12'- 8" |
| 6'- 0" x 10'- 0" | 93 | 3 | 2'- 0" | 6'- 2" | 9'- 2" | 12'- 8" |
| 6'- 0" x 12'- 0" | 93 | 3 | 2'- 0" | 6'- 2" | 9'- 2" | 12'- 8" |
| 7'- 0" x 16'- 0" | 93 | 3 | 2'- 0" | 6'- 11" | 8'- 11" | 13'- 2" |

***If you have a questions regarding Design Case 5, please contact our Sales Department.***

# SEPTIC TANKS

# 1,000 TO 1,250 GALLON SEAMLESS SEPTIC TANK

CONCRETE: 4000 PSI
REINFORCEMENT: ASTM A615 - GRADE 60
ASTM A185 - GRADE 60
ENTRAINED AIR: 5.0% - 9.0%
- MEETS ASTM C890 -




NOTES:

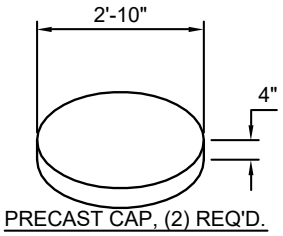
- BAFFLES ARE 2"THICK x 24"HIGH
- 4"Ø HIGH DENSITY POLYETHYLENE PIPE SEALS PROVIDED AT ALL PIPE CONNECTIONS SHOWN.
- CONFORMS TO CURRENT NYSDEC REGULATIONS
- DESIGN CASE 4 (NON-TRAFFIC)

| TANK SIZE | WEIGHTS, LBS | | |
|---|---|---|---|
| GALLONS | TOP SLAB | BOTTOM* | TOTAL |
| 1000 | 2160 | 7610 | 9770 |
| 1250 | 2660 | 8820 | 11,480 |

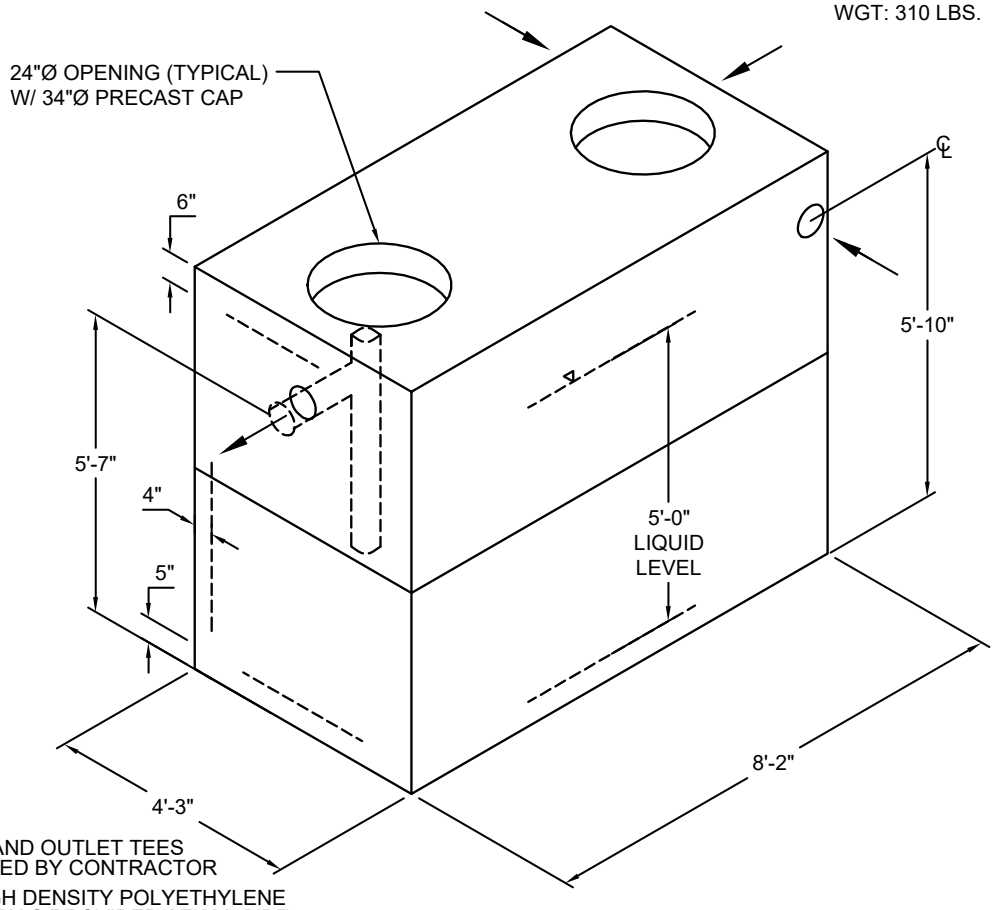
*INCLUDES BAFFLE

# 1,000 GALLON HEAVY DUTY SEPTIC TANK

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 |
| ENTRAINED AIR: | 5.0% - 9.0% |
| | -MEETS ASTM C890- |




PRECAST CAP, (2) REQ'D.
WGT: 310 LBS.



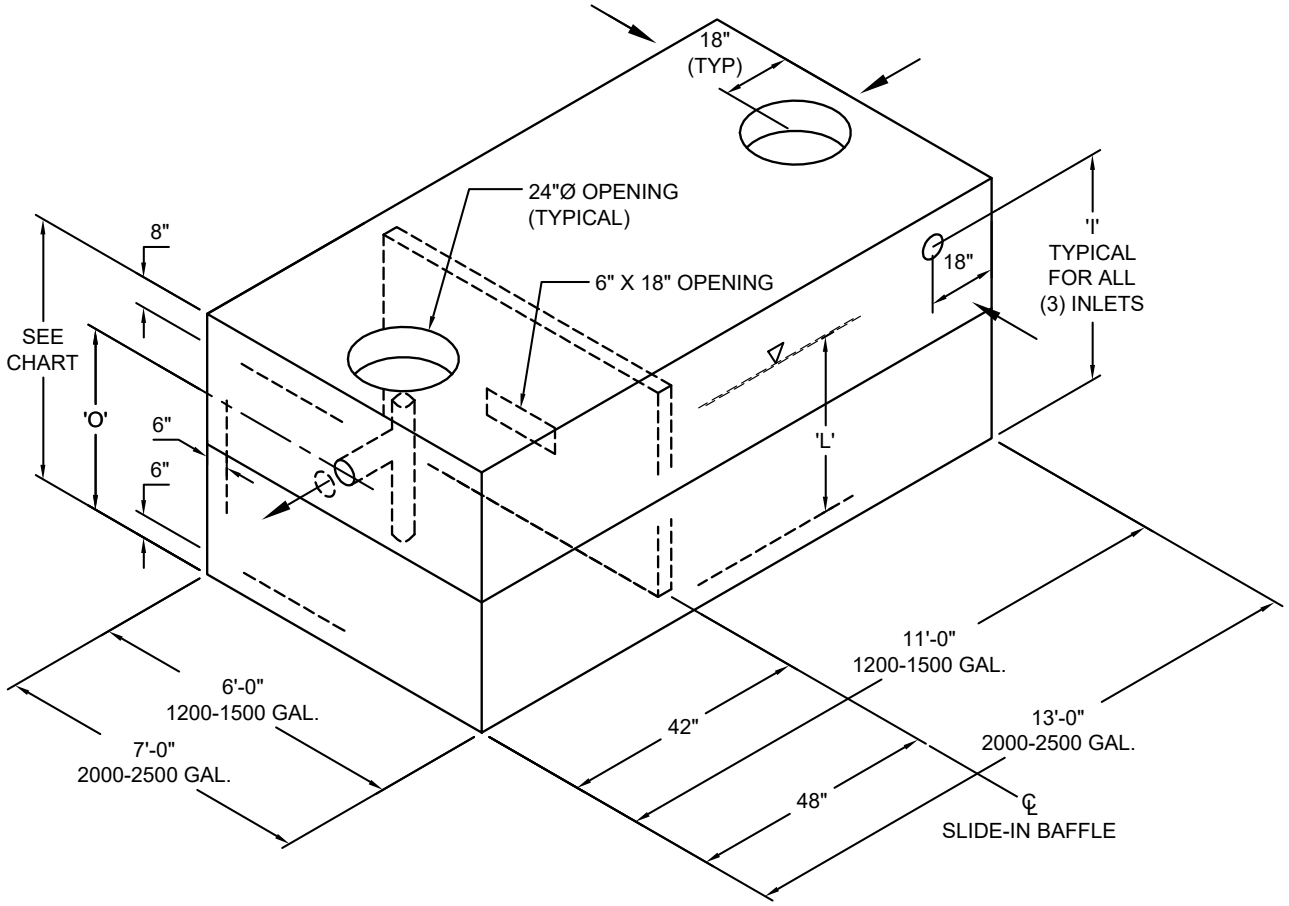

NOTES:

- INLET AND OUTLET TEES SUPPLIED BY CONTRACTOR
- 4"Ø HIGH DENSITY POLYETHYLENE PIPE SEALS PROVIDED AT ALL PIPE CONNECTIONS SHOWN.
- THERE ARE INLET KNOCKOUTS ON THREE SIDES FOR 4"Ø PIPE.
- DESIGN CASE 3 (TRAFFIC)

| SIZE GALLONS | LIQUID LEVEL 'L' | INLET HEIGHT 'I' | OUTLET HEIGHT 'O' | OUTSIDE TANK HEIGHT | TANK WEIGHT, LBS | | |
|---|---|---|---|---|---|---|---|
| | | | | | TOP SECTION | BOTTOM* SECTION | TOTAL WEIGHT |
| 1000 | 5'-0" | 5'-10" | 5'-7" | 6'-10" | 6120 | 5600 | 11,720 |

# 1,200 TO 2,500 GALLON HEAVY DUTY SEPTIC TANK

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 |
| ENTRAINED AIR: | 5.0% - 9.0% |
| | -MEETS ASTM C890- |



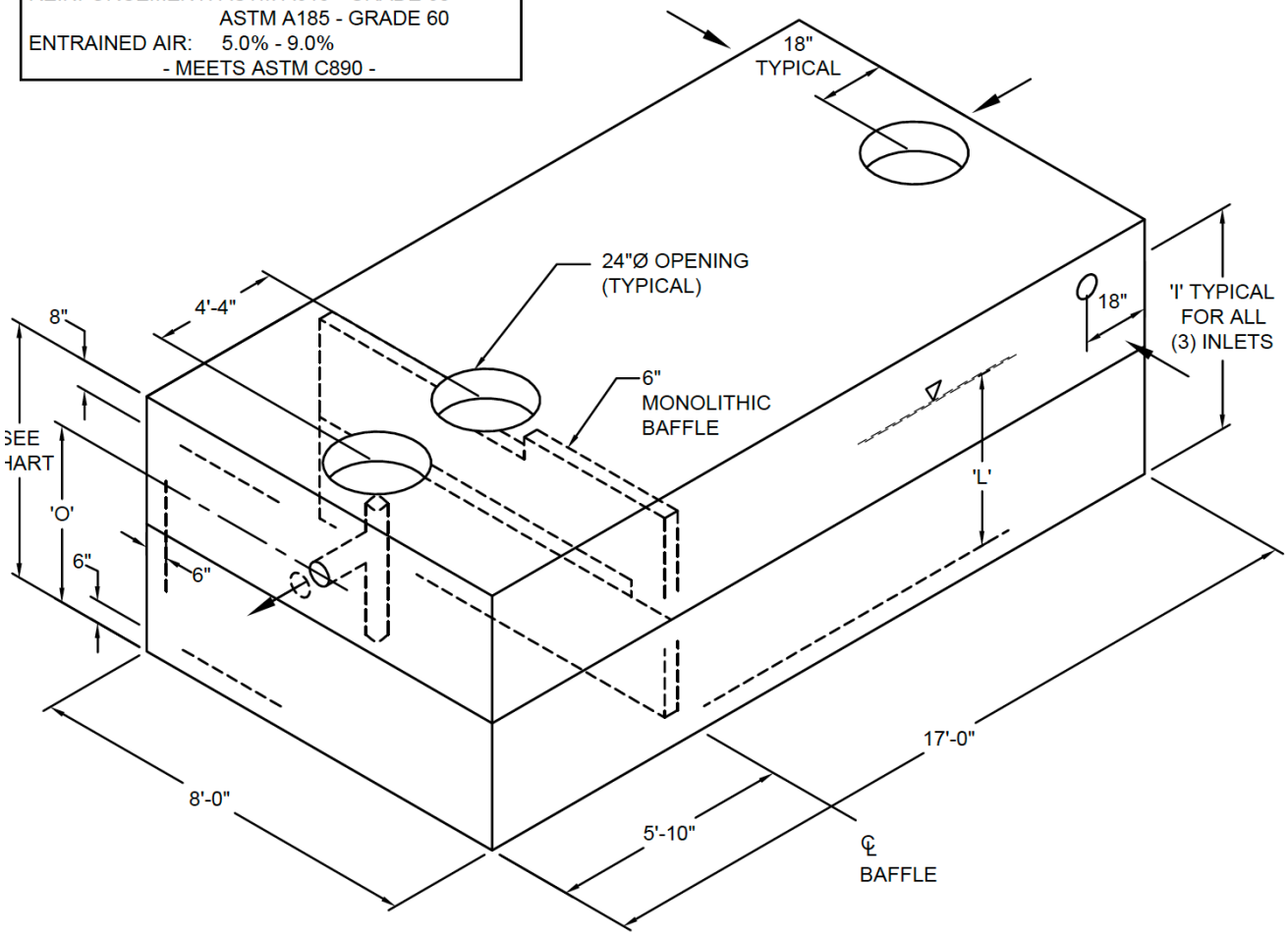

NOTES:

- INLET AND OUTLET TEES SUPPLIED BY CONTRACTOR
- INLET KNOCKOUTS PROVIDED FOR 6"Ø PIPE ON THREE SIDES.
- DESIGN CASE 3 (TRAFFIC)

| SIZE GALLONS | OUTSIDE HEIGHT | LIQUID LEVEL 'L' | INLET HEIGHT 'I' | OUTLET HEIGHT 'O' | TANK WEIGHT, LBS | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | TOP SECTION | BOTTOM SECTION | BAFFLE WEIGHT | TOTAL WEIGHT |
| 1200 | 5'-5" | 3'-3" | 4'-3" | 4'-0" | 10,000 | 11,740 | 960 | 22,700 |
| 1500 | 6'-3" | 4'-1" | 5'-1" | 4'-10" | 12,000 | 11,740 | 1175 | 24,915 |
| 2000 | 5'-11" | 3'-9" | 4'-9" | 4'-6" | 13,140 | 16,320 | 1300 | 30,760 |
| 2500 | 6'-11" | 4'-9" | 5'-9" | 5'-6" | 16,000 | 16,320 | 1605 | 33,925 |

# 3,000 TO 4,000 GALLON HEAVY DUTY SEPTIC TANK

CONCRETE: 4000 PSI
REINFORCEMENT: ASTM A615 - GRADE 60
ASTM A185 - GRADE 60
ENTRAINED AIR: 5.0% - 9.0%
- MEETS ASTM C890 -



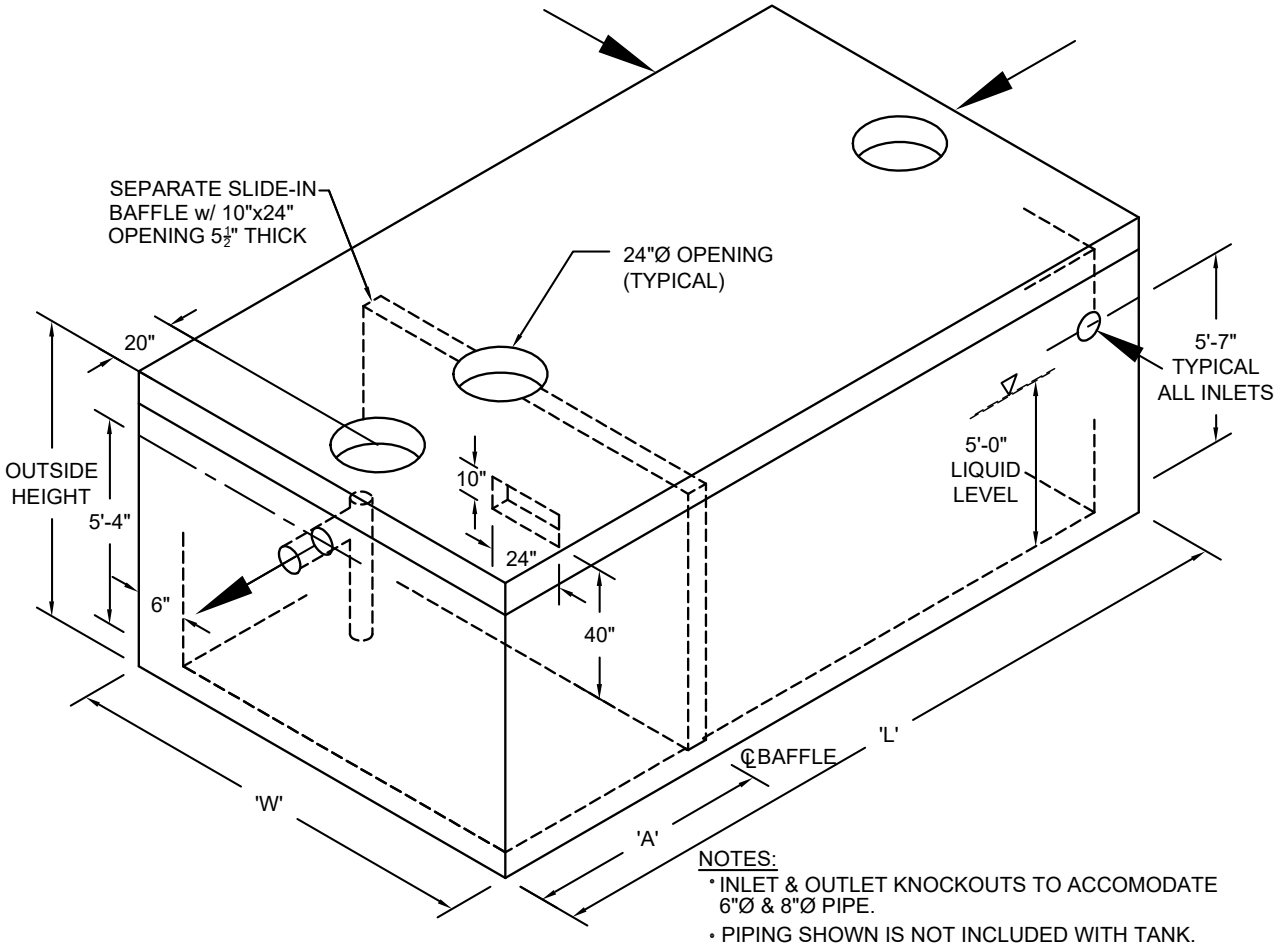

NOTES:

- INLET & OULET TEES SUPPLIED BY CONTRACTOR.
- INLET KNOCKOUTS PROVIDED FOR 6"Ø PIPE ON THREE SIDES.
- DESIGN CASE 3 (TRAFFIC)

| SIZE GALLONS | LIQUID LEVEL 'L' | INLET HEIGHT 'I' | OUTLET HEIGHT 'O' | INTEGRAL TOP HEIGHT | INTEGRAL BASE HEIGHT | OVERALL HEIGHT | | INTEGRAL TOP (LBS) | INTEGRAL BASE (LBS) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | INSIDE | OUTSIDE | | |
| 3000 | 4'-0" | 5'-1" | 4'-10" | 2'-0" | 3'-0" | 5'-0" | 6'-2" | 21,600 | 22,200 |
| 3500 | 4'-3" | 5'-4" | 5'-1" | 2'-3" | 3'-0" | 5'-3" | 6'-5" | 22,600 | 22,200 |
| 4000 | 5'-0" | 5'-10" | 5'-10" | 3'-0" | 3'-0" | 6'-0" | 7'-2" | 25,800 | 22,200 |

# 4,500 TO 8,000 GALLON HEAVY DUTY SEPTIC TANK

CONCRETE: 4000 PSI
REINFORCEMENT: ASTM A615 - GRADE 60
ENTRAINED AIR: 5.0% - 9.0%
-MEETS ASTM C890-



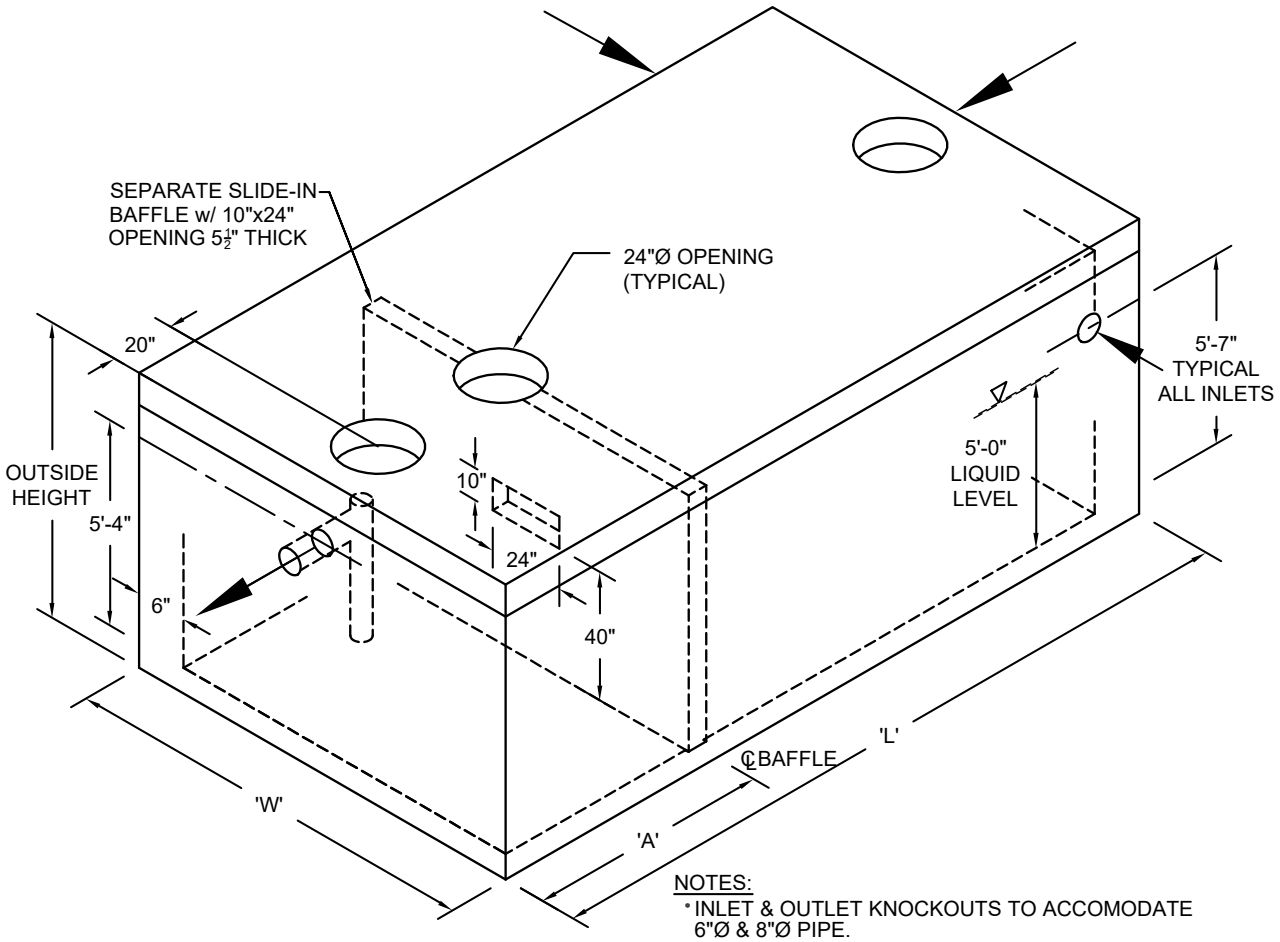

NOTES:

- INLET & OUTLET KNOCKOUTS TO ACCOMODATE 6"Ø & 8"Ø PIPE.
- PIPING SHOWN IS NOT INCLUDED WITH TANK.
- BAFFLE HEIGHT ALLOWS FOR A 4½" HIGH VENT OVER ENTIRE WIDTH OF TANK.
- TANKS CAN BE USED IN SERIES TO ACCOMODATE CAPACITIES BETWEEN 10,500 AND 16,000 GALLONS.
- DESIGN CASE 2 (TRAFFIC)

| SIZE GALLONS | OUTSIDE WIDTH 'W' | OUTSIDE LENGTH 'L' | OVERALL HEIGHT | | DIST. TO BAFFLE 'A' | TOP THICKNESS 'R' | BASE THICKNESS 'B' | FLAT TOP SLAB WGT. (LBS) | BASE SECTION WGT. (LBS) | SLIDE-IN BAFFLE WGT. (LBS) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | OUTSIDE | INSIDE | | | | | | |
| 4500 | 9'-0" | 17'-0" | 7'-4" | 6'-2" | 5'-10" | 8" | 6" | 15,400 | 34,600 | 3400 |
| 5000 | 9'-0" | 18'-6" | 7'-4" | 6'-2" | 6'-4" | 8" | 6" | 16,600 | 37,000 | 3400 |
| 5500 | 9'-0" | 20'-0" | 7'-4" | 6'-2" | 6'-10" | 8" | 6" | 18,000 | 39,400 | 3400 |
| 6000 | 10'-0" | 20'-0" | 7'-8" | 6'-2" | 6'-10" | 10" | 8" | 25,000 | 46,800 | 3800 |
| 6500 | 10'-0" | 21'-0" | 7'-8" | 6'-2" | 7'-2" | 10" | 8" | 26,200 | 48,800 | 3800 |
| 7000 | 11'-0" | 21'-0" | 7'-8" | 6'-2" | 7'-2" | 10" | 8" | 28,800 | 51,800 | 4200 |
| 7500 | 11'-0" | 22'-0" | 7'-8" | 6'-2" | 7'-10" | 10" | 8" | 30,200 | 53,800 | 4200 |
| 8000 | 11'-0" | 23'-0" | 7'-8" | 6'-2" | 7'-10" | 10" | 8" | 31,600 | 55,800 | 4200 |

# 8,500 TO 10,500 GALLON HEAVY DUTY SEPTIC TANK

| | |
|---|---|
| CONCRETE: | 5000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 |
| ENTRAINED AIR: | 5.0% - 9.0% |
| | -MEETS ASTM C890- |



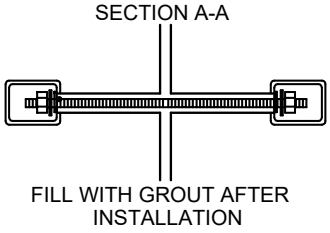

NOTES:

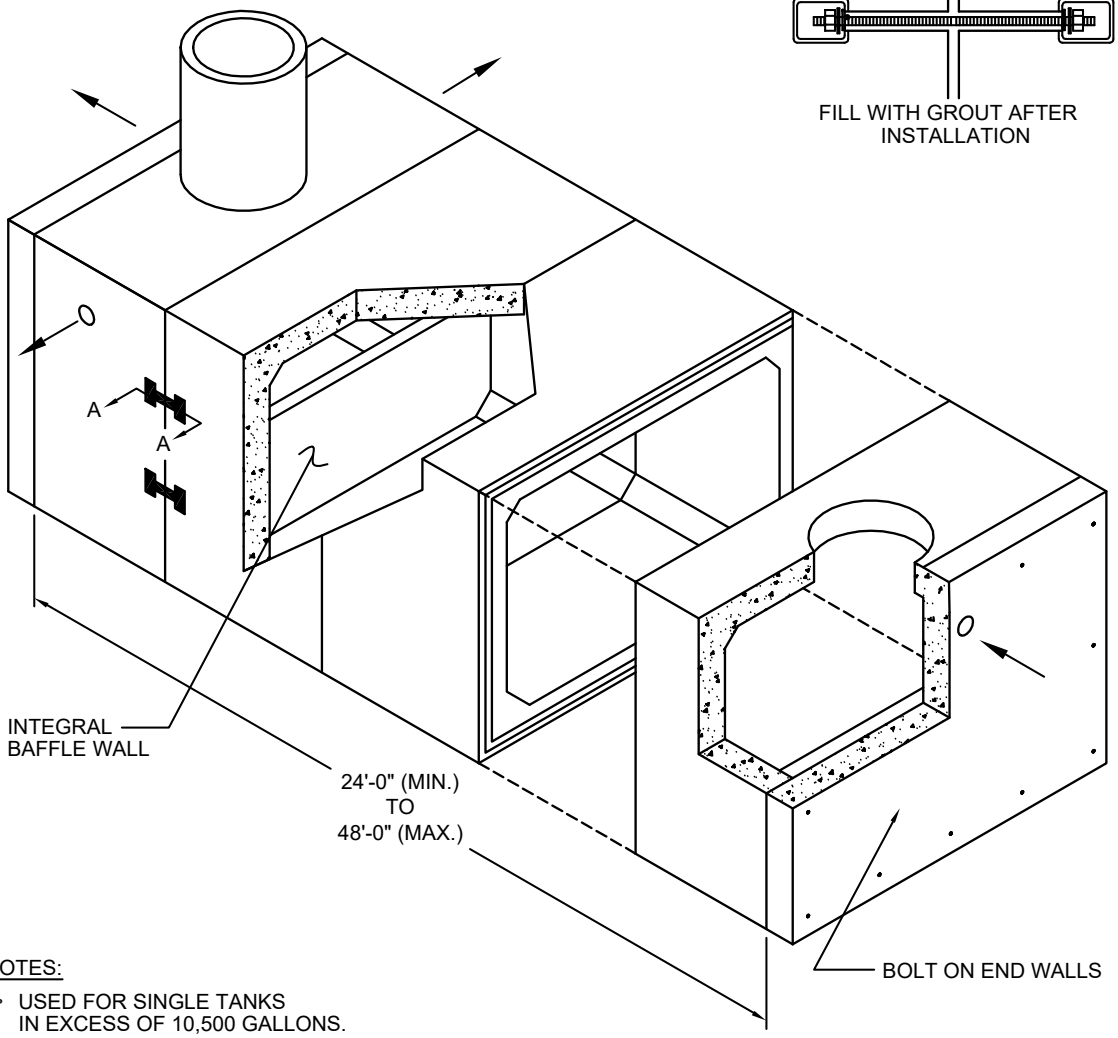
- INLET & OUTLET KNOCKOUTS TO ACCOMODATE 6"Ø & 8"Ø PIPE.
- PIPING SHOWN IS NOT INCLUDED WITH TANK.
- BAFFLE HEIGHT ALLOWS FOR A 4½" HIGH VENT OVER ENTIRE WIDTH OF TANK.
- TANKS CAN BE USED IN SERIES TO ACCOMODATE CAPACITIES BETWEEN 10,500 AND 16,000 GALLONS.
- DESIGN CASE 2 (TRAFFIC)

| SIZE GALLONS | OUTSIDE WIDTH 'W' | OUTSIDE LENGTH 'L' | OVERALL HEIGHT | | DIST. TO BAFFLE 'A' | TOP THICKNESS 'R' | BASE THICKNESS 'B' | FLAT TOP SLAB WGT. (LBS) | BASE SECTION WGT. (LBS) | SLIDE-IN BAFFLE WGT. (LBS) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | OUTSIDE | INSIDE | | | | | | |
| 8500 | 11'-0 | 24'-6" | 7'-8" | 6'-2" | 8'-6" | 10" | 8" | 34,000 | 60,400 | 4400 |
| 9000 | 11'-0 | 26'-0" | 7'-8" | 6'-2" | 8'-10" | 10" | 8" | 36,000 | 62,400 | 4400 |
| 9500 | 12'-0 | 25'-0" | 7'-8" | 6'-2" | 8'-6" | 10" | 8" | 38,000 | 64,000 | 5200 |
| 10,000 | 12'-0 | 26'-0" | 7'-8" | 6'-2" | 8'-8" | 10" | 8" | 40,000 | 66,000 | 5200 |
| 10,500 | 12'-0 | 27'-0" | 7'-6" | 6'-0" | 9'-0" | 10" | 8" | 42,000 | 68,000 | 5200 |

# HORIZONTALLY EXTENDED SEPTIC TANK

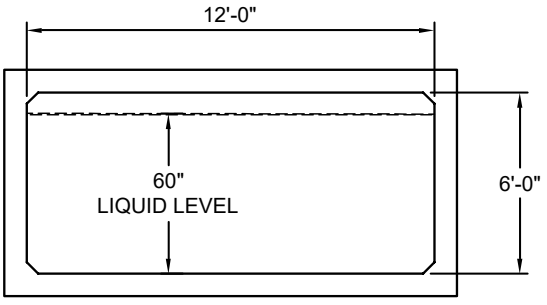
| | |
|---|---|
| CONCRETE: | 5000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 |
| | ASTM A185 - GRADE 60 |
| ENTRAINED AIR: | 5.0% - 9.0% |
| | - MEETS ASTM C890 - |




NOTES:

- USED FOR SINGLE TANKS IN EXCESS OF 10,500 GALLONS.
- CONFORMS TO LATEST N.Y.S. D.E.C. SPECIFICATIONS
- CAPACITY = 445 GAL./L.F. WITH 5'-0" LIQUID LEVEL. *OTHER SIZES AVAILABLE UPON REQUEST
- ALL JOINT SEALANTS & WATER TIGHTNESS SHALL BE PROVIDED BY CONTRACTOR OR JOINT SEALANT SPECIALIST.
- DESIGN CASE 7

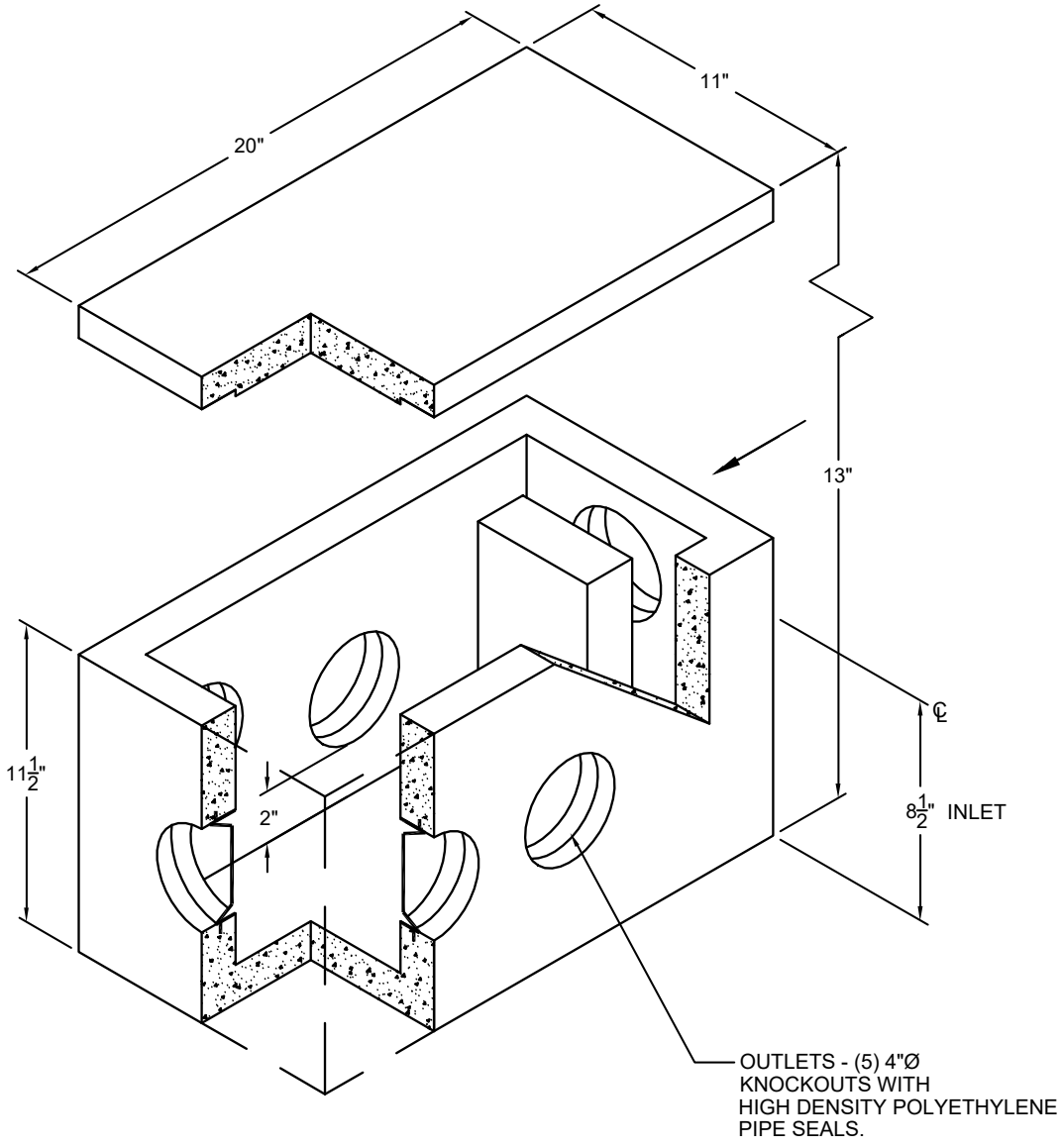



TYPICAL SECTION

# DISTRIBUTION BOXES

# #1 DISTRIBUTION BOX (5) OUTLET

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 |
| | ASTM A185 - GRADE 65 |
| ENTRAINED AIR: | 5.0% - 9.0% |
| | -MEETS ASTM C890- |



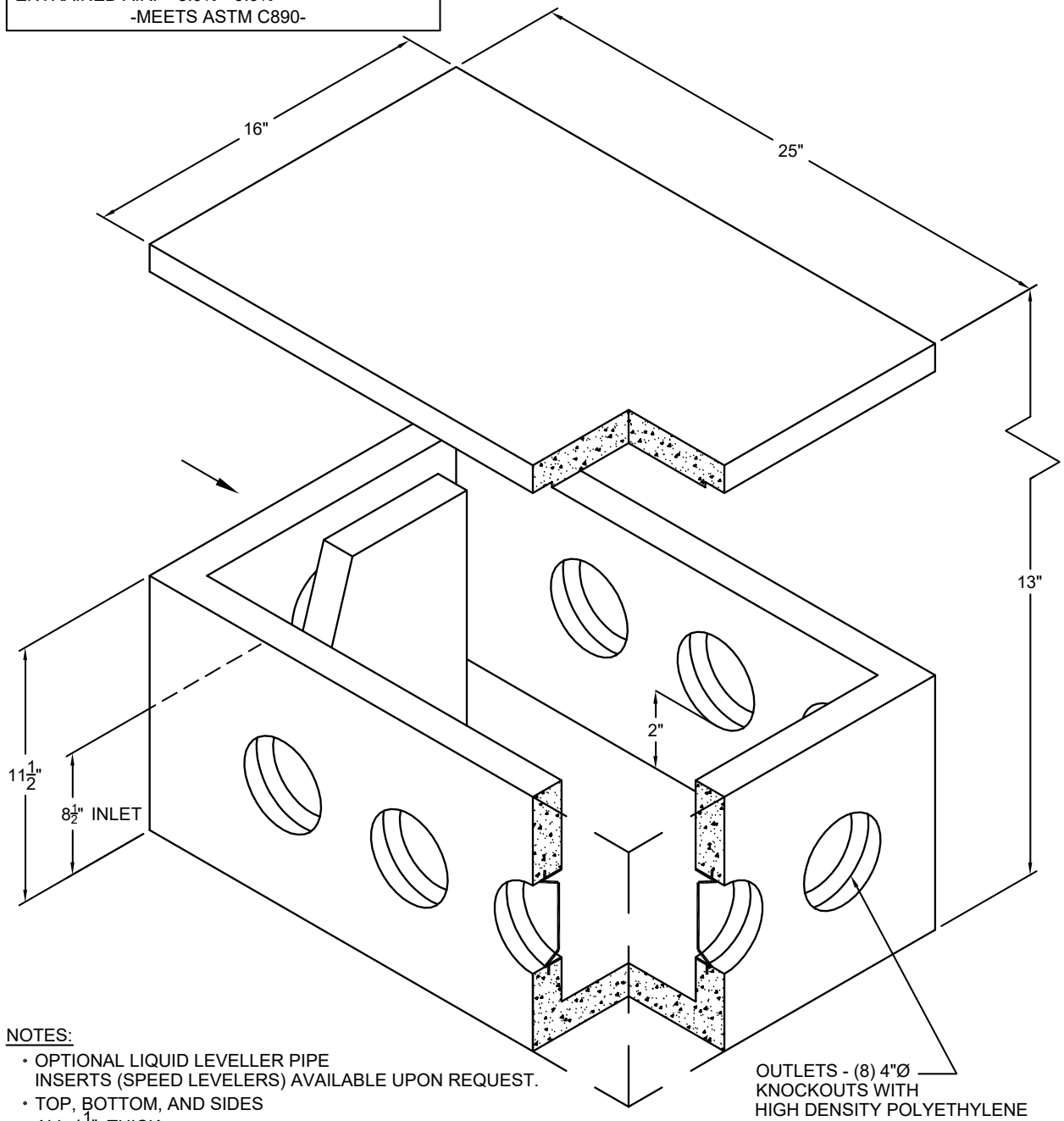

NOTES:

- OPTIONAL LIQUID LEVELLER PIPE INSERTS (SPEED LEVELERS) AVAILABLE UPON REQUEST.
- TOP, BOTTOM, AND SIDES ALL 1½" THICK.
- DESIGN CASE 4 (NON-TRAFFIC)

| SLAB TOP (LBS) | BOTTOM (LBS) | TOTAL (LBS) |
|---|---|---|
| 28 | 70 | 98 |

# #2 DISTRIBUTION BOX (8) OUTLET

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60<br>ASTM A185 - GRADE 65 |
| ENTRAINED AIR: | 5.0% - 9.0%<br>-MEETS ASTM C890- |



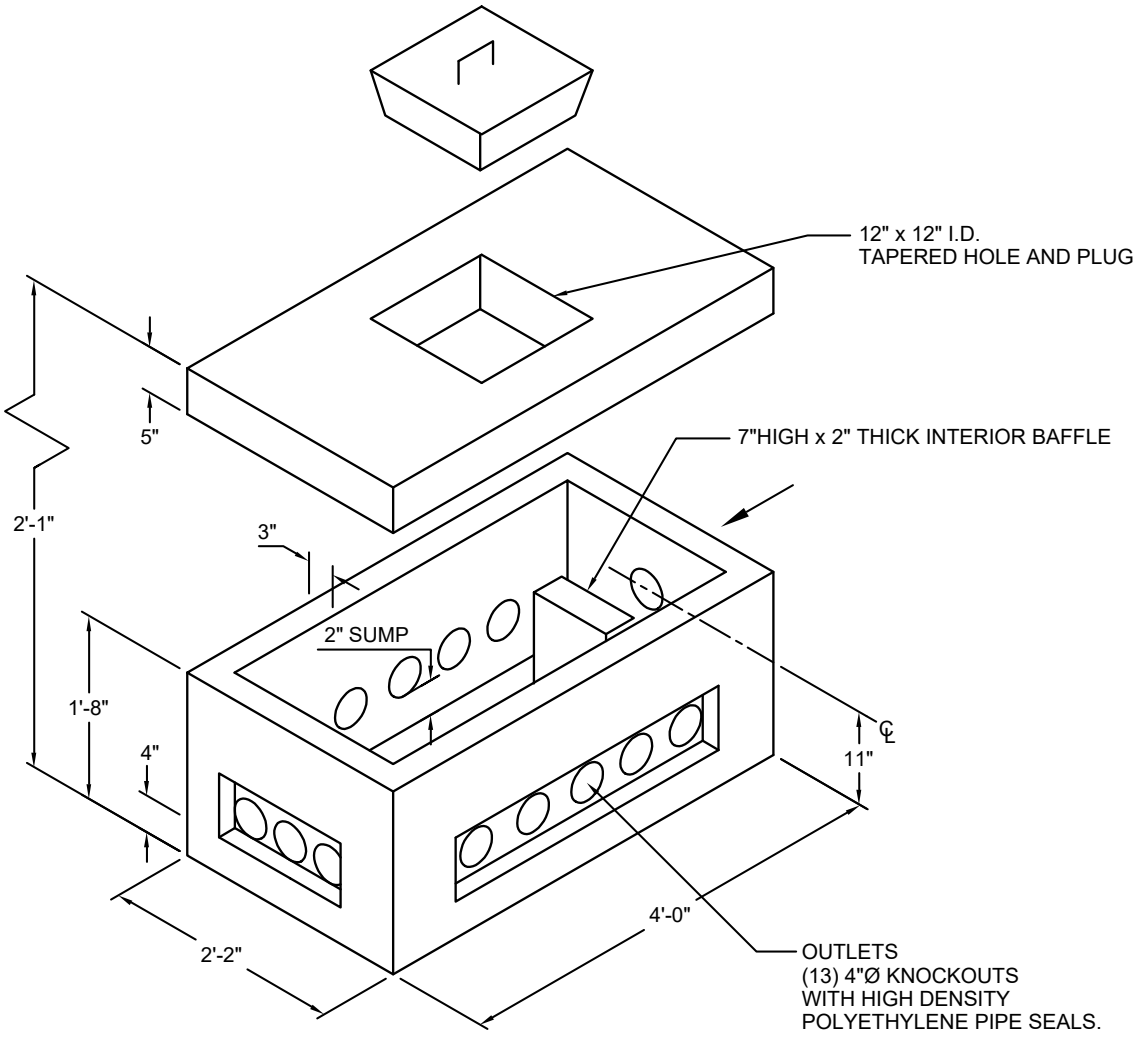

NOTES:

- OPTIONAL LIQUID LEVELLER PIPE INSERTS (SPEED LEVELERS) AVAILABLE UPON REQUEST.
- TOP, BOTTOM, AND SIDES ALL 1½" THICK.
- DESIGN CASE 2 (TRAFFIC)

| SLAB TOP (LBS) | BOTTOM (LBS) | TOTAL (LBS) |
|---|---|---|
| 50 | 144 | 194 |

# #3 DISTRIBUTION BOX (13) OUTLET

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 |
| ENTRAINED AIR: | 5.0% - 9.0% |
| | -MEETS ASTM C890- |




NOTES:

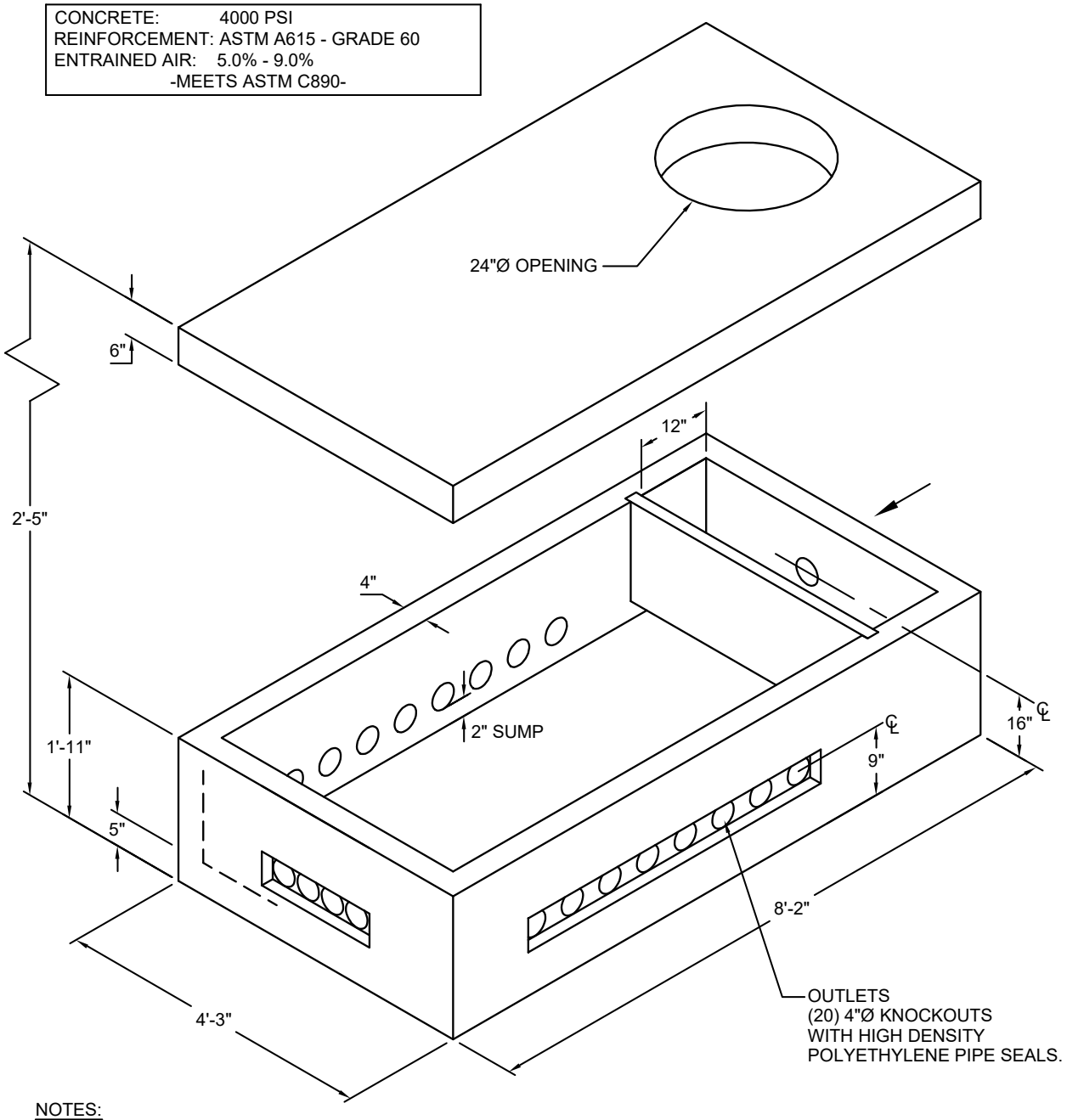
- OPTIONAL LIQUID LEVELLER PIPE INSERTS (SPEED LEVELERS) AVAILABLE UPON REQUEST.
- WALL THICKNESS IS 3" AT TOP AND TAPERS TO 4" AT THE BOTTOM.
- DESIGN CASE 2 (TRAFFIC)

WEIGHTS, LBS

| TOP SLAB | BOTTOM | TOTAL |
|---|---|---|
| 510 | 1030 | 1540 |

# #4 DISTRIBUTION BOX (20) OUTLET

CONCRETE: 4000 PSI
REINFORCEMENT: ASTM A615 - GRADE 60
ENTRAINED AIR: 5.0% - 9.0%
-MEETS ASTM C890-




NOTES:

- OPTIONAL LIQUID LEVELLER PIPE INSERTS (SPEED LEVELERS) AVAILABLE UPON REQUEST.
- TOP THICKNESS IS 6" AND BOTTOM THICKNESS IS $4\frac{1}{2}$".
- DESIGN CASE 2 (TRAFFIC).

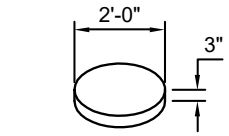
WEIGHTS, LBS

| TOP SLAB | BOTTOM | TOTAL |
|---|---|---|
| 2400 | 3267 | 5667 |

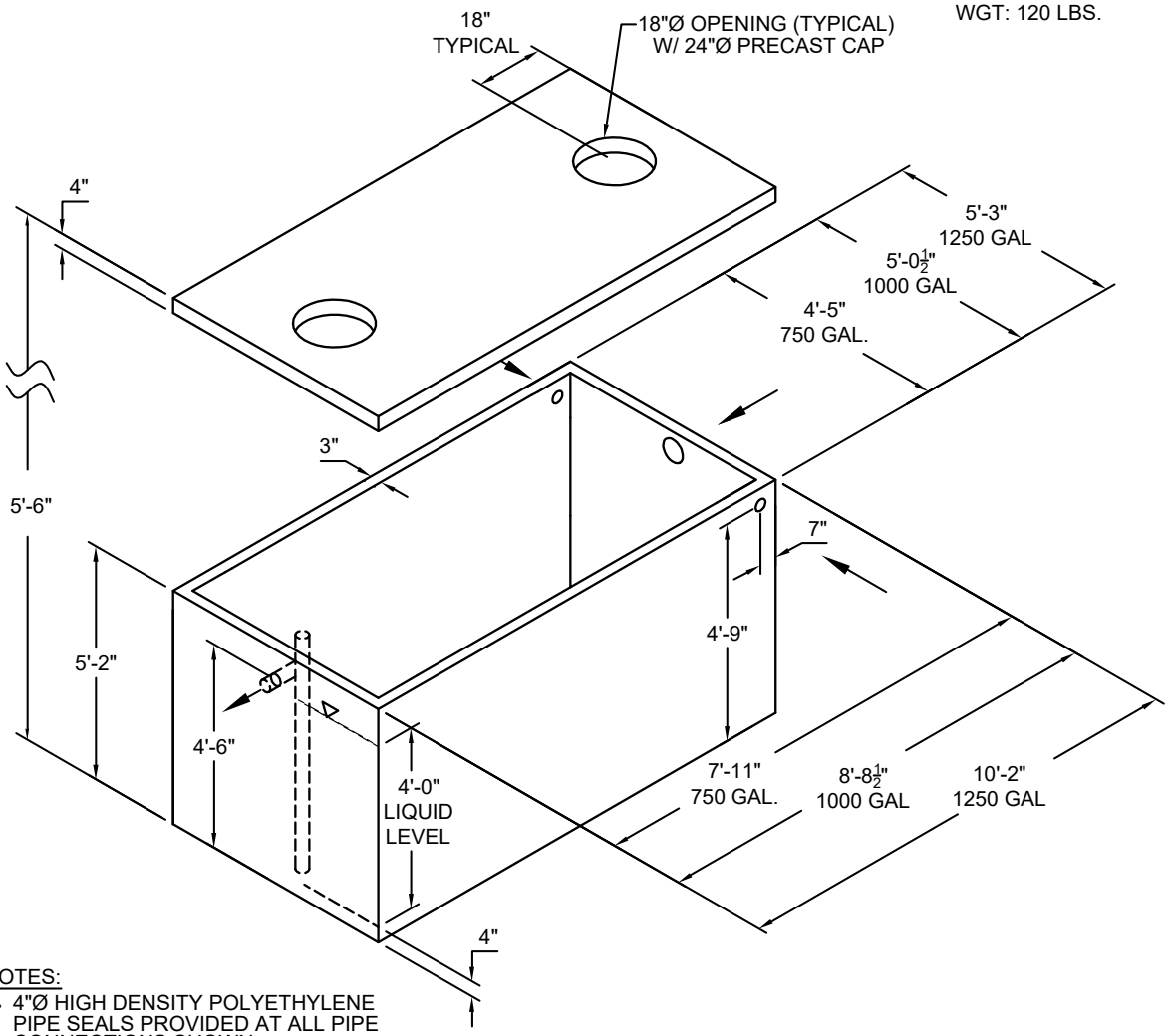
# GREASE TRAPS

# 750-1000-1250 GALLON SEAMLESS GREASE TRAP

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60<br>ASTM A185 - GRADE 60 |
| ENTRAINED AIR: | 5.0% - 9.0%<br>- MEETS ASTM C890 - |




PRECAST CAP, (2) REQ'D.
WGT: 120 LBS.



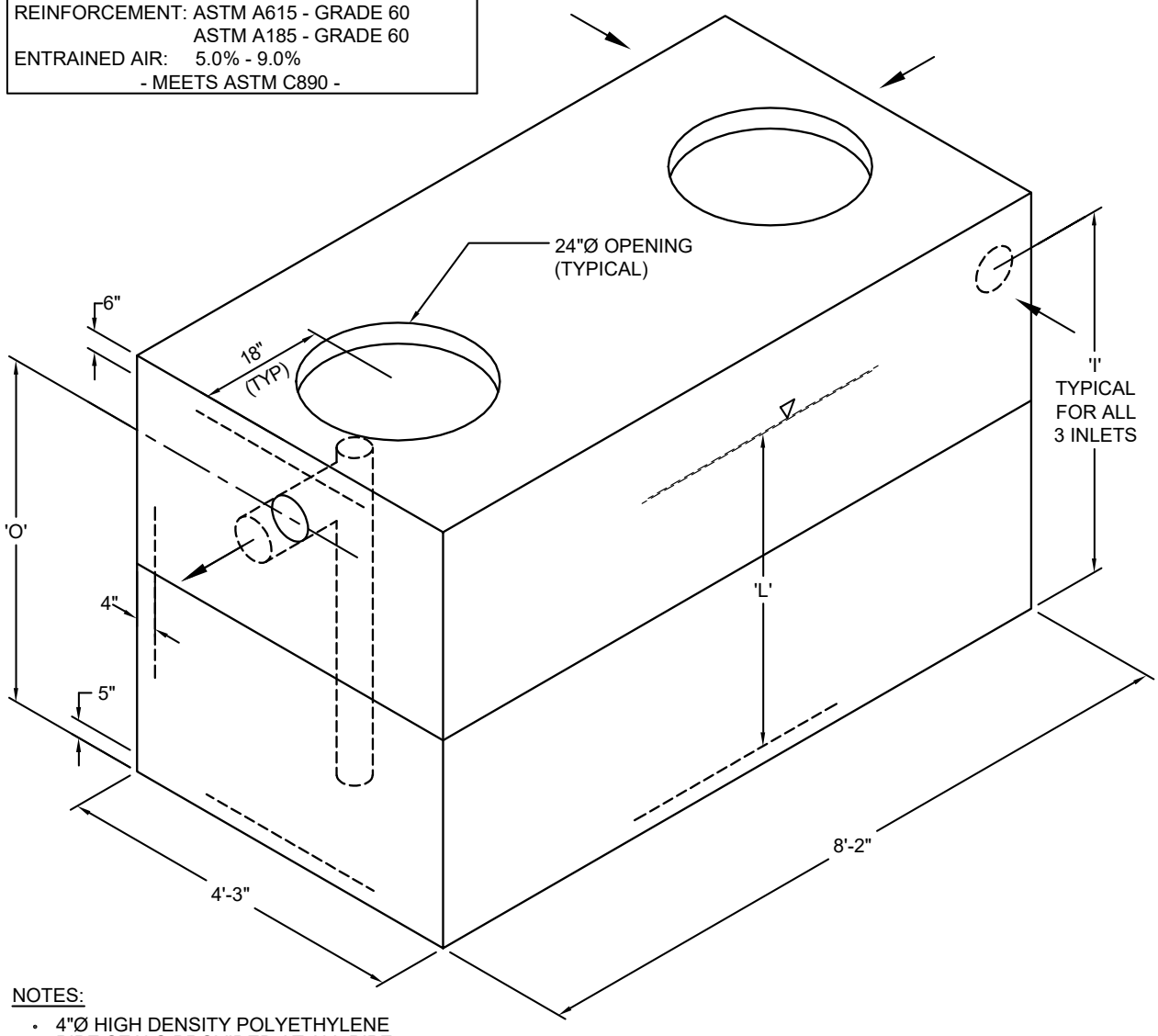

NOTES:

- 4"Ø HIGH DENSITY POLYETHYLENE PIPE SEALS PROVIDED AT ALL PIPE CONNECTIONS SHOWN.
- FUEL AND OIL RESISTANT GREY BUTYL (CS-440 OR EQUAL) REQUIRED ON ALL GREASE TRAPS.
- INLET & OTLET TEES SUPPLIED BY CONTRACTOR
- NO BAFFLES INCLUDED
- DESIGN CASE 4 (NON-TRAFFIC)

| TANK SIZE | WEIGHTS, LBS | | |
|---|---|---|---|
| GALLONS | TOP SLAB | BOTTOM | TOTAL |
| 750 | 1760 | 6340 | 8100 |
| 1000 | 2180 | 7360 | 9540 |
| 1250 | 2660 | 8460 | 11,120 |

# 1000 GALLON
# HEAVY DUTY GREASE TRAP

CONCRETE: 4000 PSI
REINFORCEMENT: ASTM A615 - GRADE 60
ASTM A185 - GRADE 60
ENTRAINED AIR: 5.0% - 9.0%
- MEETS ASTM C890 -



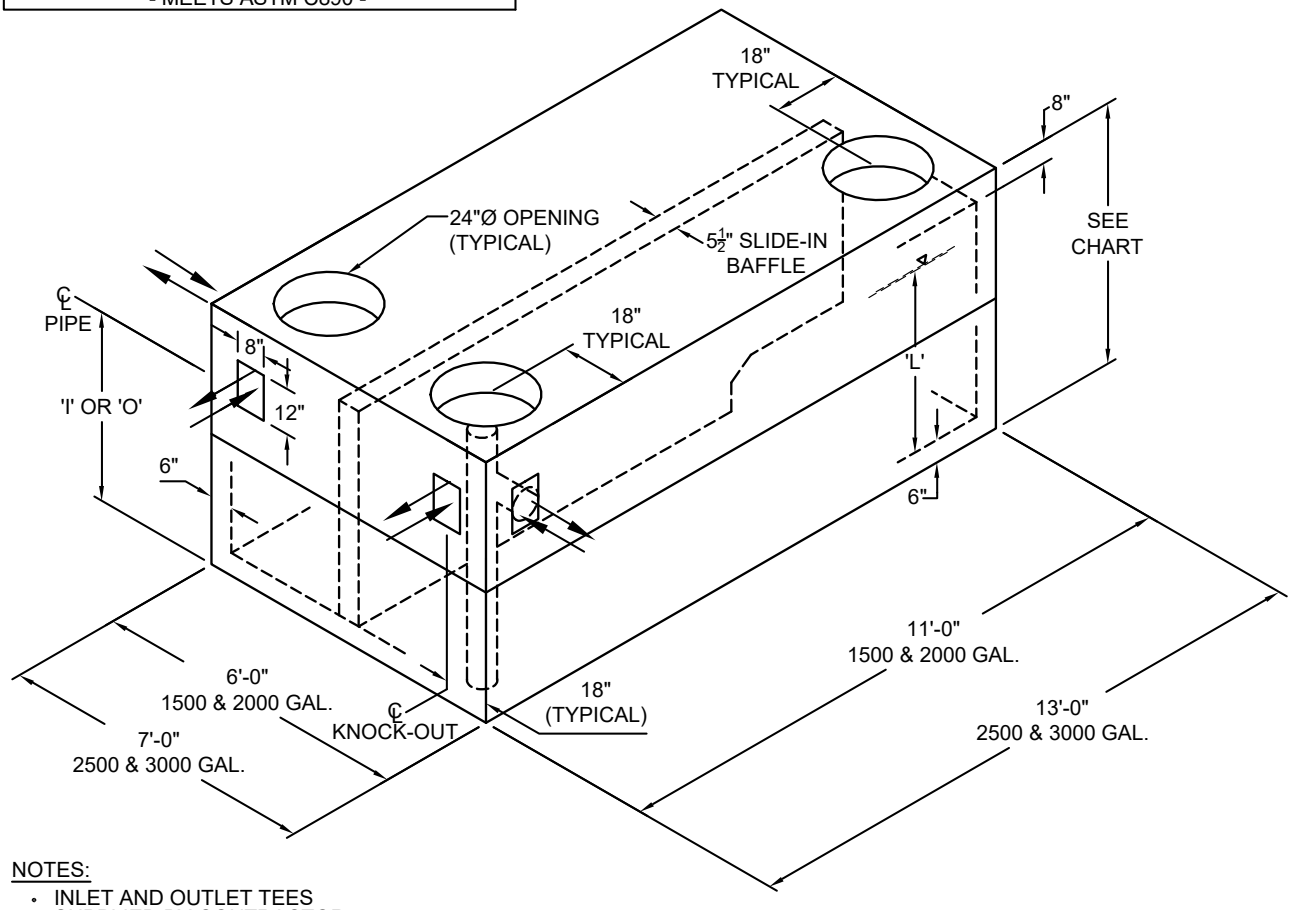

NOTES:

- 4"Ø HIGH DENSITY POLYETHYLENE PIPE SEALS PROVIDED AT ALL PIPE CONNECTIONS SHOWN.
- INLET AND OUTLET TEES SUPPLIED BY CONTRACTOR.
- FUEL AND OIL RESISTANT GREY BUTYL (CS-440 OR EQUAL) REQUIRED ON ALL GREASE TRAPS.
- DESIGN CASE 3 (TRAFFIC)

| SIZE GALLONS | LIQUID LEVEL 'L' | INLET HEIGHT 'I' | OUTLET HEIGHT 'O' | OUTSIDE HEIGHT | INTEGRAL TOP (LBS) | INTEGRAL BASE (LBS) | TOTAL (LBS) |
|---|---|---|---|---|---|---|---|
| 1000 | 5'-0" | 5'-10" | 5'-7" | 6'-10" | 6000 | 5600 | 11,600 |

# 1500 TO 3000 GALLON HEAVY DUTY GREASE TRAP

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 |
| | ASTM A185 - GRADE 60 |
| ENTRAINED AIR: | 5.0% - 9.0% |
| | - MEETS ASTM C890 - |



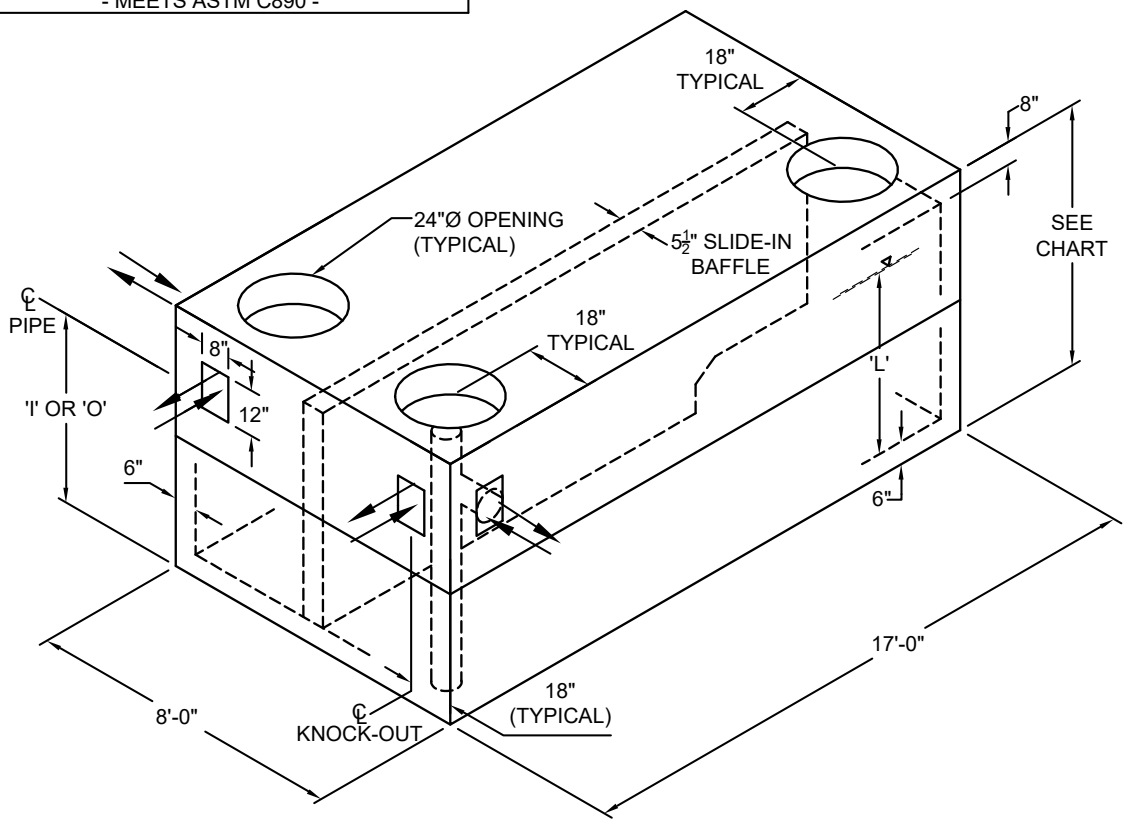

NOTES:

- INLET AND OUTLET TEES SUPPLIED BY CONTRACTOR.
- INLET AND OUTLET KNOCKOUTS PROVIDED FOR 6"Ø PIPE.
- BAFFLE IS SEPARATE SLIDE-IN TYPE.
- FUEL AND OIL RESISTANT GREY BUTYL IS REQUIRED (CS-440 OR EQUAL).
- DESIGN CASE 3 (TRAFFIC)

| SIZE GALLONS | LIQUID LEVEL 'L' | INLET HEIGHT 'I' | OUTLET HEIGHT 'O' | INTEGRAL TOP HEIGHT INSIDE | INTEGRAL BASE HEIGHT INSIDE | OVERALL HEIGHT | | INTEGRAL TOP (LBS) | INTEGRAL BASE (LBS) | BAFFLE (LBS) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | INSIDE | OUTSIDE | | | |
| 1500 | 4'-6" | 5'-6" | 5'-3" | 2'-0" | 3'-6" | 5'-6" | 6'-8" | 11,400 | 13,400 | 3600 |
| 2000 | 6'-0" | 7'-0" | 6'-9" | 3'-6" | 3'-6" | 7'-0" | 8'-2" | 15,000 | 13,400 | 4600 |
| 2500 | 5'-2" | 6'-2" | 5'-11" | 2'-10" | 3'-4" | 6'-2" | 7'-4" | 17,200 | 16,400 | 3200 |
| 3000 | 6'-2" | 7'-2" | 6'-11" | 3'-10" | 3'-4" | 7'-2" | 8'-4" | 20,000 | 16,400 | 5800 |

# 3500 TO 5500 GALLON HEAVY DUTY GREASE TRAP

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 |
| | ASTM A185 - GRADE 60 |
| ENTRAINED AIR: | 5.0% - 9.0% |
| | - MEETS ASTM C890 - |



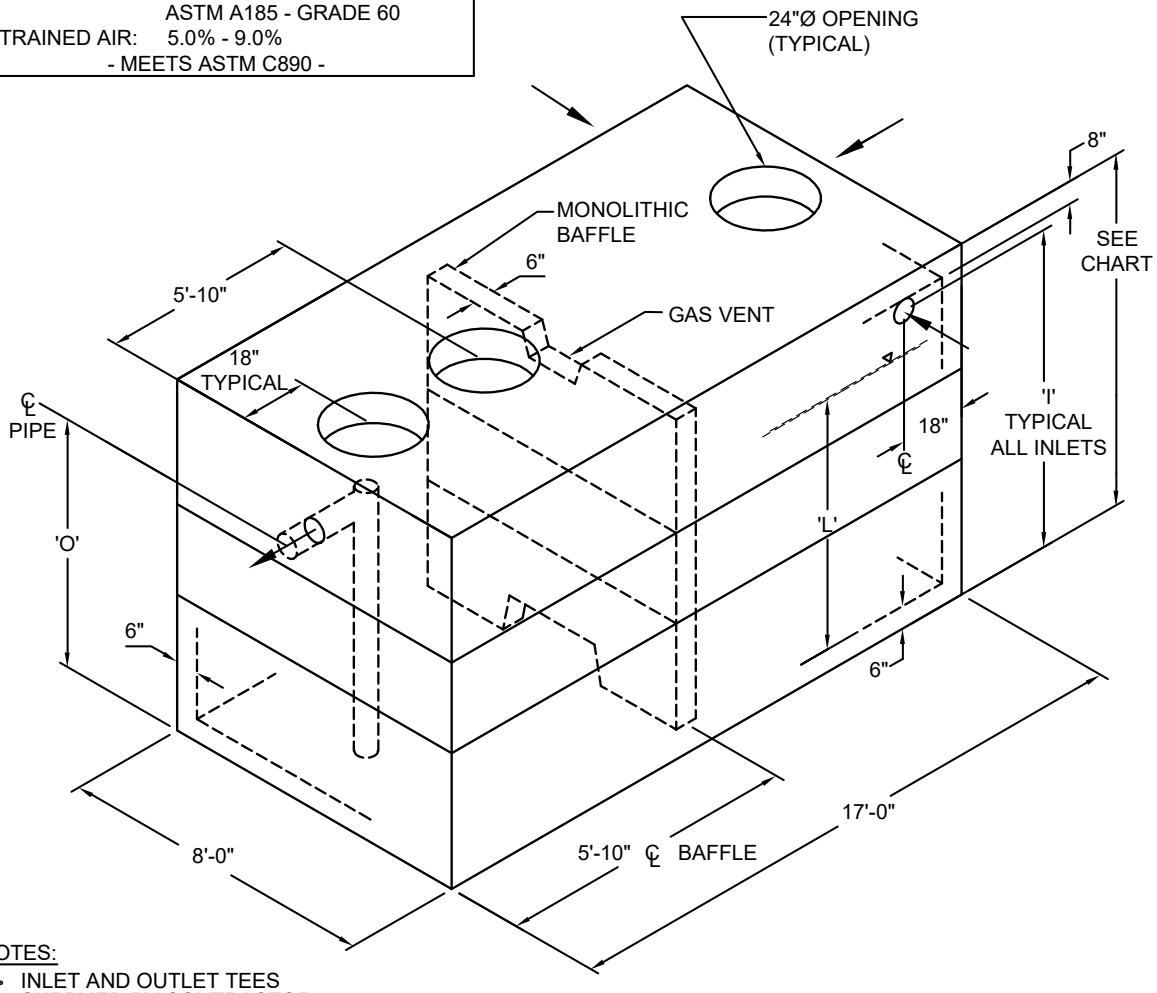

NOTES:

- INLET AND OUTLET TEES SUPPLIED BY CONTRACTOR.
- INLET AND OUTLET KNOCKOUTS PROVIDED FOR 6"Ø PIPE.
- BAFFLE IS SEPARATE SLIDE-IN TYPE.
- FUEL AND OIL RESISTANT GREY BUTYL IS REQUIRED (CS-440 OR EQUAL).
- DESIGN CASE 3 (TRAFFIC)

| SIZE GALLONS | LIQUID LEVEL 'L' | INLET HEIGHT 'I' | OUTLET HEIGHT 'O' | INTEGRAL TOP HEIGHT INSIDE | INTEGRAL BASE HEIGHT INSIDE | OVERALL HEIGHT | | INTEGRAL TOP (LBS) | INTEGRAL BASE (LBS) | BAFFLE WEIGHT (LBS) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | INSIDE | OUTSIDE | | | |
| 3500 | 4'-6" | 5'-6" | 5'-3" | 1'-3" | 4'-3" | 5'-6" | 6'-8" | 18,200 | 25,600 | 6000 |
| 4000 | 5'-3" | 6'-3" | 6'-0" | 2'-0" | 4'-3" | 6'-3" | 7'-5" | 20,800 | 25,600 | 6800 |
| 4500 | 5'-9" | 6'-9" | 6'-6" | 2'-6" | 4'-3" | 6'-9" | 7'-11" | 22,600 | 25,600 | 7400 |
| 5000 | 6'-6" | 7'-6" | 7'-3" | 3'-3" | 4'-3" | 7'-6" | 8'-8" | 25,400 | 25,600 | 8200 |
| 5500 | 7'-3" | 8'-3" | 8'-0" | 4'-0" | 4'-3" | 8'-3" | 9'-5" | 28,000 | 25,600 | 9000 |

# 6000 TO 8000 GALLON HEAVY DUTY GREASE TRAP

CONCRETE: 4000 PSI
REINFORCEMENT: ASTM A615 - GRADE 60
ASTM A185 - GRADE 60
ENTRAINED AIR: 5.0% - 9.0%
- MEETS ASTM C890 -




NOTES:

- INLET AND OUTLET TEES SUPPLIED BY CONTRACTOR.
- INLET AND OUTLET KNOCKOUTS PROVIDED FOR 6"Ø PIPE.
- BAFFLE IS CAST MONOLITHICALLY WITH EACH SECTION.
- FUEL AND OIL RESISTANT GREY BUTYL IS REQUIRED (CS-440 OR EQUAL).
- DESIGN CASE 3 (TRAFFIC)

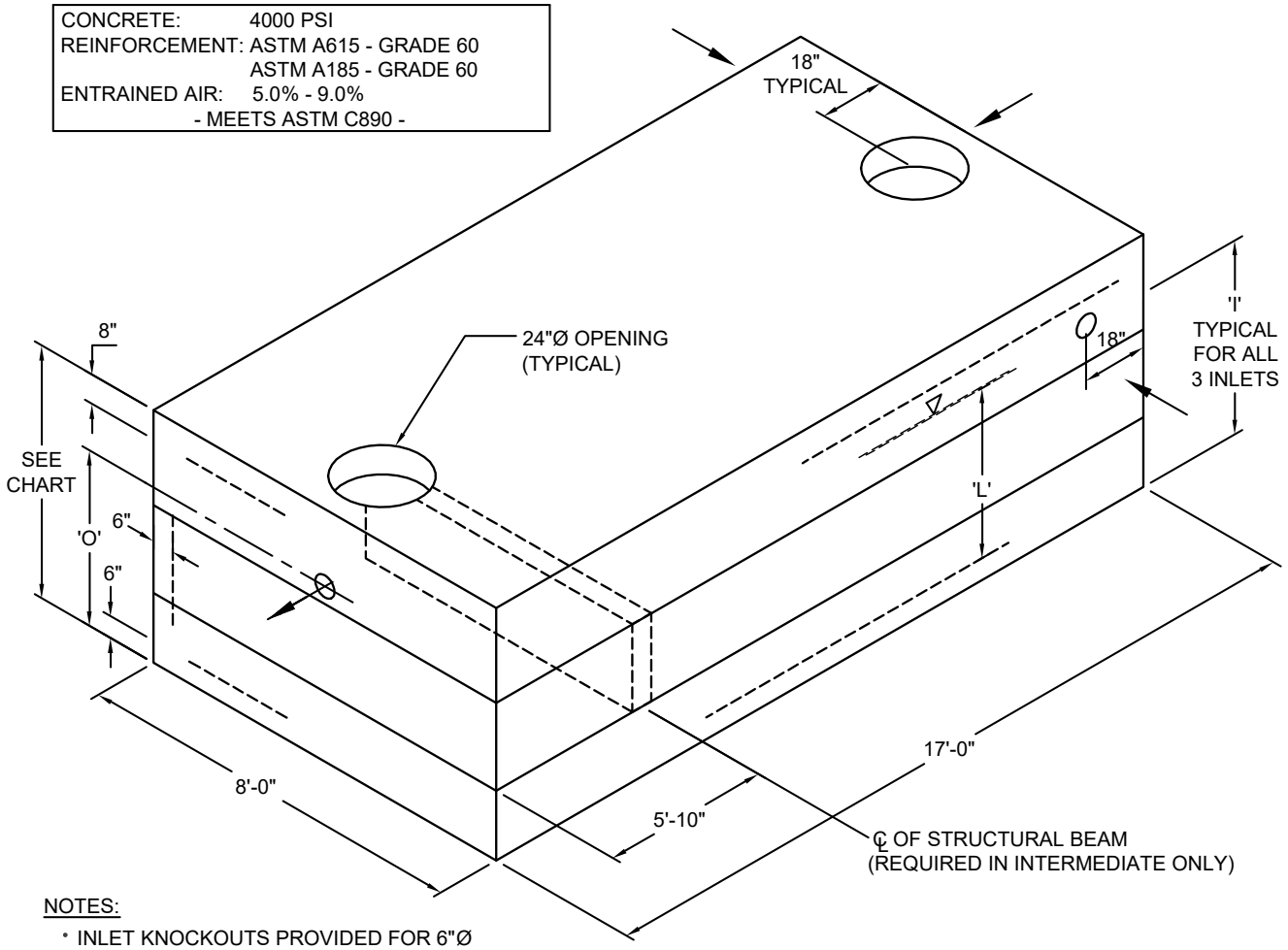
| SIZE GALLONS | LIQUID LEVEL 'L' | INLET HEIGHT 'I' | OUTLET HEIGHT 'O' | INTEGRAL TOP HEIGHT INSIDE | INTER-MEDIATE HEIGHT INSIDE | INTEGRAL BASE HEIGHT INSIDE | OVERALL HEIGHT | | INTEGRAL TOP (LBS) | INTER-MEDIATE (LBS) | INTEGRAL BASE (LBS) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | INSIDE | OUTSIDE | | | |
| 6000 | 7'-8" | 8'-8" | 8'-5" | 2'-3" | 2'-0" | 4'-5" | 8'-8" | 9'-10" | 23,000 | 8200 | 28,600 |
| 6500 | 8'-2" | 9'-2" | 8'-11" | 2'-9" | 2'-0" | 4'-5" | 9'-2" | 10'-4" | 25,000 | 8200 | 28,600 |
| 7000 | 8'-8" | 9'-8" | 9'-5" | 3'-3" | 2'-0" | 4'-5" | 9'-8" | 10'-10" | 27,200 | 8200 | 28,600 |
| 7500 | 9'-5" | 10'-5" | 10'-2" | 4'-0" | 2'-0" | 4'-5" | 10'-5" | 11'-7" | 30,200 | 8200 | 28,600 |
| 8000 | 9'-8" | 10'-8" | 10'-5" | 4'-3" | 2'-0" | 4'-5" | 10'-8" | 11'-10" | 31,200 | 8200 | 28,600 |

# NOTES

# HOLDING TANKS

# 3000 TO 8000 GALLON HEAVY DUTY HOLDING TANK

CONCRETE: 4000 PSI
REINFORCEMENT: ASTM A615 - GRADE 60
ASTM A185 - GRADE 60
ENTRAINED AIR: 5.0% - 9.0%
- MEETS ASTM C890 -




NOTES:

- INLET KNOCKOUTS PROVIDED FOR 6"Ø PIPE ON THREE SIDES. OUTLET OPENING TO ACCOMODATE 6"Ø PIPE.
- SPECIAL BUTYL REQUIRED FOR POTABLE WATER (PLEASE INQUIRE)
- DESIGN CASE 3 (TRAFFIC)

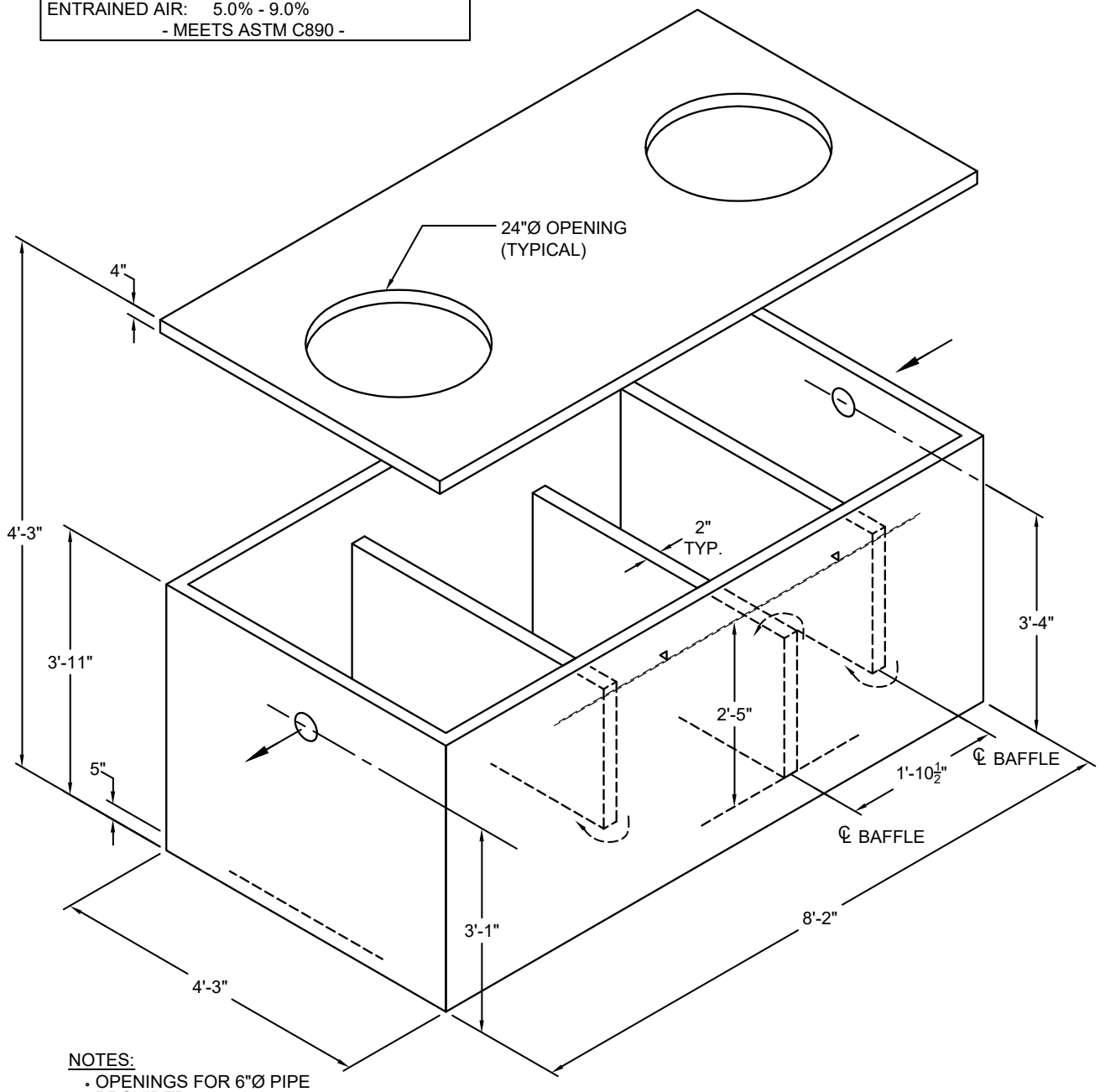
| SIZE GALLONS | ACTUAL CAPACITY GALLONS | LIQUID LEVEL 'L' | INTEGRAL TOP HEIGHT INSIDE | INTER-MEDIATE HEIGHT | INTEGRAL BASE HEIGHT INSIDE | OVERALL HEIGHT | | INTEGRAL TOP (LBS) | INT. BASE (LBS) | *INTER-MEDIATE (LBS) | TOTAL WEIGHT (LBS) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | INSIDE | OUTSIDE | | | | |
| 3000 | 3299 | 4'-0" | 2'-0" | --- | 3'-0" | 5'-0" | 6'-2" | 20,800 | 21,000 | --- | 41,800 |
| 3500 | 3508 | 4'-3" | 2'-3" | --- | 3'-0" | 5'-3" | 6'-5" | 21,800 | 21,000 | --- | 42,800 |
| 4000 | 4136 | 5'-0" | 3'-0" | --- | 3'-0" | 6'-0" | 7'-2" | 24,400 | 21,000 | --- | 45,400 |
| 4500 | 4484 | 5'-5" | 3'-6" | --- | 3'-0" | 6'-6" | 7'-8" | 26,200 | 21,000 | --- | 47,200 |
| 5000 | 5184 | 6'-3" | 3'-0" | --- | 4'-3" | 7'-3" | 8'-5" | 24,400 | 25,600 | --- | 50,000 |
| 5500 | 5603 | 6'-9" | 3'-6" | --- | 4'-3" | 7'-9" | 8'-11" | 26,200 | 25,600 | --- | 51,800 |
| 6000 | 6021 | 7'-3" | 4'-0" | --- | 4'-3" | 8'-3" | 9'-5" | 28,000 | 25,600 | --- | 53,600 |
| 6500 | 6440 | 7'-9" | 3'-9" | 2'-0" | 3'-0" | 8'-9" | 9'-11" | 27,200 | 21,000 | 8400 | 56,600 |
| 7000 | 6859 | 8'-3" | 3'-0" | 2'-0" | 4'-3" | 9'-3" | 10'-5" | 24,400 | 25,600 | 8400 | 58,400 |
| 7500 | 7487 | 9'-0" | 3'-9" | 2'-0" | 4'-3" | 10'-0" | 11'-2" | 27,200 | 25,600 | 8400 | 61,200 |
| 8000 | 7906 | 9'-6" | 4'-3" | 2'-0" | 4'-3" | 10'-6" | 11'-8" | 29,000 | 25,600 | 8400 | 63,000 |

*INCLUDES WEIGHT OF STRUCTURAL BEAM

# CHLORINE CONTACT TANKS

# 470 GALLON CHLORINE CONTACT TANK

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60<br>ASTM A185 - GRADE 60 |
| ENTRAINED AIR: | 5.0% - 9.0%<br>- MEETS ASTM C890 - |



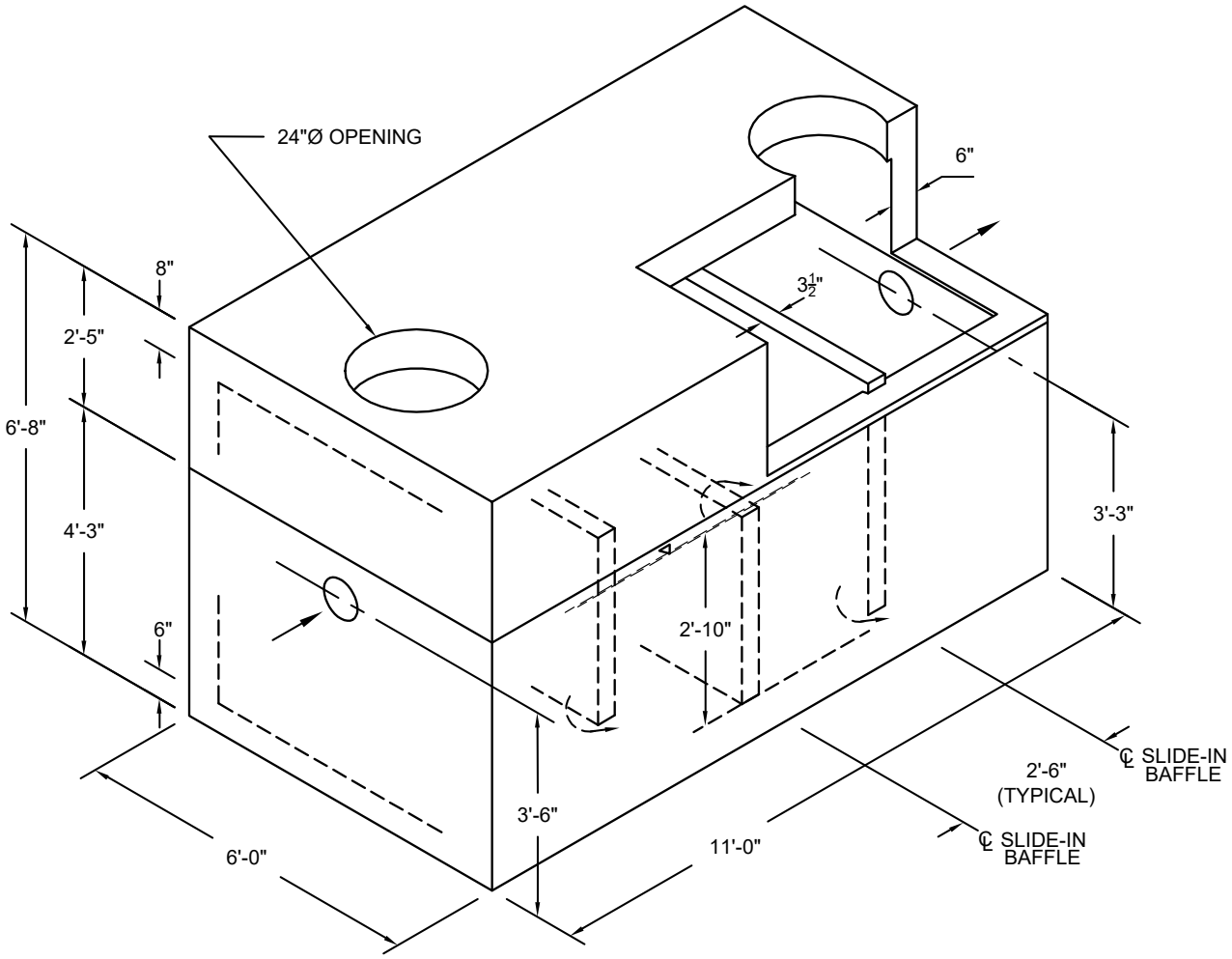

NOTES:

- OPENINGS FOR 6"Ø PIPE PROVIDED.
- PLEASE INQUIRE REGARDING SPECIAL JOINT SEALANT MATERIALS.
- DESIGN CASE 4 (NON-TRAFFIC)

| FLAT SLAB TOP (LBS.) | BOTOM SECTION INCL. BAFFLES | TOTAL (LBS.) |
|---|---|---|
| 1740 | 6940 | 8680 |

# 1,000 GALLON CHLORINE CONTACT TANK

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 |
| | ASTM A185 - GRADE 60 |
| ENTRAINED AIR: | 5.0% - 9.0% |



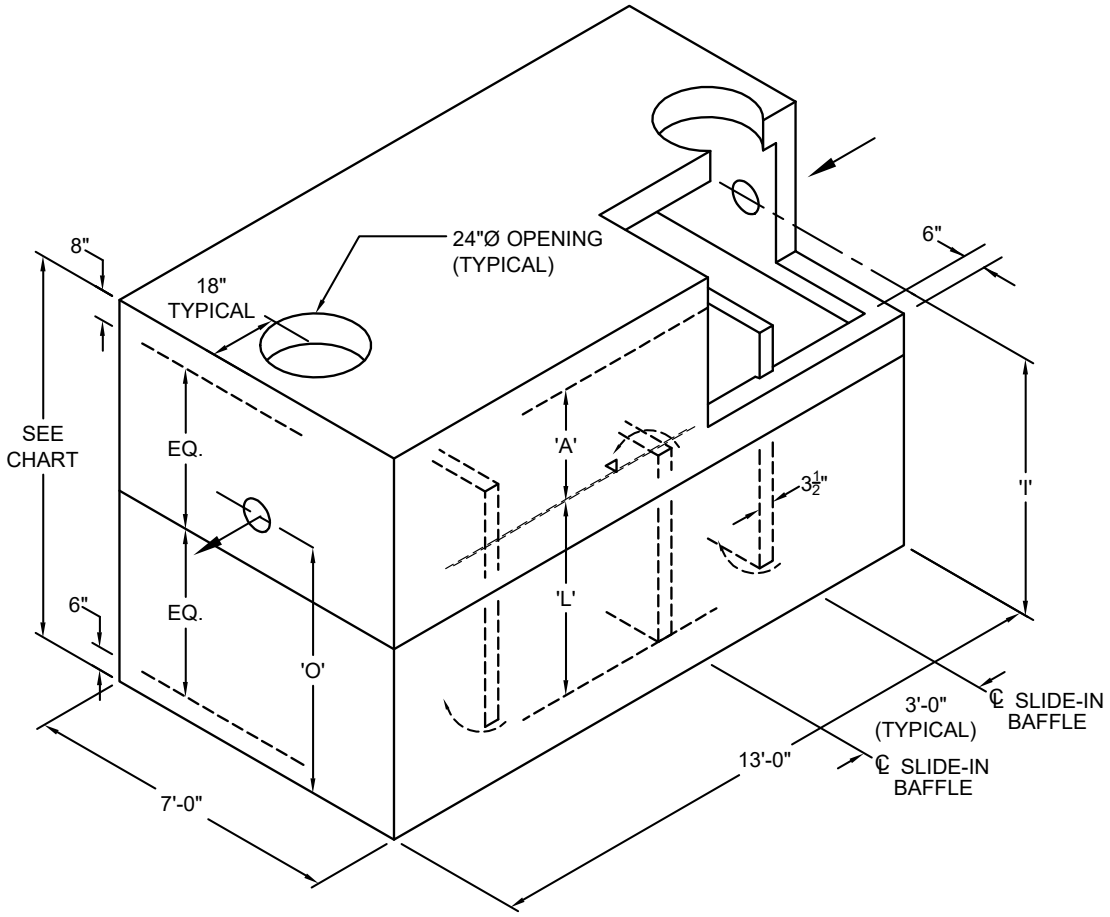

NOTES:

- 8"Ø OPENINGS FOR 6"Ø PIPE ARE PROVIDED.
- PLEASE INQUIRE REGARDING SPECIAL JOINT SEALANT MATERIALS.
- DESIGN CASE 3 (TRAFFIC)

| INT. TOP SECTION (LBS) | INT. BOTTOM SECTION INCL. BAFFLES (LBS) | TOTAL (LBS) |
|---|---|---|
| 10,800 | 16,075 | 26,875 |

# 1,500 - 2,000 - 2,500 GALLON CHLORINE CONTACT TANK

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60<br>ASTM A185 - GRADE 60 |
| ENTRAINED AIR: | 5.0% - 9.0% |
| | - MEETS ASTM C890 - |




NOTES:

- 8"Ø OPENINGS FOR 6"Ø PIPE PROVIDED.
- PLEASE INQUIRE REGARDING SPECIAL JOINT SEALANT MATERIALS.
- DESIGN CASE 3 (TRAFFIC)

| SIZE GALLONS | LIQUID LEVEL 'L' | INLET HEIGHT 'I' | OUTLET HEIGHT 'O' | INTEGRAL TOP HEIGHT INSIDE | INTEGRAL BASE HEIGHT INSIDE | AIR DEPTH 'A' | OUTSIDE HEIGHT | TANK WEIGHT, LBS | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | TOP SECTION | BOTTOM* SECTION | TOTAL WEIGHT |
| 1500 | 3'-1" | 3'-8" | 3'-5" | 2'-0" | 3'-9" | 3'-6" | 6'-11" | 17,399 | 18,056 | 35,455 |
| 2000 | 4'-1" | 4'-8" | 4'-5" | 3'-6" | 3'-3" | 3'-6" | 7'-11" | 18,764 | 19,922 | 38,686 |
| 2500 | 5'-1" | 5'-8" | 5'-5" | 2'-10" | 4'-5" | 3'-4" | 8'-5" | 19,431 | 21,656 | 41,087 |

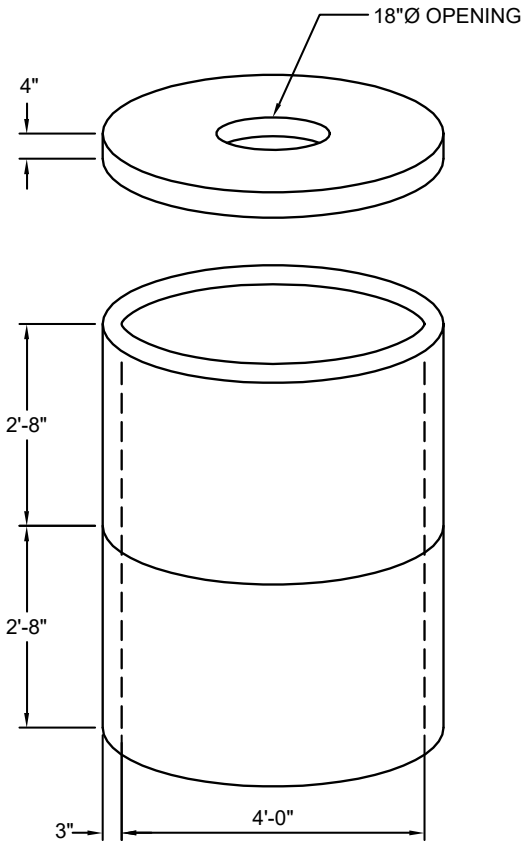
*WEIGHT OF BOTTOM SECTION INCLUDES BAFFLES.

# NOTES

# DRY WELLS + WELL CASING

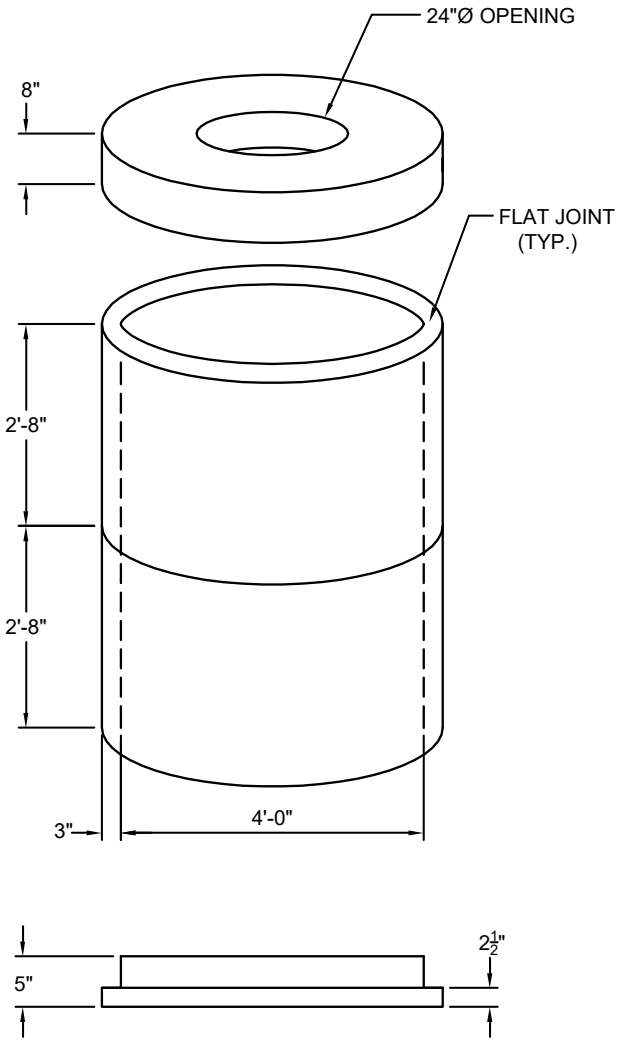
# 4'-0" I.D. WELL CASING

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60<br>ASTM A185 - GRADE 65 |
| ENTRAINED AIR: | 5.0% - 9.0% |




DESIGN CASE 1A
(NON-TRAFFIC)

| WEIGHTS, LBS | |
|---|---|
| TOP SLAB | RISER SECTION |
| 596 | 1337 |

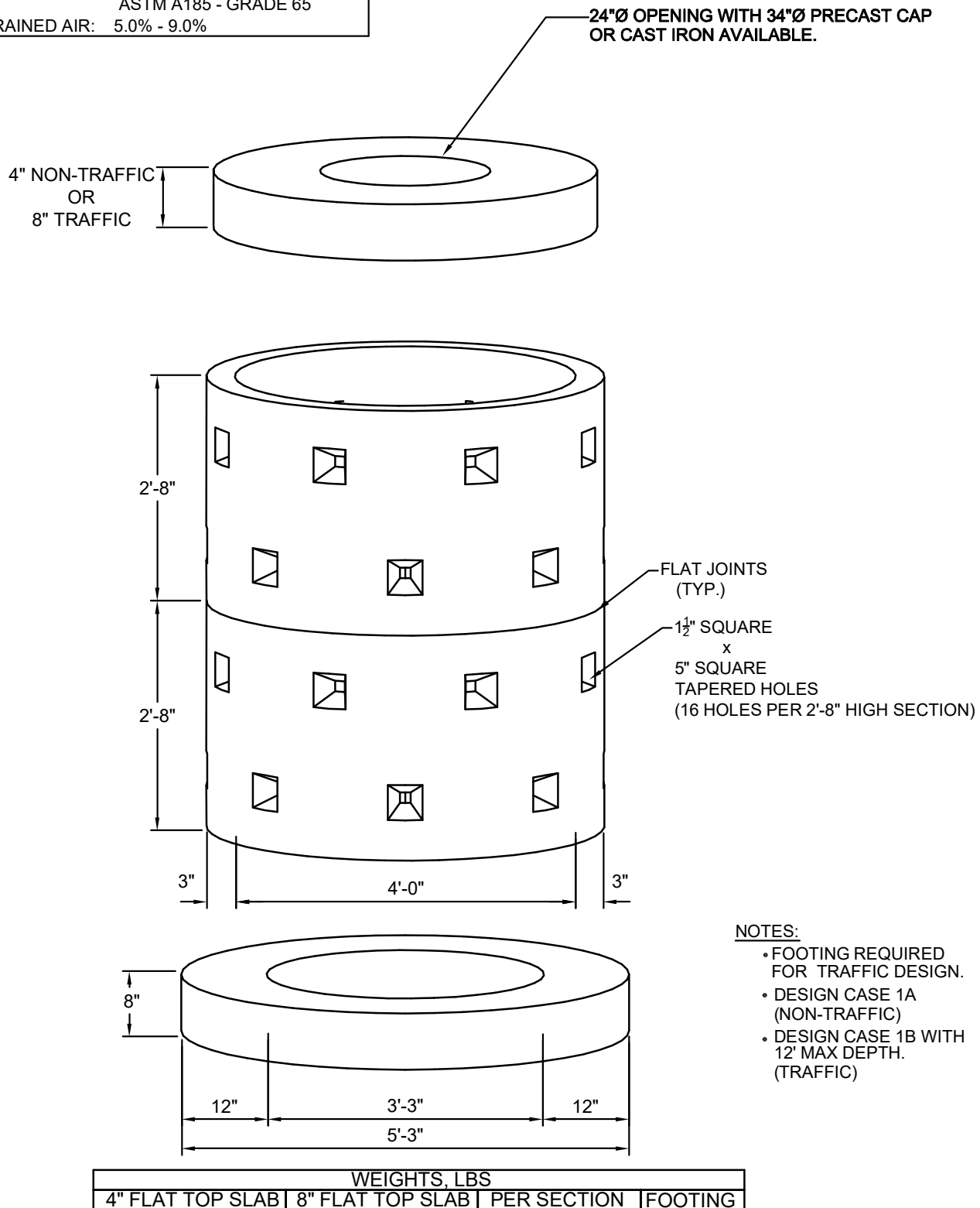



DESIGN CASE 1B
(TRAFFIC)

| WEIGHTS, LBS | | |
|---|---|---|
| TOP SLAB | RISER SECTION | BASE SLAB |
| 1127 | 1337 | 998 |

# 4'-0" I.D. DRY WELL CASING

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60<br>ASTM A185 - GRADE 65 |
| ENTRAINED AIR: | 5.0% - 9.0% |



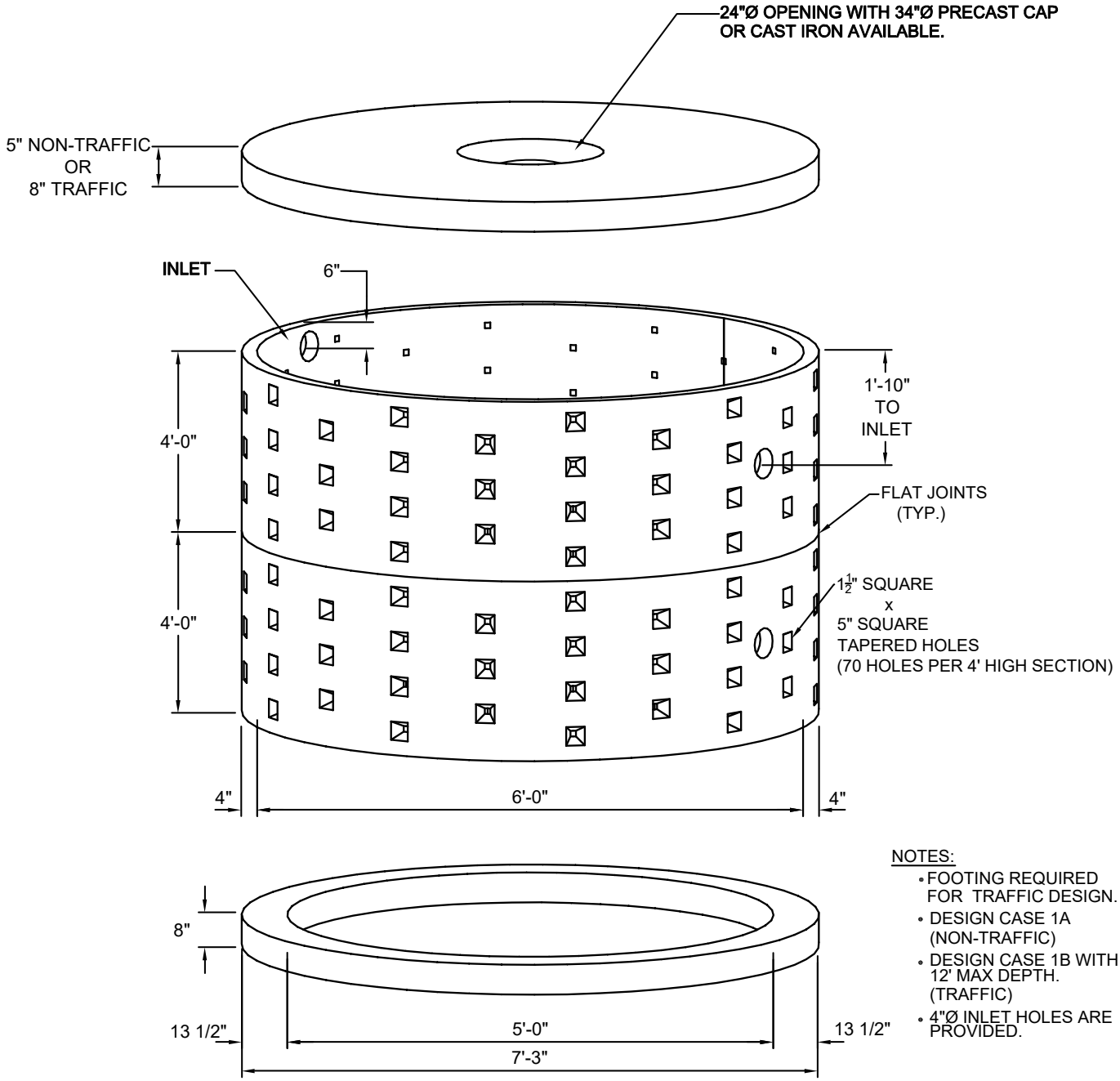

NOTES:

- FOOTING REQUIRED FOR TRAFFIC DESIGN.
- DESIGN CASE 1A (NON-TRAFFIC)
- DESIGN CASE 1B WITH 12' MAX DEPTH. (TRAFFIC)

| WEIGHTS, LBS | | | |
|---|---|---|---|
| 4" FLAT TOP SLAB | 8" FLAT TOP SLAB | PER SECTION | FOOTING |
| 700 | 1400 | 1300 | 1400 |

# 6'-0" I.D. DRY WELL

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60<br>ASTM A185 - GRADE 65 |
| ENTRAINED AIR: | 5.0% - 9.0% |



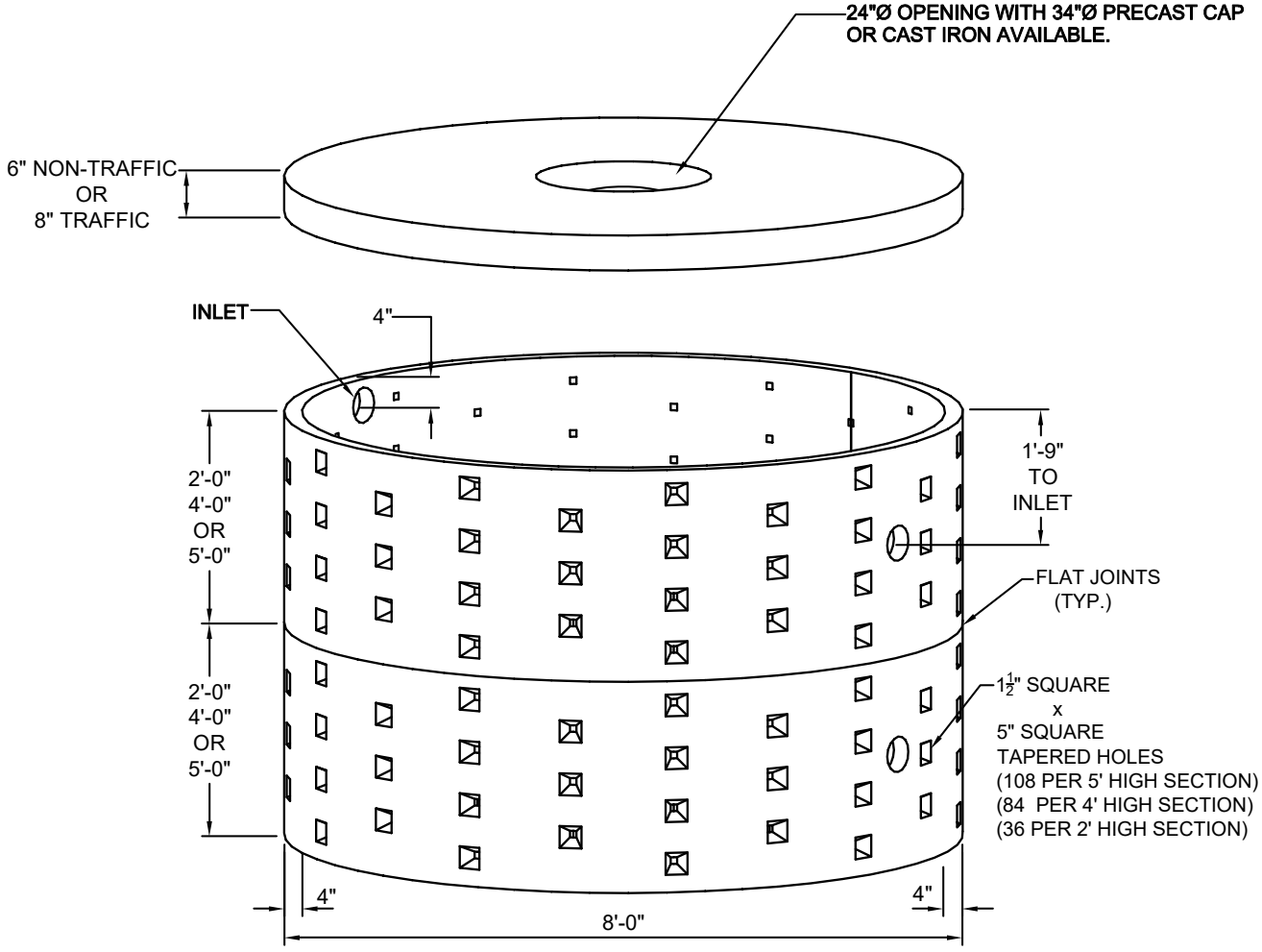

NOTES:

- FOOTING REQUIRED FOR TRAFFIC DESIGN.
- DESIGN CASE 1A (NON-TRAFFIC)
- DESIGN CASE 1B WITH 12' MAX DEPTH. (TRAFFIC)
- 4"Ø INLET HOLES ARE PROVIDED.

| WEIGHTS, LBS | | | |
|---|---|---|---|
| 5" FLAT TOP SLAB | 8" FLAT TOP SLAB | EACH SECTION | FOOTING |
| 2000 | 3200 | 3620 | 2200 |

# 8'-0" O.D. DRY WELL

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60<br>ASTM A185 - GRADE 65 |
| ENTRAINED AIR: | 5.0% - 9.0% |




NOTES:

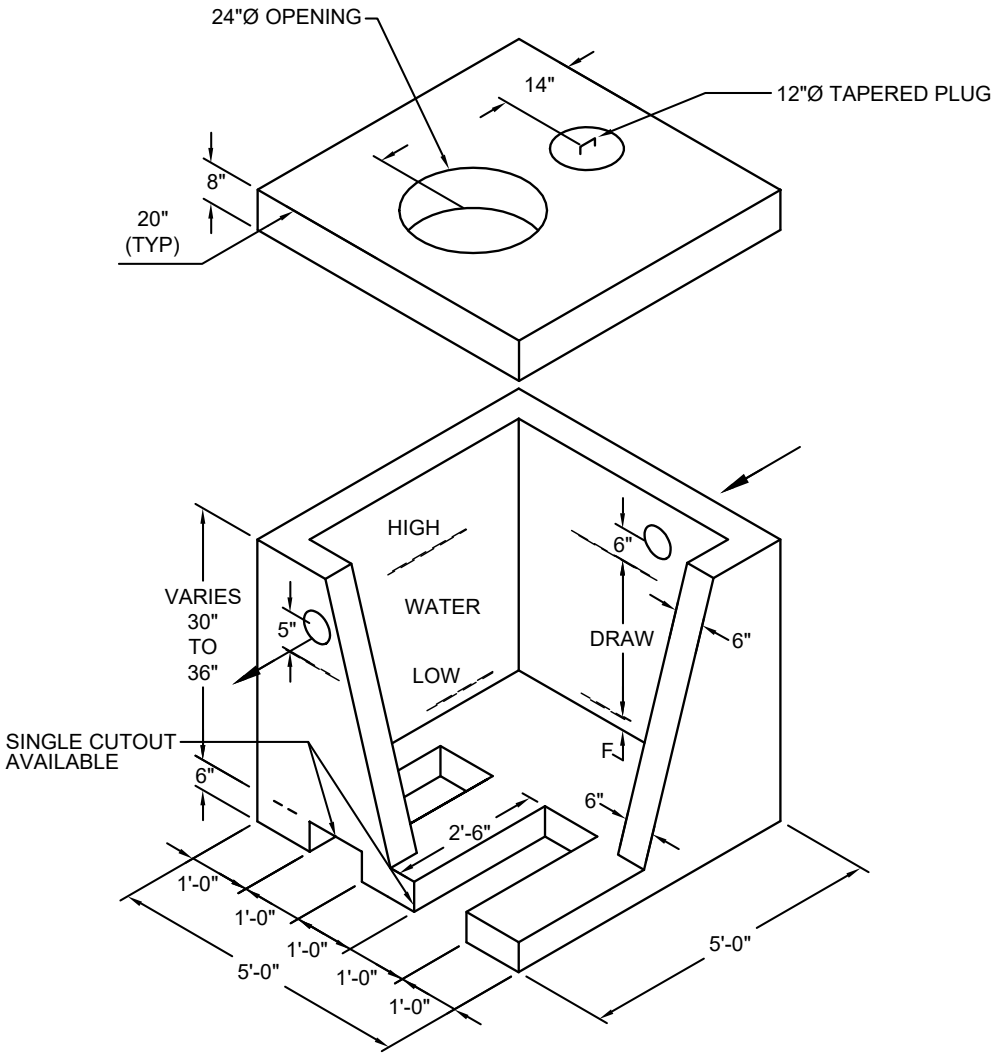
- FOOTING REQUIRED FOR TRAFFIC DESIGN.
- DESIGN CASE 1A (NON-TRAFFIC)
- DESIGN CASE 1B WITH 12' MAX DEPTH. (TRAFFIC)

| WEIGHTS, LBS | | | |
|---|---|---|---|
| 6" FLAT TOP SLAB | 8" FLAT TOP SLAB | RISER/VERT. FT | FOOTING |
| 3600 | 4750 | 1200 | 2410 |

# DOSING TANKS

# A-1 STYLE DOSING TANK

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 |
| | ASTM A185 - GRADE 60 |
| ENTRAINED AIR: | 5.0% - 9.0% |
| | - MEETS ASTM C890 - |




NOTES:

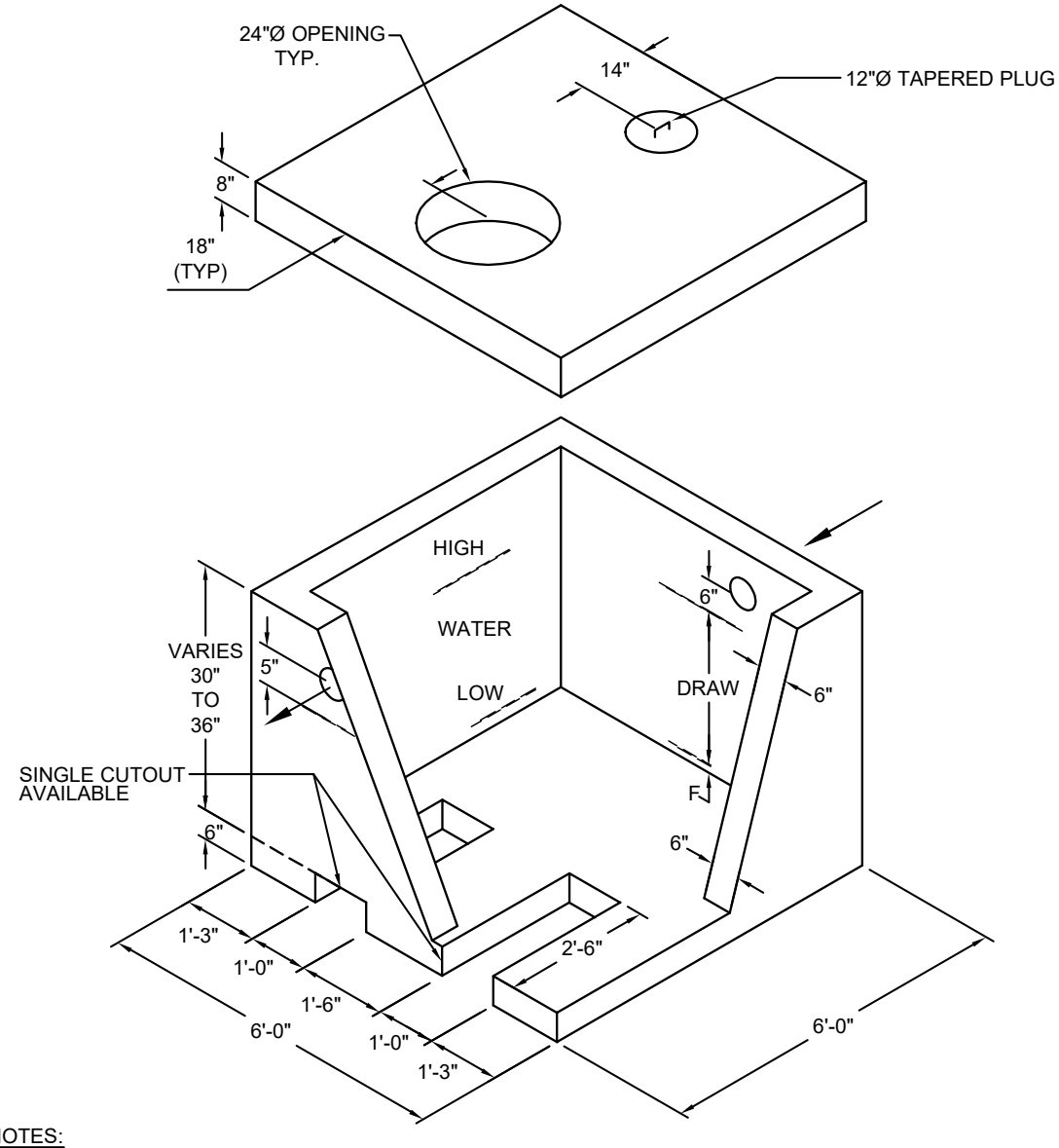
- DESIGN CASE 2 (TRAFFIC)

| TOP SLAB (LBS) | BOTTOM SLAB (LBS) | SIDEWALL PER FOOT (LBS) |
|---|---|---|
| 2515 | 1875 | 1500 |

| SIPHON SIZE | F" | SINGLE SIPHON | | DBL. ALT. SIPHON | |
|---|---|---|---|---|---|
| | | DRAW | DOSE | DRAW | DOSE |
| 3" | 3" | 13" | 130 GAL. | 12" | 120 GAL. |
| 4" | 3" | 17" | 170 GAL. | 16" | 160 GAL. |

# A-2 STYLE DOSING TANK

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 |
| | ASTM A185 - GRADE 60 |
| ENTRAINED AIR: | 5.0% - 9.0% |
| | - MEETS ASTM C890 - |




NOTES:

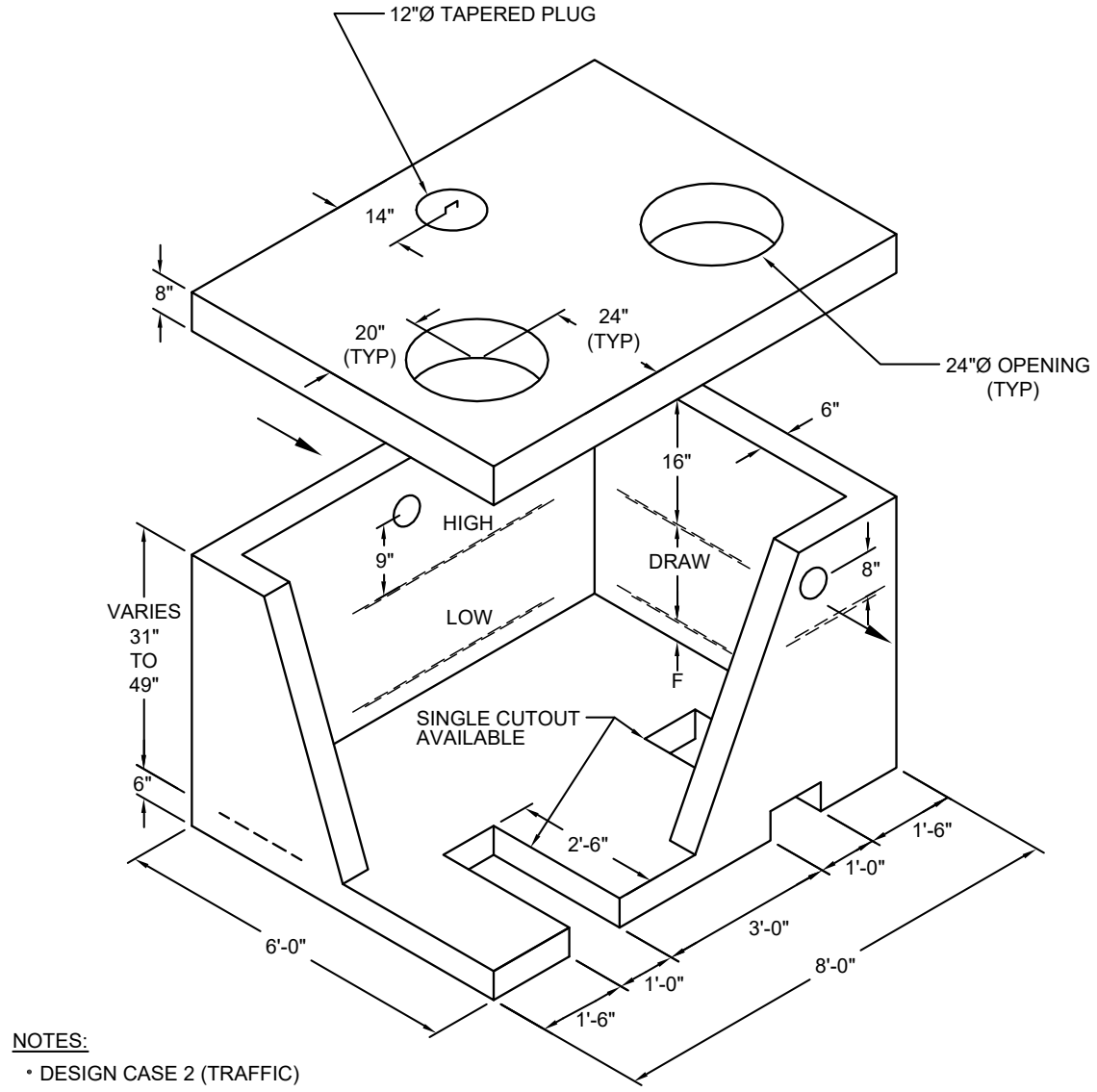
- DESIGN CASE 2 (TRAFFIC)

| TOP SLAB (LBS) | BOTTOM SLAB (LBS) | SIDEWALL PER FOOT (LBS) |
|---|---|---|
| 3620 | 2700 | 1800 |

| SIPHON SIZE | F" | SINGLE SIPHON | | DBL. ALT. SIPHON | |
|---|---|---|---|---|---|
| | | DRAW | DOSE | DRAW | DOSE |
| 3" | 3" | 13" | 202 GAL. | 12" | 187 GAL. |
| 4" | 3" | 17" | 265 GAL. | 16" | 249 GAL. |

# B-STYLE DOSING TANK

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 |
| | ASTM A185 - GRADE 60 |
| ENTRAINED AIR: | 5.0% - 9.0% |
| | - MEETS ASTM C890 - |




NOTES:

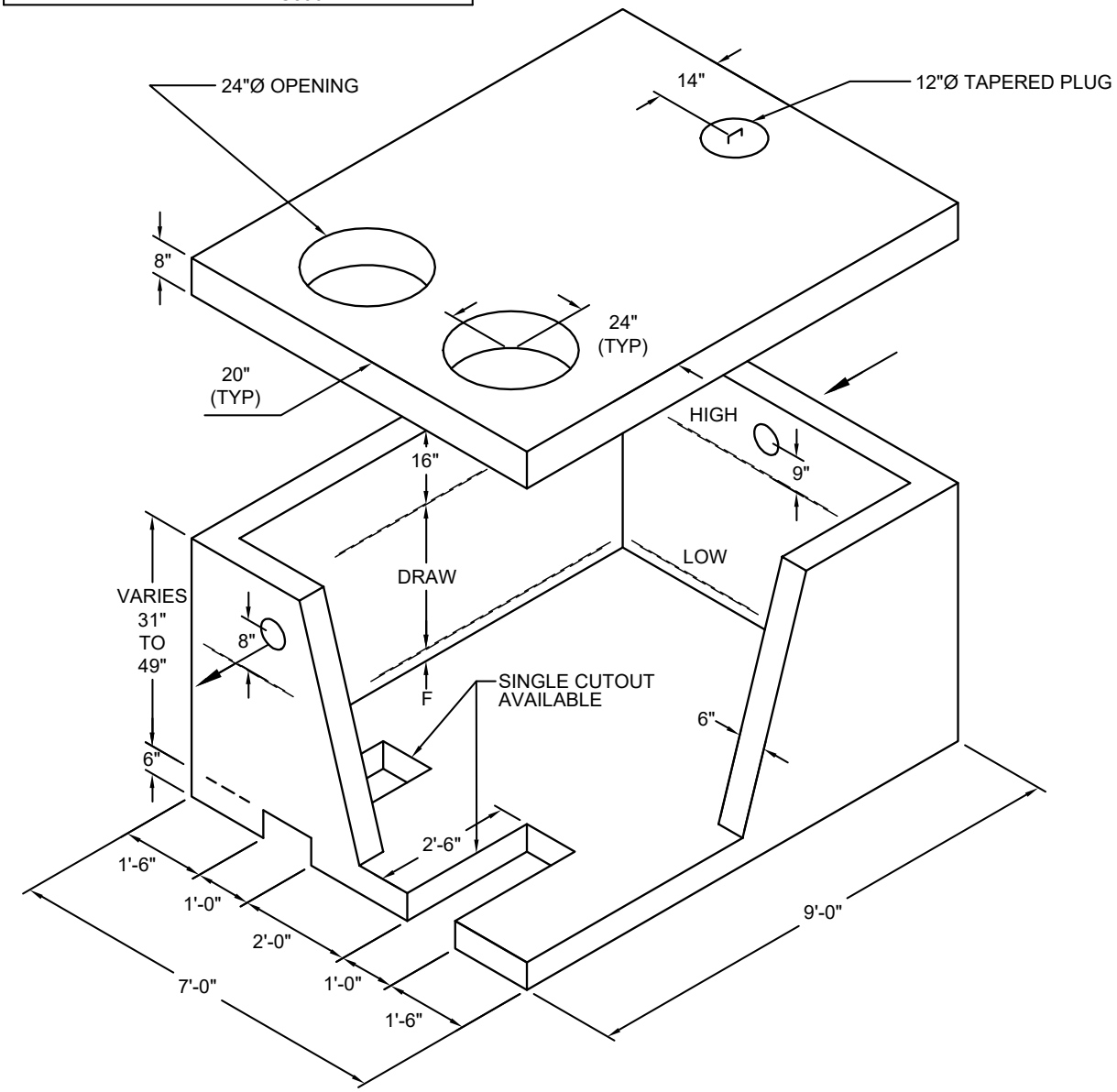
- DESIGN CASE 2 (TRAFFIC)

| TOP SLAB (LBS) | BOTTOM SLAB (LBS) | SIDEWALL PER FOOT (LBS) |
|---|---|---|
| 4800 | 3600 | 1960 |

| SIPHON SIZE | F" | SINGLE SIPHON | | DBL. ALT. SIPHON | |
|---|---|---|---|---|---|
| | | DRAW | DOSE | DRAW | DOSE |
| 3" | 3" | 13" | 283 GAL. | 12" | 262 GAL. |
| 4" | 3" | 17" | 372 GAL. | 16" | 350 GAL. |
| 5" | 3" | 23" | 503 GAL. | 22" | 480 GAL. |
| 6" | 4" | 30" | 656 GAL. | 28" | 612 GAL. |

# C-STYLE DOSING TANK

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 |
| | ASTM A185 - GRADE 60 |
| ENTRAINED AIR: | 5.0% - 9.0% |
| | - MEETS ASTM C890 - |




NOTES:

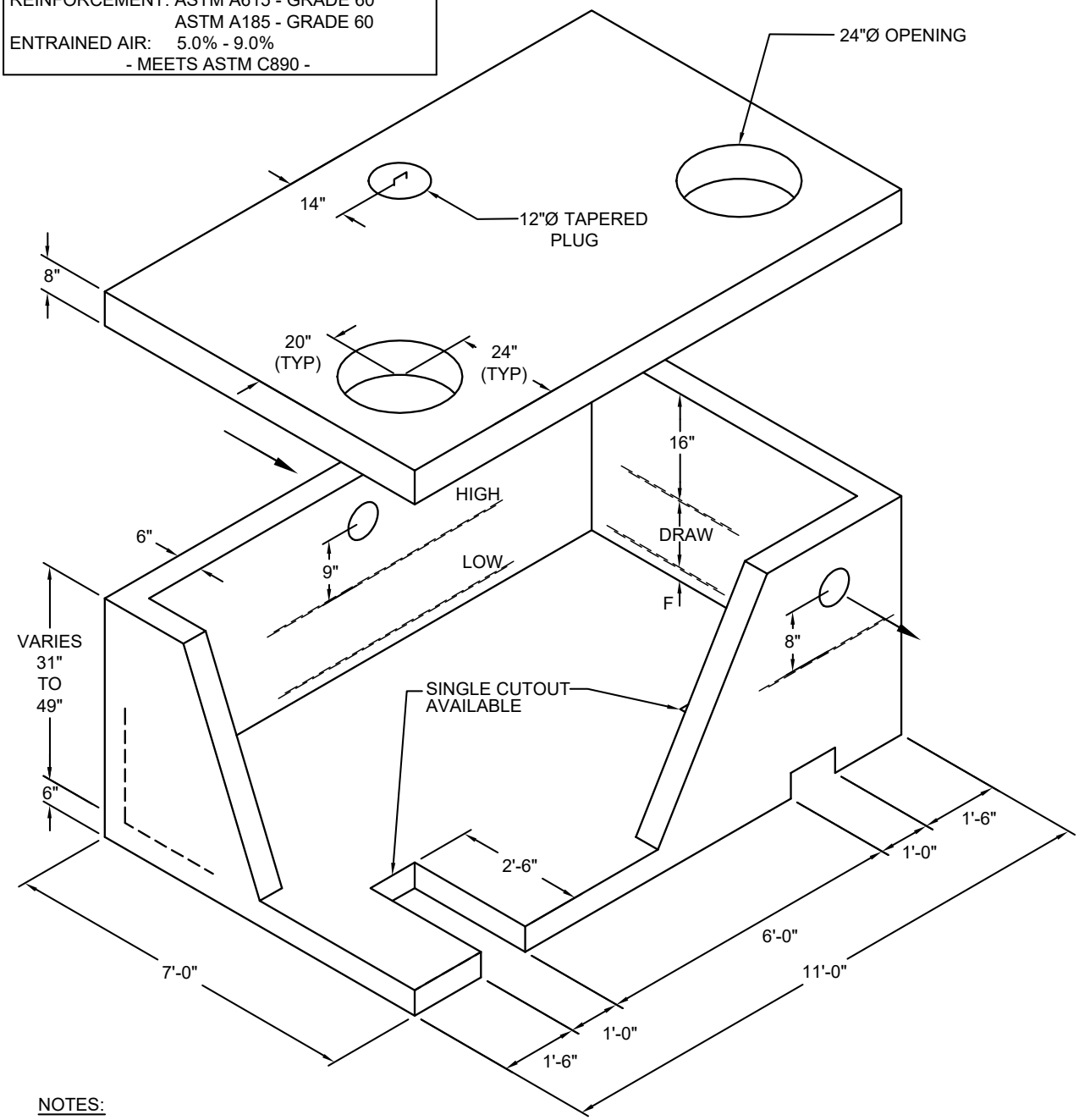
- DESIGN CASE 2 (TRAFFIC)

| TOP SLAB (LBS) | BOTTOM SLAB (LBS) | SIDEWALL PER FOOT (LBS) |
|---|---|---|
| 6300 | 4720 | 2260 |

| SIPHON SIZE | F" | SINGLE SIPHON | | DBL. ALT. SIPHON | |
|---|---|---|---|---|---|
| | | DRAW | DOSE | DRAW | DOSE |
| 3" | 3" | 13" | 388 GAL. | 12" | 359 GAL. |
| 4" | 3" | 17" | 510 GAL. | 16" | 477 GAL. |
| 5" | 3" | 23" | 689 GAL. | 22" | 657 GAL. |
| 6" | 4" | 30" | 898 GAL. | 28" | 837 GAL. |

# D-STYLE DOSING TANK

CONCRETE: 4000 PSI
REINFORCEMENT: ASTM A615 - GRADE 60
ASTM A185 - GRADE 60
ENTRAINED AIR: 5.0% - 9.0%
- MEETS ASTM C890 -



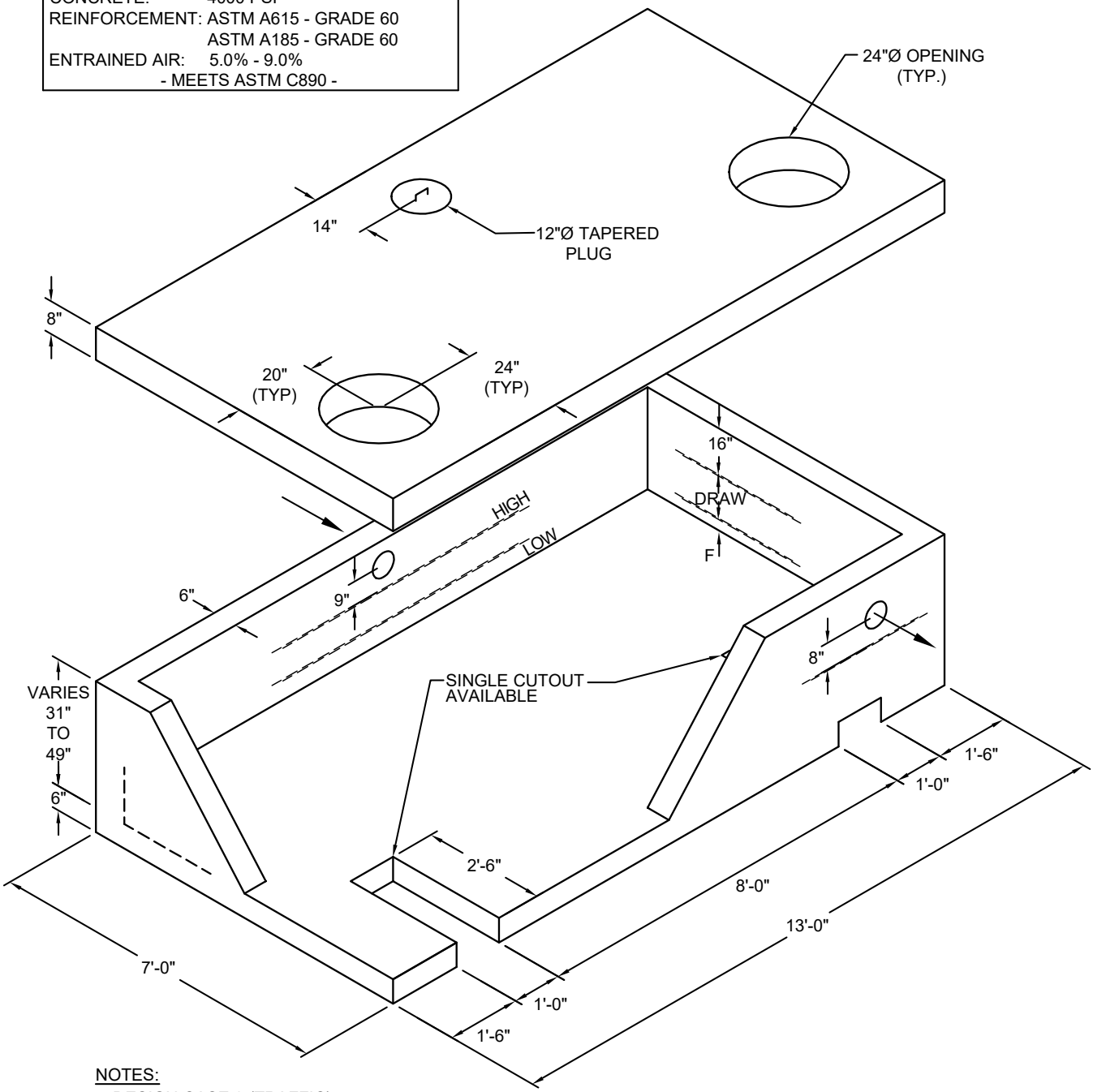

NOTES:
• DESIGN CASE 2 (TRAFFIC)

| TOP SLAB (LBS) | BOTTOM SLAB (LBS) | SIDEWALL PER FOOT (LBS) |
|---|---|---|
| 7700 | 5780 | 2560 |

| SIPHON SIZE | F" | SINGLE SIPHON | | DBL. ALT. SIPHON | |
|---|---|---|---|---|---|
| | | DRAW | DOSE | DRAW | DOSE |
| 3" | 3" | 13" | 486 GAL. | 12" | 450 GAL. |
| 4" | 3" | 17" | 639 GAL. | 16" | 599 GAL. |
| 5" | 3" | 23" | 864 GAL. | 22" | 824 GAL. |
| 6" | 4" | 30" | 1125 GAL. | 28" | 1089 GAL. |

# E-STYLE DOSING TANK

CONCRETE: 4000 PSI
REINFORCEMENT: ASTM A615 - GRADE 60
ASTM A185 - GRADE 60
ENTRAINED AIR: 5.0% - 9.0%
- MEETS ASTM C890 -




NOTES:
• DESIGN CASE 2 (TRAFFIC)

| TOP SLAB (LBS) | BOTTOM SLAB (LBS) | SIDEWALL PER FOOT (LBS) |
|---|---|---|
| 9100 | 6820 | 2860 |

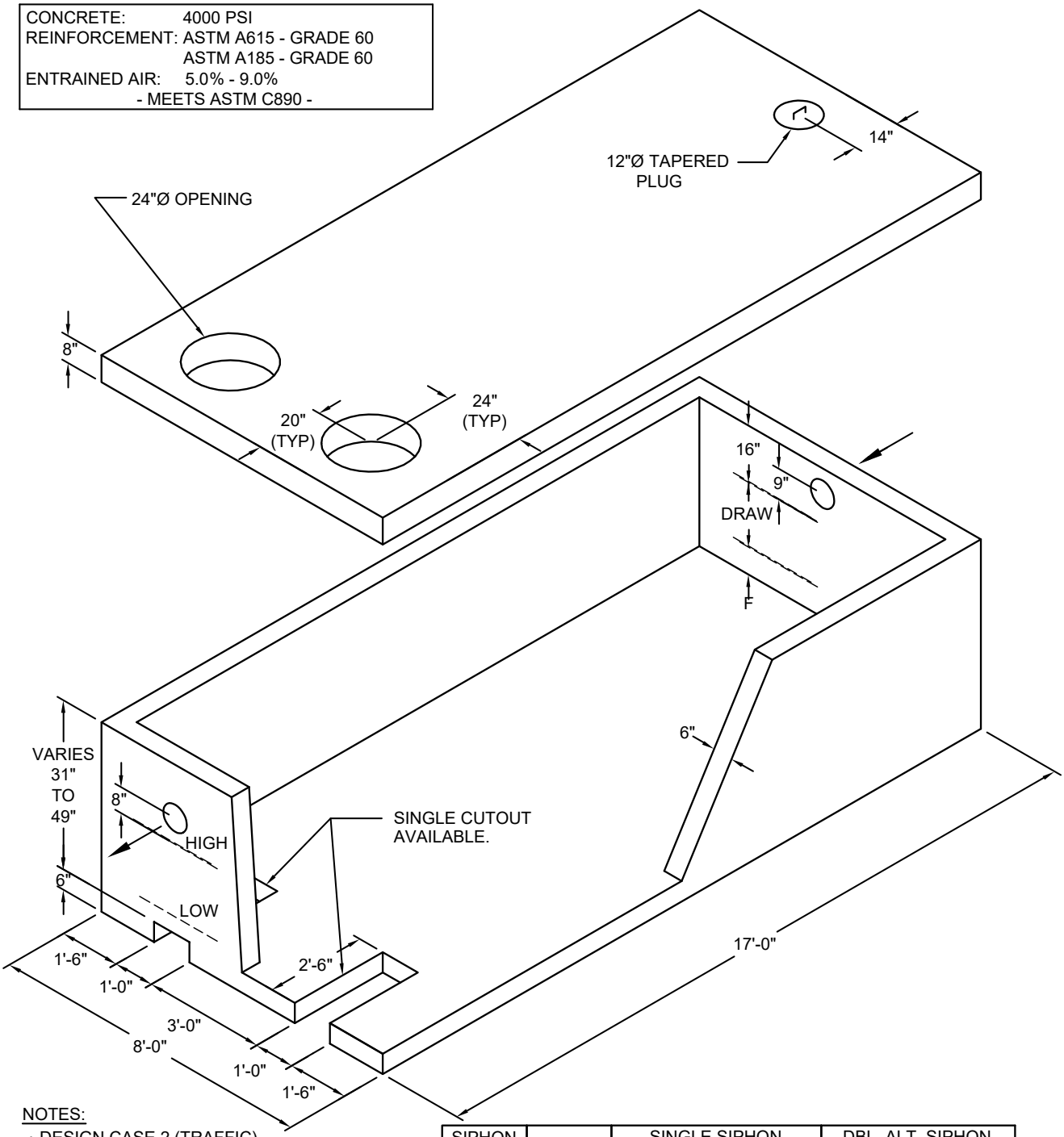
| SIPHON SIZE | F" | SINGLE SIPHON | | DBL. ALT. SIPHON | |
|---|---|---|---|---|---|
| | | DRAW | DOSE | DRAW | DOSE |
| 3" | 3" | 13" | 584 GAL. | 12" | 539 GAL. |
| 4" | 3" | 17" | 765 GAL. | 16" | 718 GAL. |
| 5" | 3" | 23" | 1035 GAL. | 22" | 990 GAL. |
| 6" | 4" | 30" | 1350 GAL. | 28" | 1262 GAL. |



ACAD DWG: B26

# G-STYLE DOSING TANK

CONCRETE: 4000 PSI
REINFORCEMENT: ASTM A615 - GRADE 60
ASTM A185 - GRADE 60
ENTRAINED AIR: 5.0% - 9.0%
- MEETS ASTM C890 -




NOTES:
• DESIGN CASE 2 (TRAFFIC)

| TOP SLAB (LBS) | BOTTOM SLAB (LBS) | SIDEWALL PER FOOT (LBS) |
|---|---|---|
| 13,600 | 10,200 | 3600 |

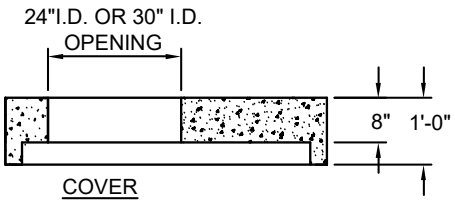
| SIPHON SIZE | F" | SINGLE SIPHON | | DBL. ALT. SIPHON | |
|---|---|---|---|---|---|
| | | DRAW | DOSE | DRAW | DOSE |
| 3" | 3" | 13" | 907 GAL. | 12" | 840 GAL. |
| 4" | 3" | 17" | 1193 GAL. | 16" | 1117 GAL. |
| 5" | 3" | 23" | 1613 GAL. | 22" | 1538 GAL. |
| 6" | 4" | 30" | 2100 GAL. | 29" | 2033 GAL. |

# NOTES

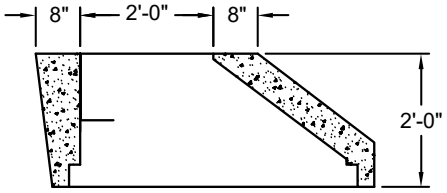
# MANHOLES

# 4'-0" I.D. MANHOLE SECTIONS

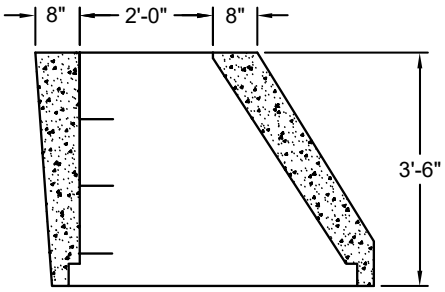
| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 (REBAR)<br>ASTM A185 - GRADE 65 (WWF) |
| ENTRAINED AIR: | 5.5% - 9.5% |
| CONCRETE & REINFORCEMENT AS PER ASTM C478 | |



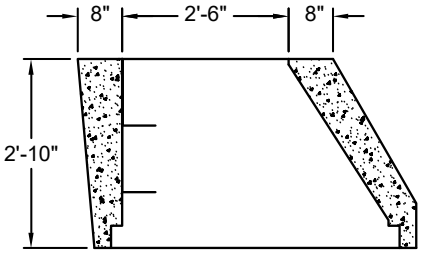

COVER
1785 LBS



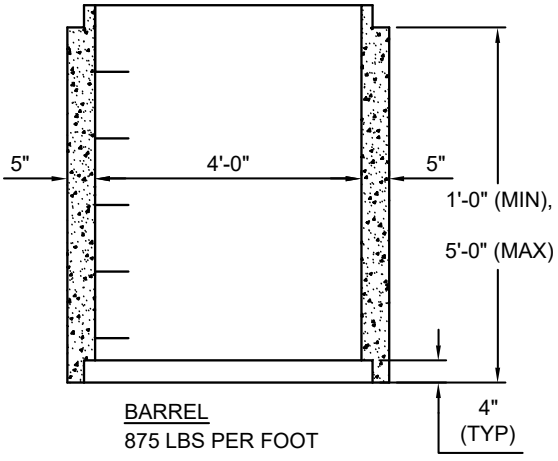

CONE
2450 LBS



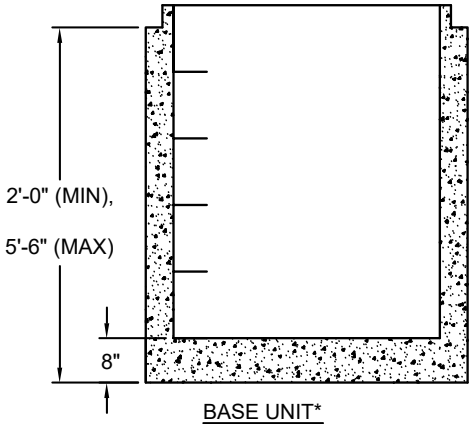

CONE
2987 LBS




CONE
2500 LBS



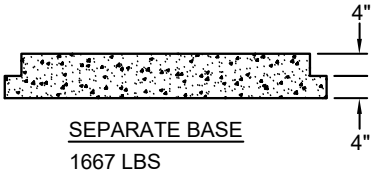

BARREL
875 LBS PER FOOT




BASE UNIT*
875 LBS PER FOOT +
1849 LBS FOR BASE +
140 LBS FOR LIP
*SEE SHEET B-50 FOR AVAILABLE BASE OPTIONS

NOTES:

- DESIGN CASE 1B (TRAFFIC)
- DESIGN CASE 1C (TRAFFIC)



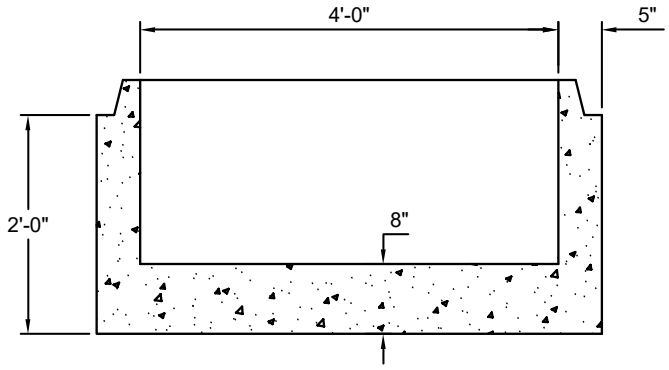

SEPARATE BASE
1667 LBS

# 4'-0" I.D. STOCK MANHOLE BASE UNITS

CONCRETE: 4000 PSI
REINFORCEMENT: ASTM A615 - GRADE 60
ASTM A185 - GRADE 65
MEETS ASTM C478
ENTRAINED AIR: 5.5% - 9.5%
DESIGN CASE 1B & 1C (TRAFFIC)

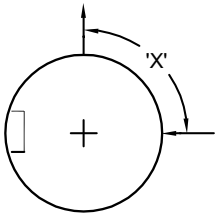
PIPE ANGLES AVAILABLE TO BOTH RIGHT AND LEFT ORIENTATIONS

| 'X' |
|---|
| 90° |
| 105° |
| 120° |
| 135° |
| 150° |
| 165° |

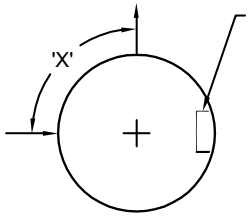



ALSO AVAILABLE:

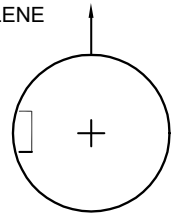
2'-0" HIGH BASE WITH NO PIPE OPENINGS
WEIGHT, LBS = ± 3600 LBS



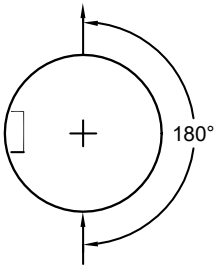

RIGHT ANGLE ORIENTATION




LEFT ANGLE ORIENTATION

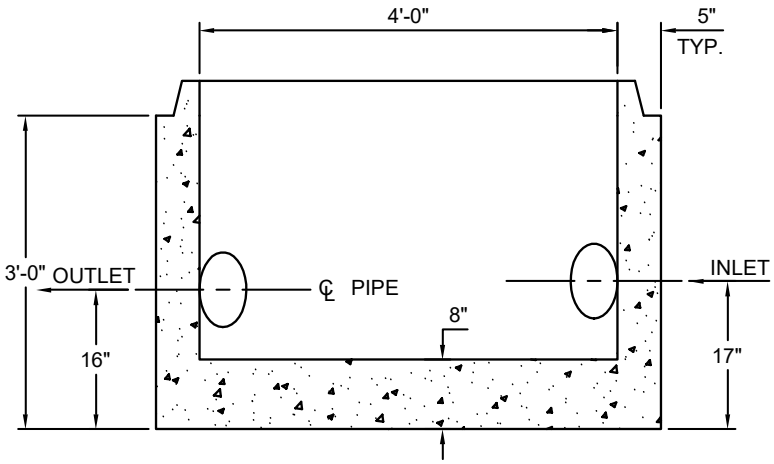


SINGLE HOLE, 16" TO ℄ OF OPENING.




(2) HOLES @ 180°

'X' = PIPE ANGLES AVAILABLE, SEE CHART



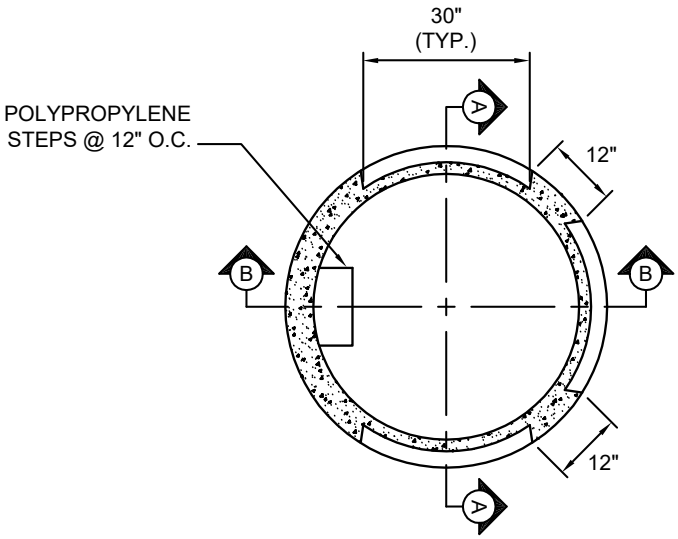

HEAVIEST PICK: ± 4400 LBS

NOTES:

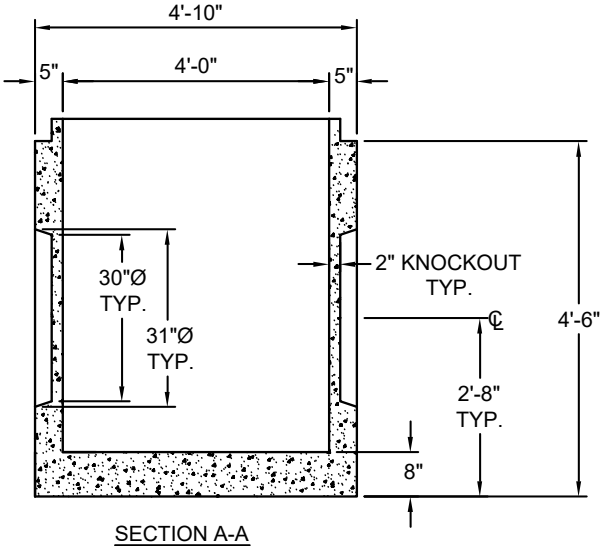
- TURNOVER BASES HAVE 12"Ø FORMED OPENINGS AND POLYPROPYLENE MANHOLE STEPS ORIENTED AS SHOWN.
- THE FORMED OPENINGS ACCEPT 6"Ø OR 8"Ø KOR-N-SEAL FLEXIBLE PIPE TO MANHOLE CONNECTORS CONFORMING TO ASTM C923.

# 4'-0" I.D. STOCK KNOCKOUT MANHOLE BASE UNIT

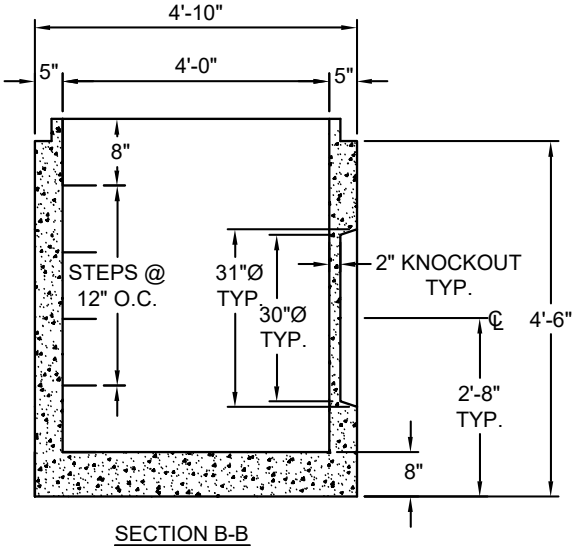
| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 (REBAR)<br>ASTM A185 - GRADE 65 (WWF) |
| ENTRAINED AIR: | 5.5% - 9.5% |
| CONCRETE & REINFORCEMENT AS PER ASTM C478 | |




PLAN VIEW




SECTION A-A




SECTION B-B

NOTES:

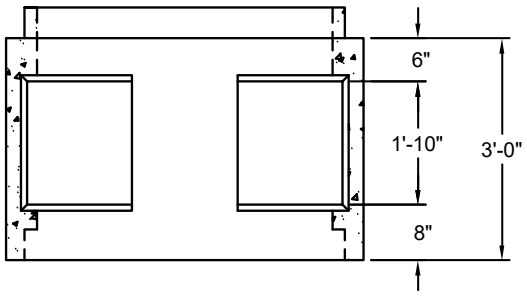
- DESIGN CASE 1B (TRAFFIC)
- DESIGN CASE 1C (TRAFFIC)
- NOTE: WELDED WIRE FABRIC REINFORCEMENT IS CONTINUOUS THROUGH KNOCKOUTS
- HEAVIEST PICK: ± 4,720 LBS.



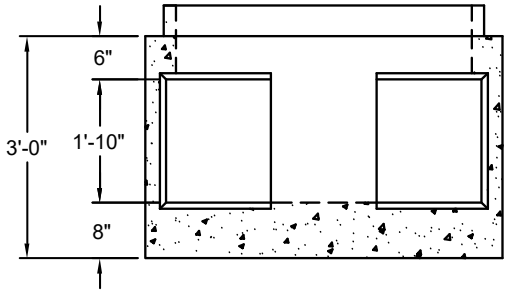
ACAD DWG: B41

# 4'-0" I.D. STOCK KNOCKOUT MANHOLE SECTIONS

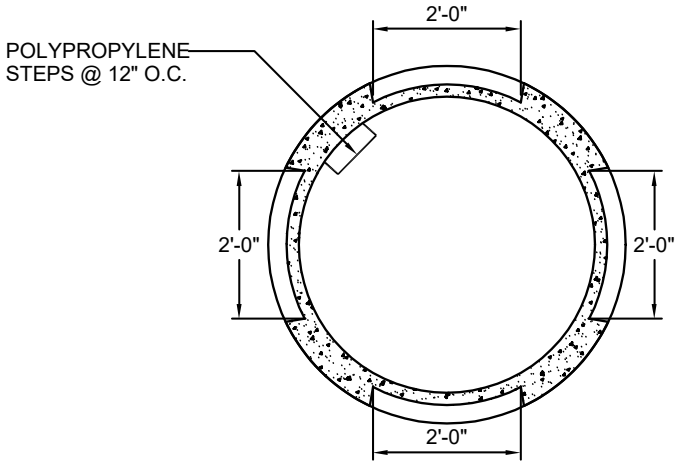
| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 (REBAR)<br>ASTM A185 - GRADE 65 (WWF) |
| ENTRAINED AIR: | 5.5% - 9.5% |
| CONCRETE & REINFORCEMENT AS PER ASTM C478 | |




RISER UNIT
2070 LBS.




BASE UNIT
3460 LBS.




PLAN VIEW

CROSS SECTION TYPICAL OF RISER AND BASE UNIT

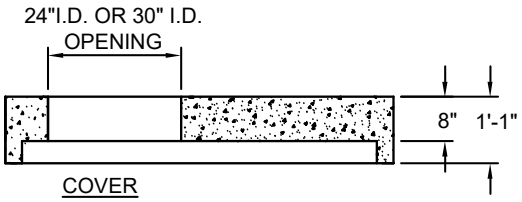
NOTES:

- DESIGN CASE 1B (TRAFFIC)
- DESIGN CASE 1C (TRAFFIC)

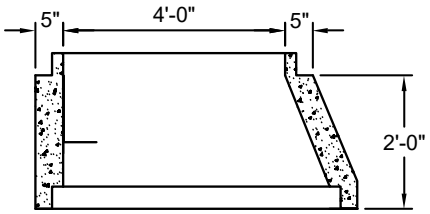
# 5'-0" I.D. STOCK KNOCKOUT MANHOLE SECTIONS

CONCRETE: 4000 PSI
REINFORCEMENT: ASTM A615 - GRADE 60 (REBAR)

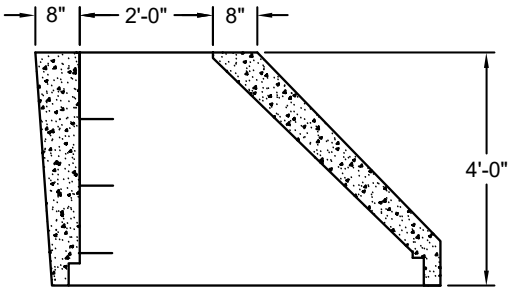
ENTRAINED AIR: 5.5% - 9.5%
CONCRETE & REINFORCEMENT AS PER ASTM C478



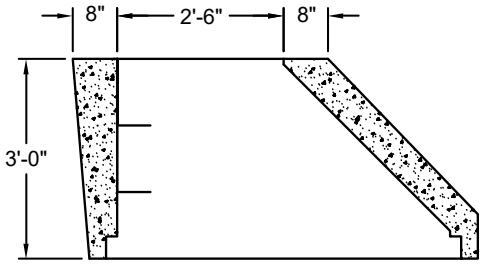

COVER
2722 LBS



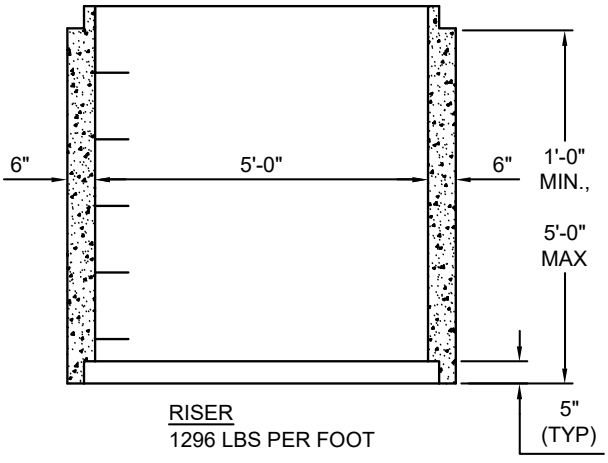

REDUCER
2320 LBS



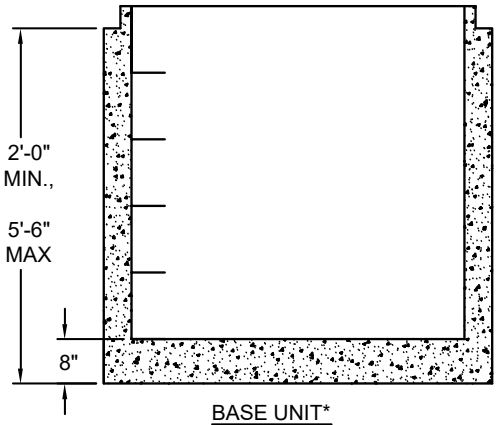

CONE
4540 LBS




CONE
3675 LBS



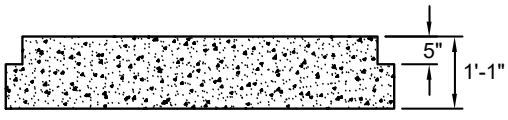

RISER
1296 LBS PER FOOT




BASE UNIT*
1296 LBS PER FOOT +
225 LBS FOR LIP +
2842 LBS FOR BASE
*SEE SHEET B-50 FOR AVAILABLE BASE SECTIONS

NOTES:

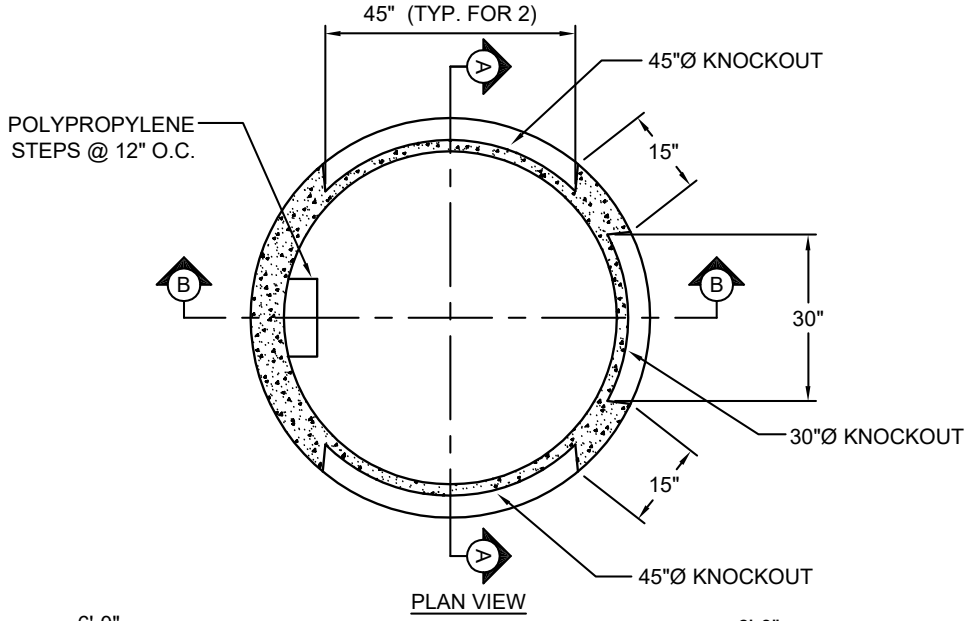
- DESIGN CASE 1B (TRAFFIC)
- DESIGN CASE 1C (TRAFFIC)

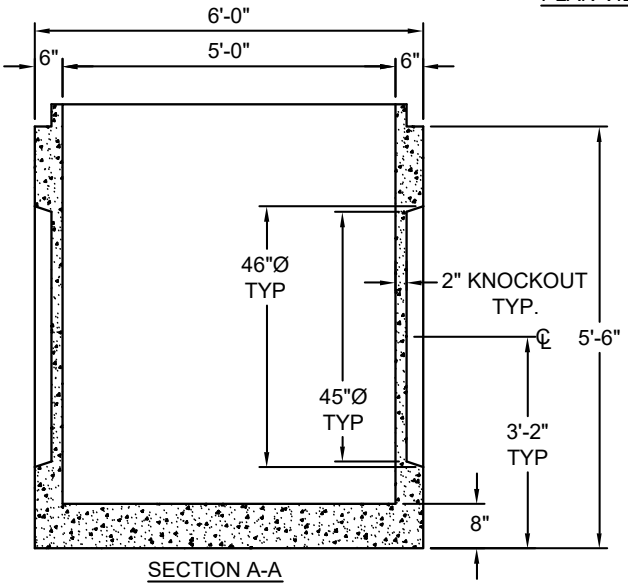


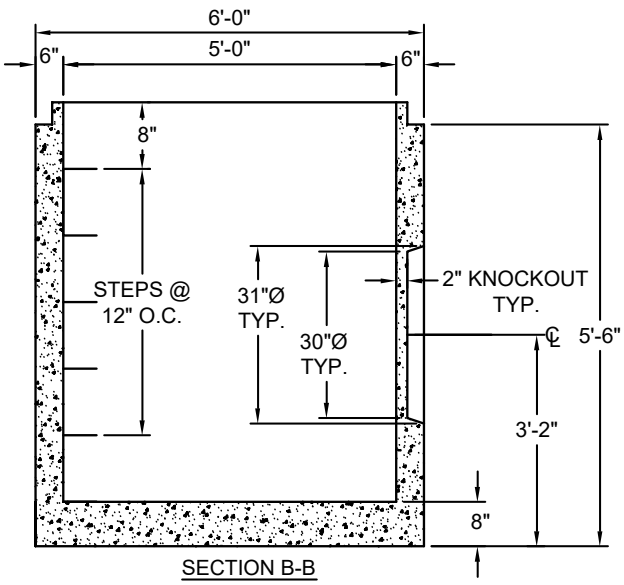

SEPARATE BASE
4020 LBS

# 5'-0" I.D. STOCK KNOCKOUT MANHOLE BASE UNIT

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 (REBAR)<br>ASTM A185 - GRADE 65 (WWF) |
| ENTRAINED AIR: | 5.5% - 9.5% |
| CONCRETE & REINFORCEMENT AS PER ASTM C478 | |



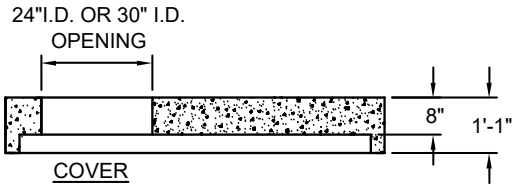




NOTES:

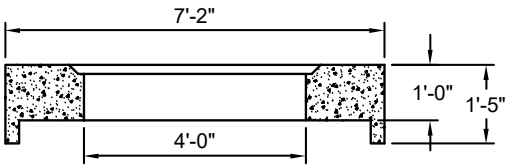
- DESIGN CASE 1B (TRAFFIC)
- DESIGN CASE 1C (TRAFFIC)
- NOTE: WELDED WIRE FABRIC REINFORCEMENT IS CONTINUOUS THROUGH KNOCKOUTS
- HEAVIEST PICK: ± 7,890 LBS.

# 6'-0" I.D. MANHOLE SECTIONS

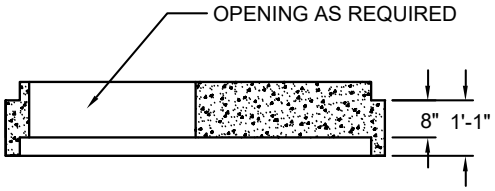
| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 (REBAR)<br>ASTM A185 - GRADE 65 (WWF) |
| ENTRAINED AIR: | 5.5% - 9.5% |
| CONCRETE & REINFORCEMENT AS PER ASTM C478 | |



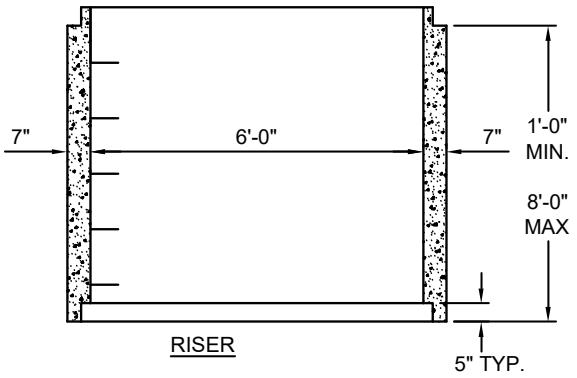

COVER
4083 LBS




TRANSITION SLAB
4900 LBS

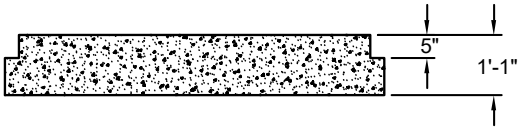



**PLATFORM
6541 LBS MAX
**PLATFORM DESIGN CASE 6

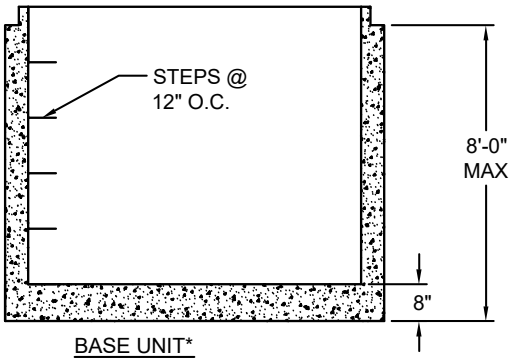



1798 LBS PER FOOT

RISER




SEPARATE BASE
3800 LBS



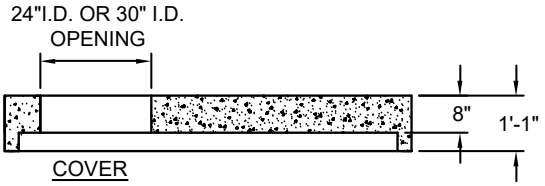

1798 LBS PER FOOT +
400 LBS FOR LIP +
4046 LBS FOR BASE

BASE UNIT*
*SEE SHEET B-50 FOR AVAILABLE BASE SECTIONS

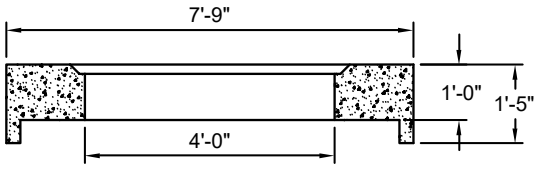
NOTES:
- DESIGN CASE 1B (TRAFFIC)
- DESIGN CASE 1C (TRAFFIC)

# 6'-6" I.D. MANHOLE SECTIONS

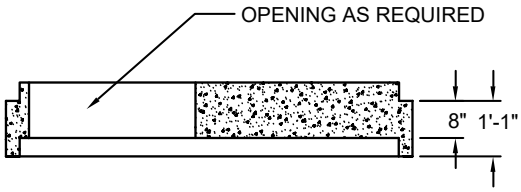
| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 (REBAR)<br>ASTM A185 - GRADE 65 (WWF) |
| ENTRAINED AIR: | 5.5% - 9.5% |
| CONCRETE & REINFORCEMENT AS PER ASTM C478 | |



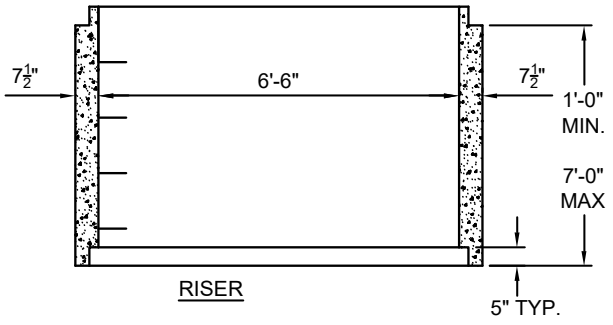

COVER
4864 LBS



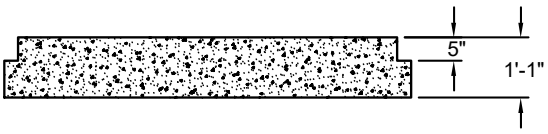

TRANSITION SLAB
5310 LBS



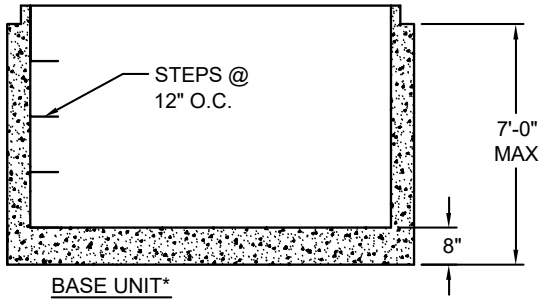

*PLATFORM
7164 LBS MAX
*PLATFORM DESIGN CASE 6




RISER
2098 LBS PER FOOT




SEPARATE BASE
7729 LBS



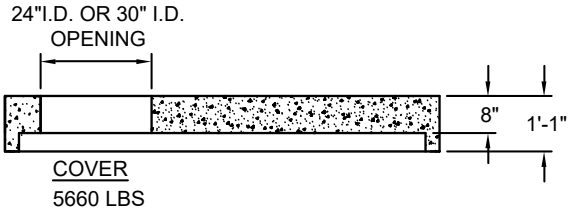

BASE UNIT*
*SEE SHEET B-50 FOR AVAILABLE BASE SECTIONS

2098 LBS PER FOOT +
417 LBS FOR LIP +
4740 LBS FOR BASE

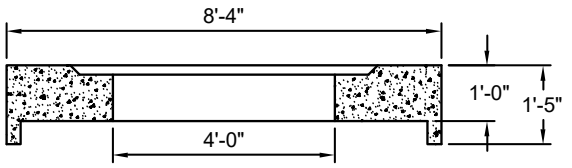
NOTES:
- DESIGN CASE 1B (TRAFFIC)
- DESIGN CASE 1D (TRAFFIC)

# 7'-0" I.D. MANHOLE SECTIONS

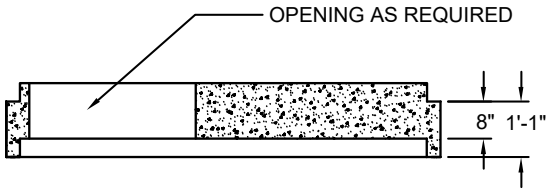
CONCRETE: 4000 PSI
REINFORCEMENT: ASTM A615 - GRADE 60 (REBAR)
ASTM A185 - GRADE 65 (WWF)
ENTRAINED AIR: 5.5% - 9.5%
CONCRETE & REINFORCEMENT AS PER ASTM C478



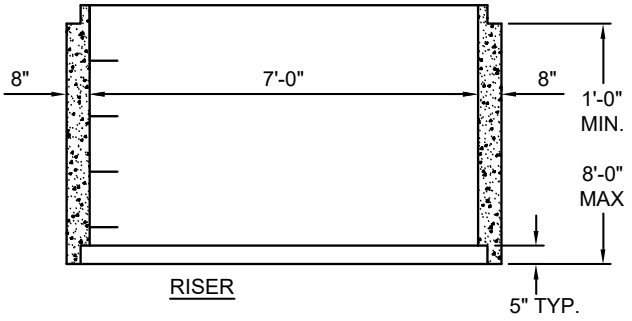

COVER
5660 LBS




TRANSITION SLAB
6480 LBS

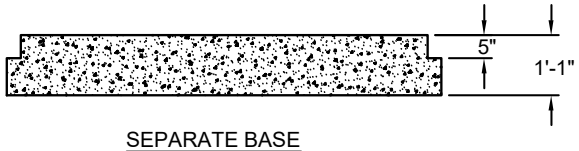



*PLATFORM
8829 LBS MAX
*PLATFORM DESIGN CASE 6

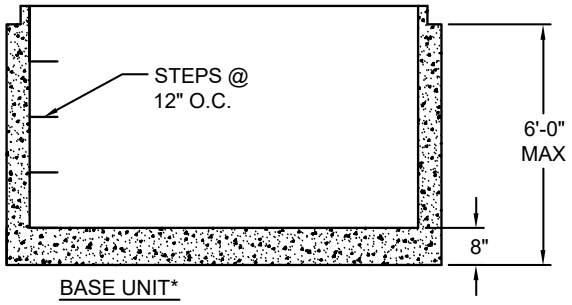



RISER

2421 LBS PER FOOT




SEPARATE BASE
8155 LBS



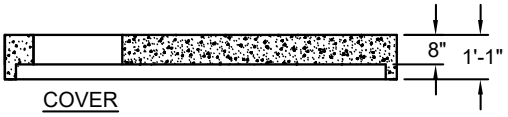

BASE UNIT*
*SEE SHEET B-50 FOR AVAILABLE BASE SECTIONS

2421 LBS PER FOOT +
486 LBS FOR LIP +
5490 LBS FOR BASE

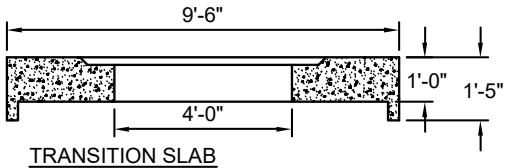
NOTES:
- DESIGN CASE 1B (TRAFFIC)
- DESIGN CASE 1D (TRAFFIC)

# 8'-0" I.D. MANHOLE SECTIONS

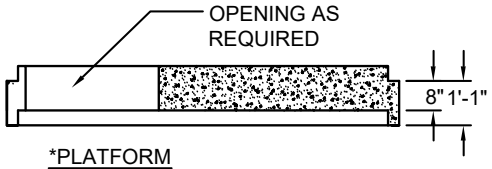
| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 (REBAR)<br>ASTM A185 - GRADE 65 (WWF) |
| ENTRAINED AIR: | 5.5% - 9.5% |
| CONCRETE & REINFORCEMENT AS PER ASTM C478 | |



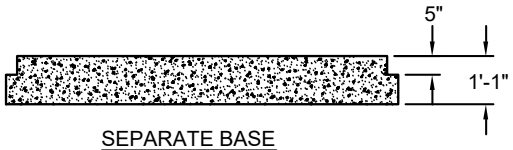

COVER
7419 LBS



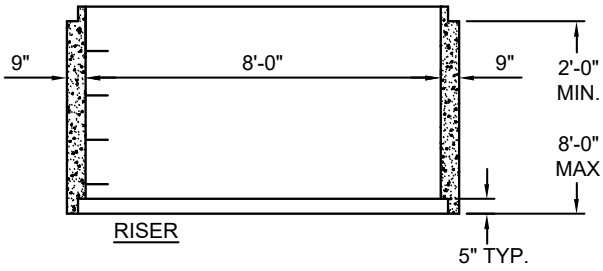

TRANSITION SLAB
9400 LBS



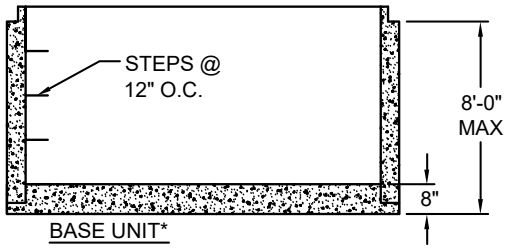

*PLATFORM
11474 LBS
*PLATFORM DESIGN CASE 6




SEPARATE BASE
10893 LBS




RISER
3092 LBS PER FOOT




BASE UNIT*
(INTEGRAL BASE, NOT MONOLITHIC)
*SEE SHEET B-50 FOR AVAILABLE BASE SECTIONS

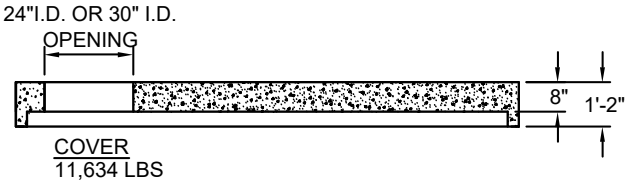
3092 LBS PER FOOT +
612 LBS FOR LIP +
7178 LBS FOR BASE

NOTES:
- DESIGN CASE 1B (TRAFFIC)
- DESIGN CASE 1D (TRAFFIC)

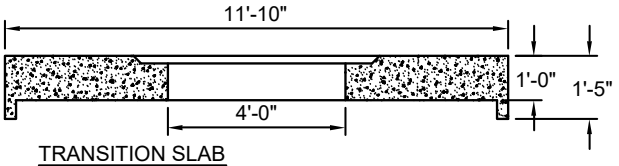
# 10'-6" I.D. MANHOLE SECTIONS

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60<br>ASTM A185 - GRADE 65 |
| ENTRAINED AIR: | 5.5% - 9.5% |

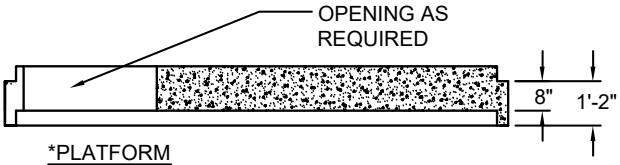
WALL THICKNESS DOES NOT CONFORM TO ASTM C478, BUT HS-20 LIVE LOADING STILL APPLIES.



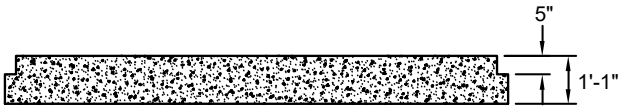

COVER
11,634 LBS



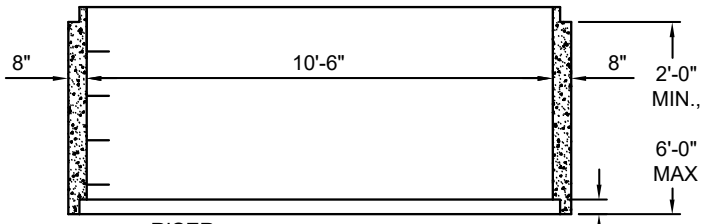

TRANSITION SLAB
12,500 LBS



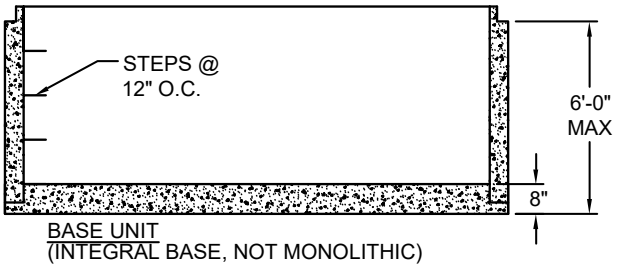

*PLATFORM
19,143 LBS
*PLATFORM DESIGN CASE 6




SEPARATE BASE
18,387 LBS



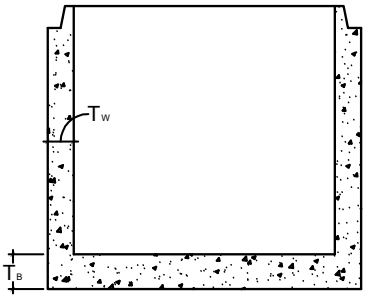

RISER
3526 LBS PER FOOT



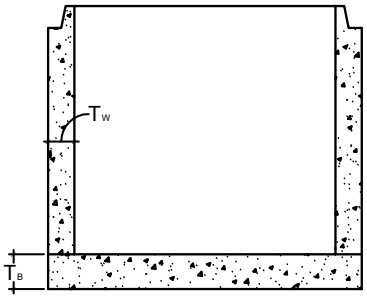

BASE UNIT
(INTEGRAL BASE, NOT MONOLITHIC)
3526 LBS PER FOOT +
840 LBS FOR LIP +
11,057 LBS FOR BASE

NOTES:
- DESIGN CASE 1B (TRAFFIC)
- DESIGN CASE 1D (TRAFFIC)

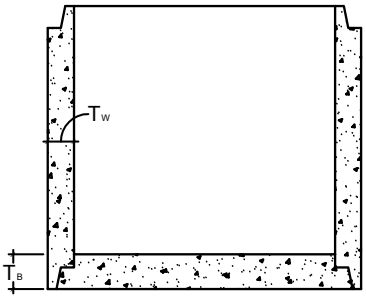
# MANHOLE BASE DETAIL SHEET



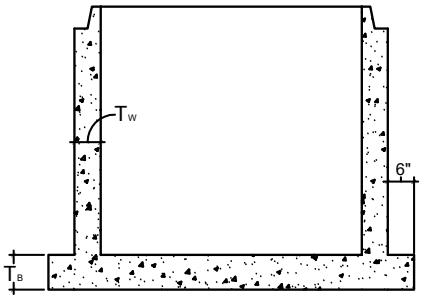

STANDARD
MONOLITHIC



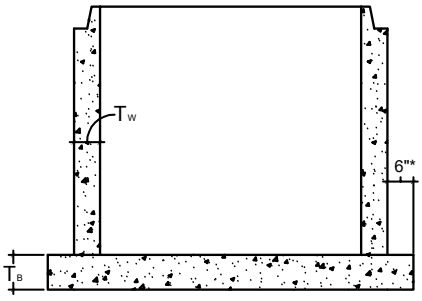

STANDARD
MODIFIED MONOLITHIC




STANDARD
INTEGRAL




EXTENDED
MONOLITHIC




EXTENDED
MODIFIED MONOLITHIC
*OTHER SIZES AVAILABLE

**MANHOLE BASE TYPE**

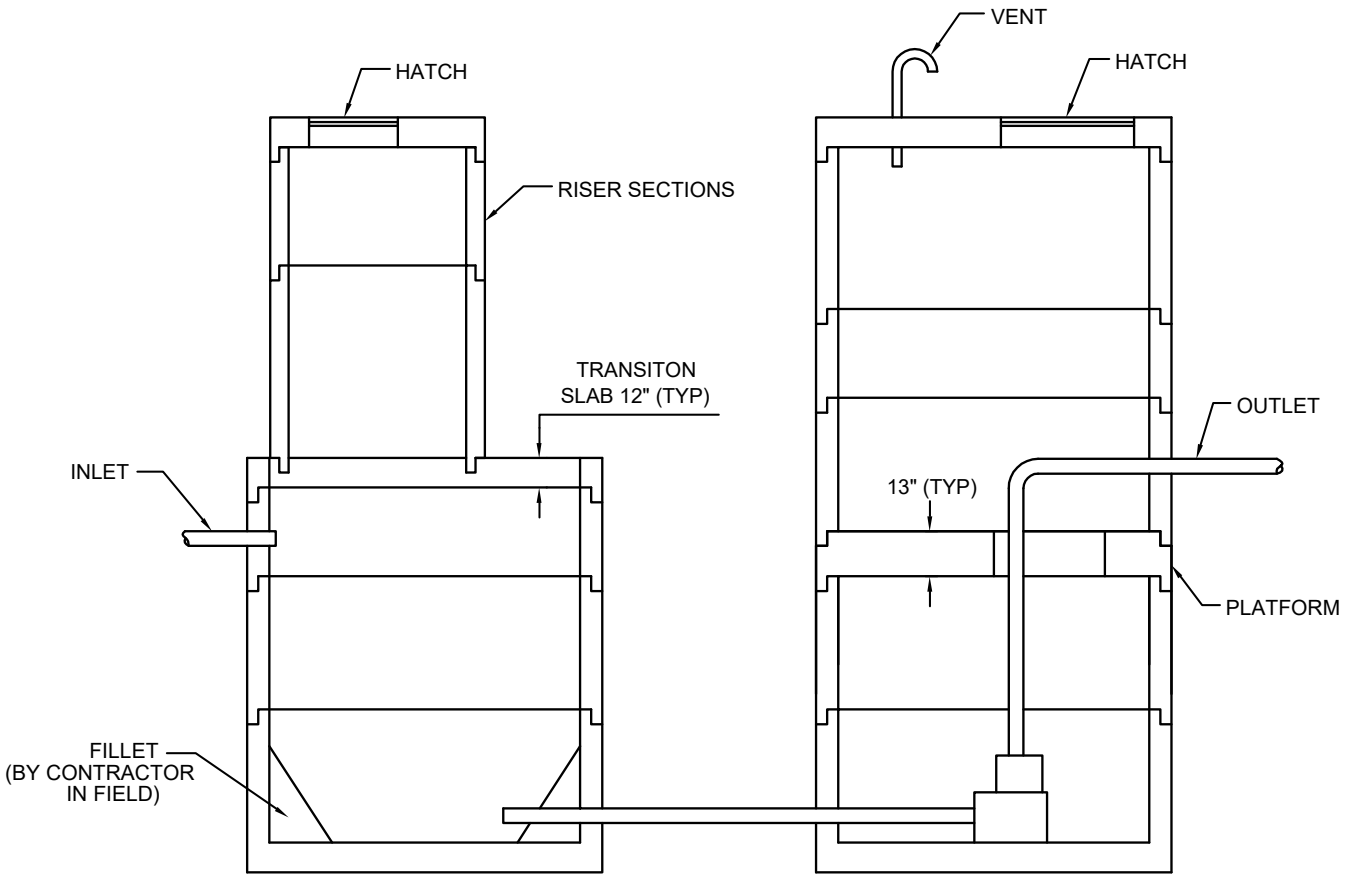
FIELD CONDITIONS, DEPTH OF STRUCTURE, AND EQUIPMENT AVAILABILITY ARE FACTORS TO CONSIDER IN SELECTING THE TYPE OF BASE. PLEASE CONSULT OUR OFFICE FOR DETAILS.

ADDITIONAL DETAILS ARE GIVEN ON THE CATALOG PAGES FOR SPECIFIC SIZED MANHOLES.

| DIMENSIONS | | | WEIGHTS, LBS | | STANDARD | | |
|---|---|---|---|---|---|---|---|
| STRUCTURE INSIDE DIA. | $T_W$ | $T_B$* | STANDARD BASE | EXTENDED BASE | MONOLITHIC | MODIFIED MONOLITHIC | INTEGRAL |
| 4'-0" | 5" | 8" | 1841 | 2638 | X | | X |
| 5'-0" | 6" | 8" | 2827 | 3849 | X | | X |
| 6'-0" | 7" | 8" | 4058 | 5269 | X | | X |
| 6'-6" | 7½" | 8" | 4717 | 6013 | X | | X |
| 7'-0" | 8" | 8" | 5477 | 6870 | X | | X |
| 8'-0" | 9" | 8" | 7124 | 8703 | | X | X |
| 10'-6" ** | 8" | 8" | 11046 | 12993 | | X | X |

* INCREASED BASE THICKNESS IS AVAILABLE.
** WALL THICKNESS DOES NOT CONFORM TO ASTM C478.

# COMBINATION LIFT STATION




ROUND, SQUARE OR RECTANGULAR SHAPES AVAILABLE, CONSULT OUR OFFICE FOR MORE INFORMATION.

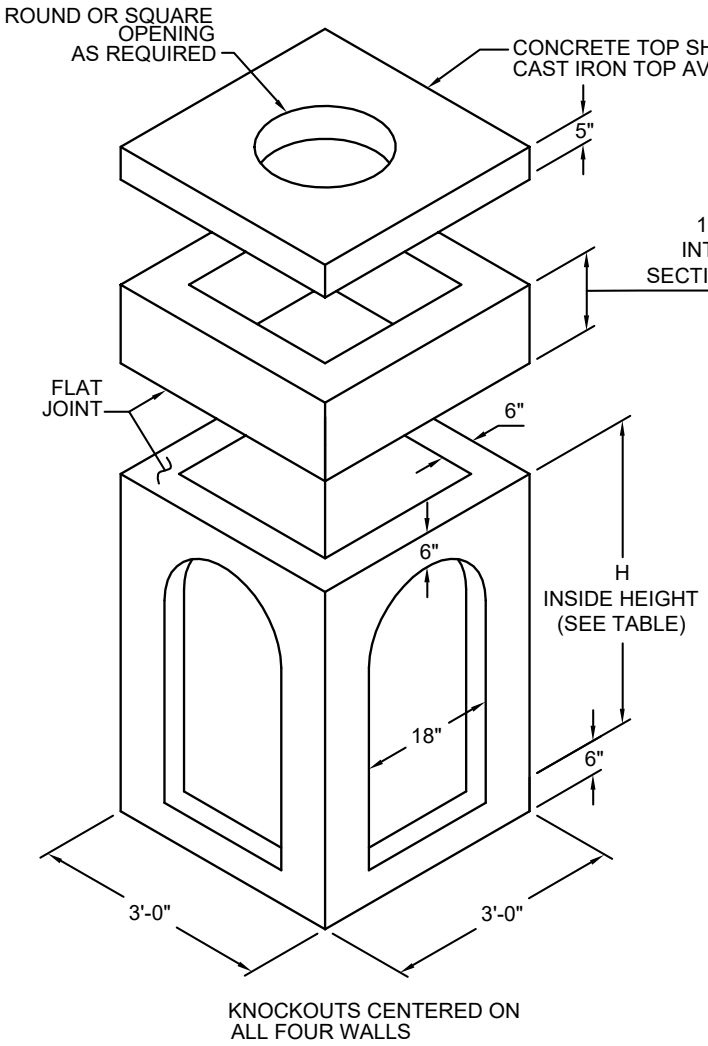
# NOTES

# CATCH BASINS

# 2'-0" X 2'-0" ID STOCK KNOCKOUT CATCH BASIN

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 (REBAR)<br>ASTM A185 - GRADE 65 (WWF) |
| ENTRAINED AIR: | 5.5% - 9.5%<br>-MEETS ASTM C890- |

FM JOB NO.: _____
DATE: _____
CONTRACTOR: _____
PROJECT: _____




| INSIDE HEIGHT | KNOCKOUT SIZE |
|---|---|
| 3'-0" | 18"x30" |
| 4'-0" | 18"x42" |
| 5'-0" | 18"x54" |

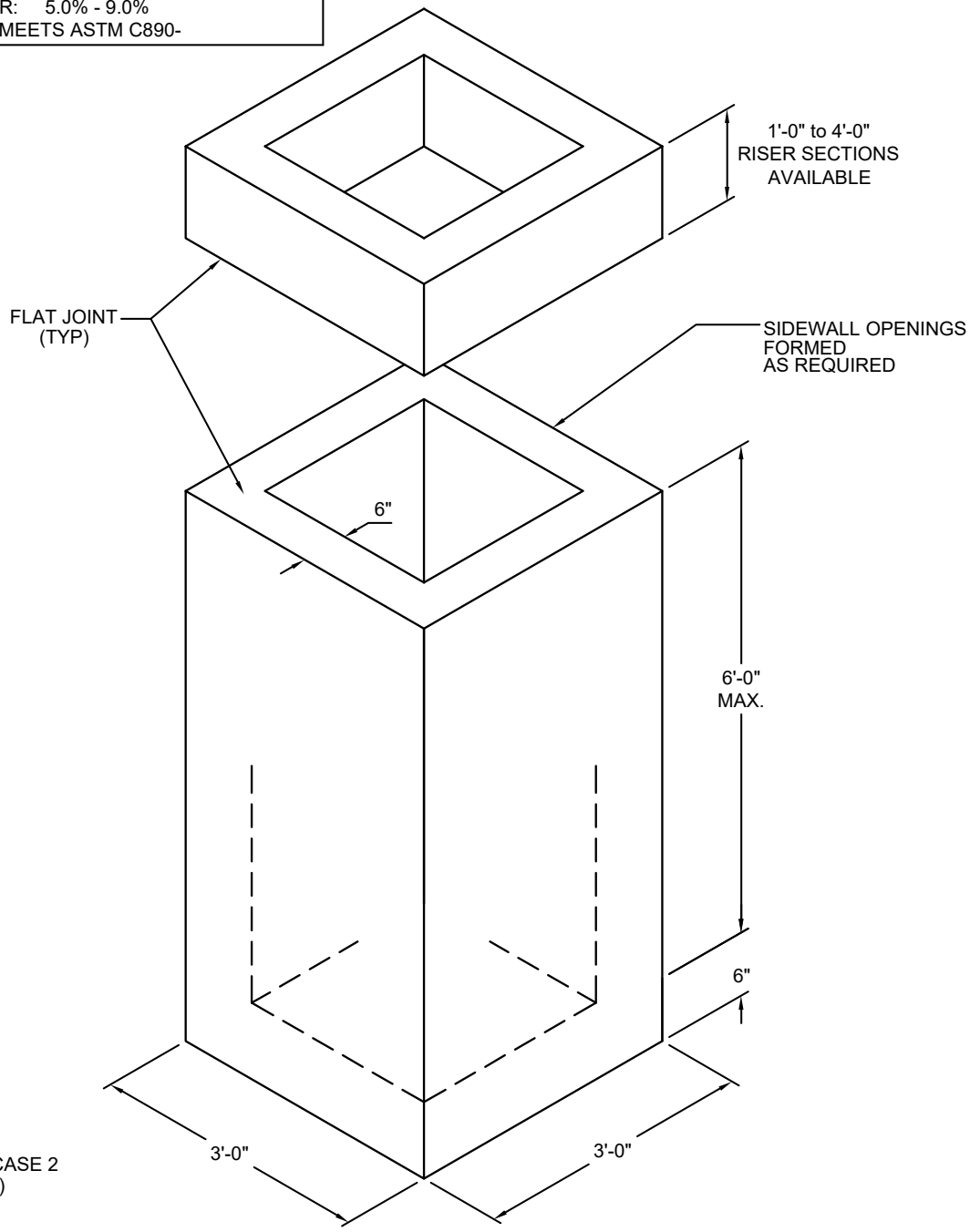
WEIGHTS

| TOP SLAB LBS | BOTTOM SLAB LBS | PER VF LBS |
|---|---|---|
| 570 | 680 | 690 |

| MARK#: | RIM ELEV: | -INVERT ELEV: | -FRAME HEIGHT: | -ROOF THICK: | + SUMP | -BASE HEIGHT | -RISER HEIGHT | = ADJ. | -GRADE RING | =FINAL ADJ. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

# 2'-0" X 2'-0" I.D. CATCH BASIN

CONCRETE: 4000 PSI
REINFORCEMENT: ASTM A615 - GRADE 60
ASTM A185 - GRADE 65
ENTRAINED AIR: 5.0% - 9.0%
-MEETS ASTM C890-




NOTES:
- DESIGN CASE 2 (TRAFFIC)

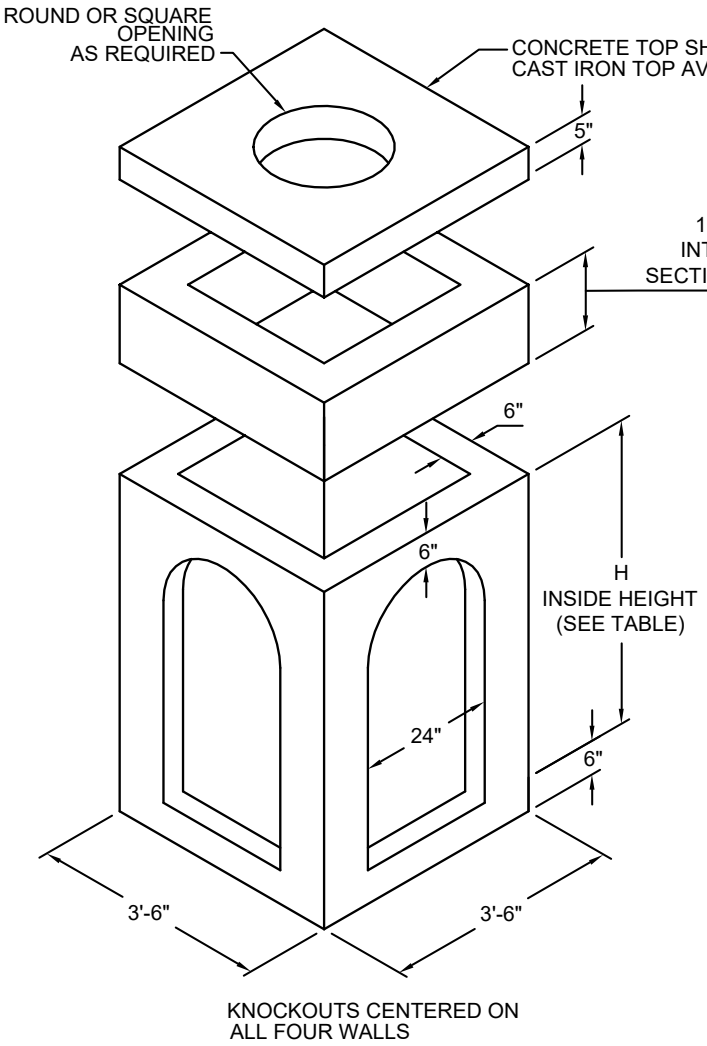
WEIGHTS

| BOTTOM SLAB LBS. | PER VERT. FT. LBS. |
|---|---|
| 675 | 750 |

# 2'-6" X 2'-6" ID STOCK KNOCKOUT CATCH BASIN

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60<br>ASTM A185 - GRADE 65 |
| ENTRAINED AIR: | 5.5% - 9.5%<br>-MEETS ASTM C890- |

FM JOB NO.: _____
DATE: _____
CONTRACTOR: _____
PROJECT: _____




| INSIDE HEIGHT | KNOCKOUT SIZE |
|---|---|
| 2'-6" | 24"x24" SQ. |
| 3'-0" | 24"x30" |
| 4'-0" | 24"x42" |
| 5'-0" | 24"x54" |

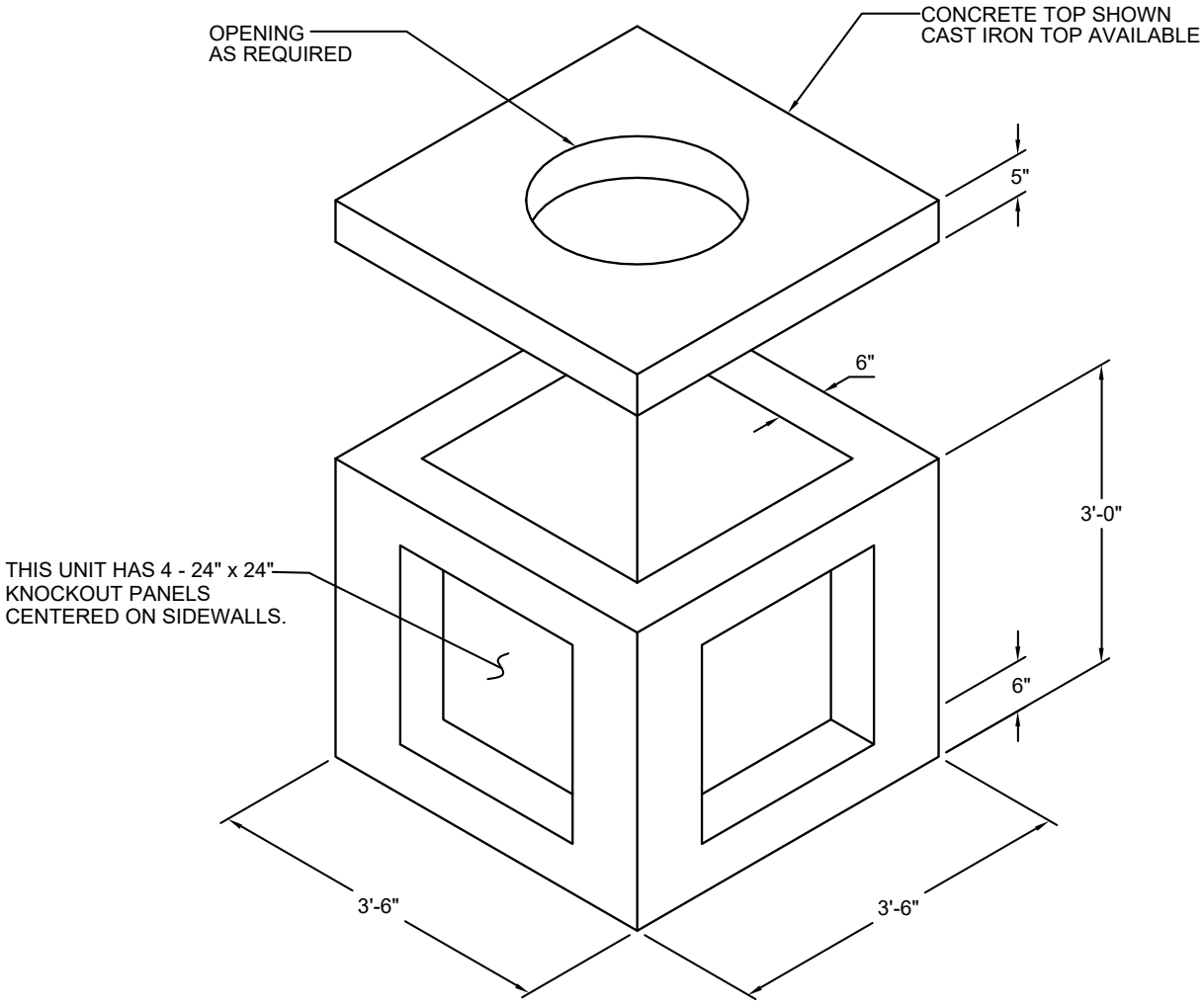
WEIGHTS

| TOP SLAB LBS. | BOTTOM SLAB LBS. | PER VF LBS. |
|---|---|---|
| 770 | 920 | 830 |

| MARK#: | RIM ELEV: | -INVERT ELEV: | -FRAME HEIGHT: | -ROOF THICK: | + SUMP | -BASE HEIGHT | -RISER HEIGHT | = ADJ. | -GRADE RING | =FINAL ADJ. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

# 2'-6" X 2'-6" X 2'-6" ID STOCK CATCH BASIN

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60<br>ASTM A185 - GRADE 65 |
| ENTRAINED AIR: | 5.0% - 9.0%<br>-MEETS ASTM C890- |




NOTES:
- DESIGN CASE 2 (TRAFFIC)

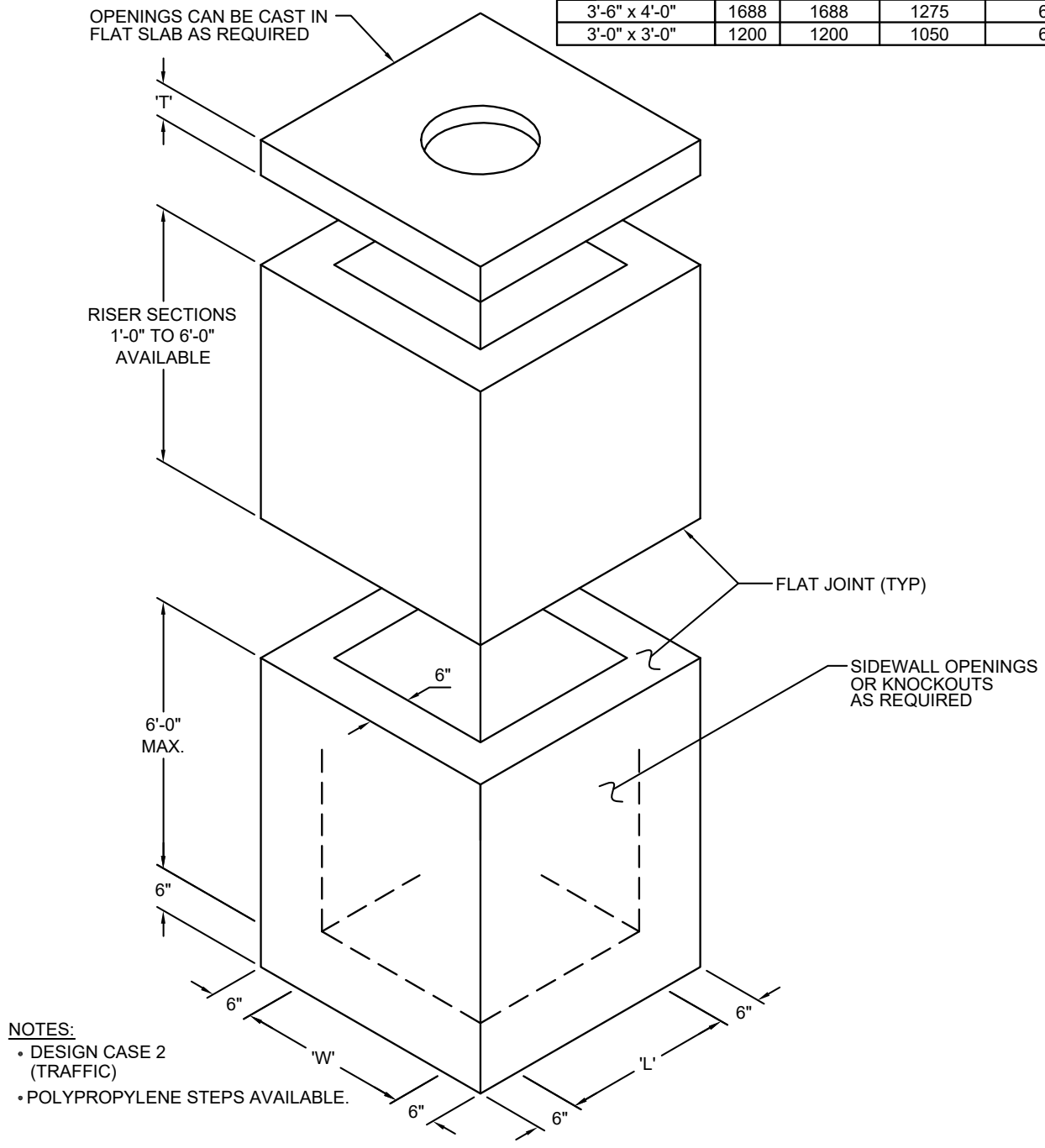
WEIGHTS

| FLAT SLAB TOP LBS. | CATCH BASIN LBS. |
|---|---|
| 770 | 2400 |

# 2'-6"X 2'-6" I.D. 2'-6"X 4'-0" I.D. 3'-0"X 3'-0" I.D. 3'-6"X 4'-0" I.D. CATCH BASIN

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60<br>ASTM A185 - GRADE 65 |
| ENTRAINED AIR: | 5.0% - 9.0%<br>-MEETS ASTM C890- |

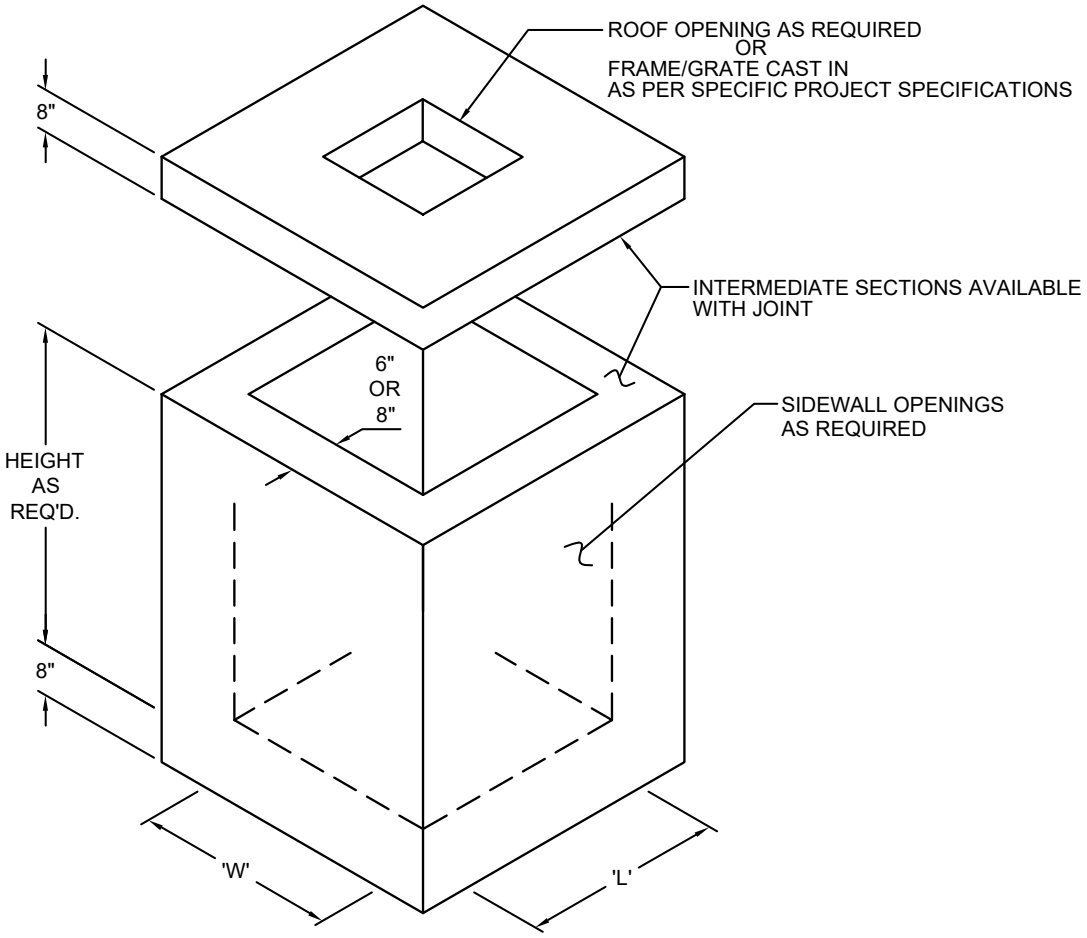
| SIZE W & L | WEIGHTS TOP SLAB (LBS.) | WEIGHTS BOTTOM SLAB (LBS.) | WEIGHTS VERTICAL FOOT (LBS.) | ROOF THICKNESS 'T' |
|---|---|---|---|---|
| 2'-6" x 2'-6" | 770 | 919 | 900 | 5" |
| 2'-6" x 4'-0" | 1313 | 1313 | 1125 | 6" |
| 3'-6" x 4'-0" | 1688 | 1688 | 1275 | 6" |
| 3'-0" x 3'-0" | 1200 | 1200 | 1050 | 6" |




NOTES:
- DESIGN CASE 2 (TRAFFIC)
- POLYPROPYLENE STEPS AVAILABLE.

# NYSDOT CATCH BASINS

| | |
|---|---|
| CONCRETE: | 25 MPa (3626 PSI) |
| REINFORCEMENT: | ASTM A615 - GRADE 60<br>ASTM A185 - GRADE 65 |
| ENTRAINED AIR: | 5.0% - 9.0% |




GENERAL NOTES:

- ABOVE DRAWING IS A REPRESENTATION OF A NYSDOT CATCH BASIN.
- ALL CATCH BASINS ARE PRODUCED IN CONFORMANCE WITH SECTION 706.04 OF THE N.Y.S. STANDARD SPECIFICATION.
- WALL THICKNESS (6" OR 8") IS DETERMINED BY OVERALL DEPTH OF STRUCTURE.
- SEE SHEET B-59 FOR SPECIFIC ENGLISH AND METRIC WIDTH AND LENGTH DIMENSIONS FOR VARIOUS TYPES OF CATCH BASINS.

# NYSDOT TYPICAL CATCH BASINS

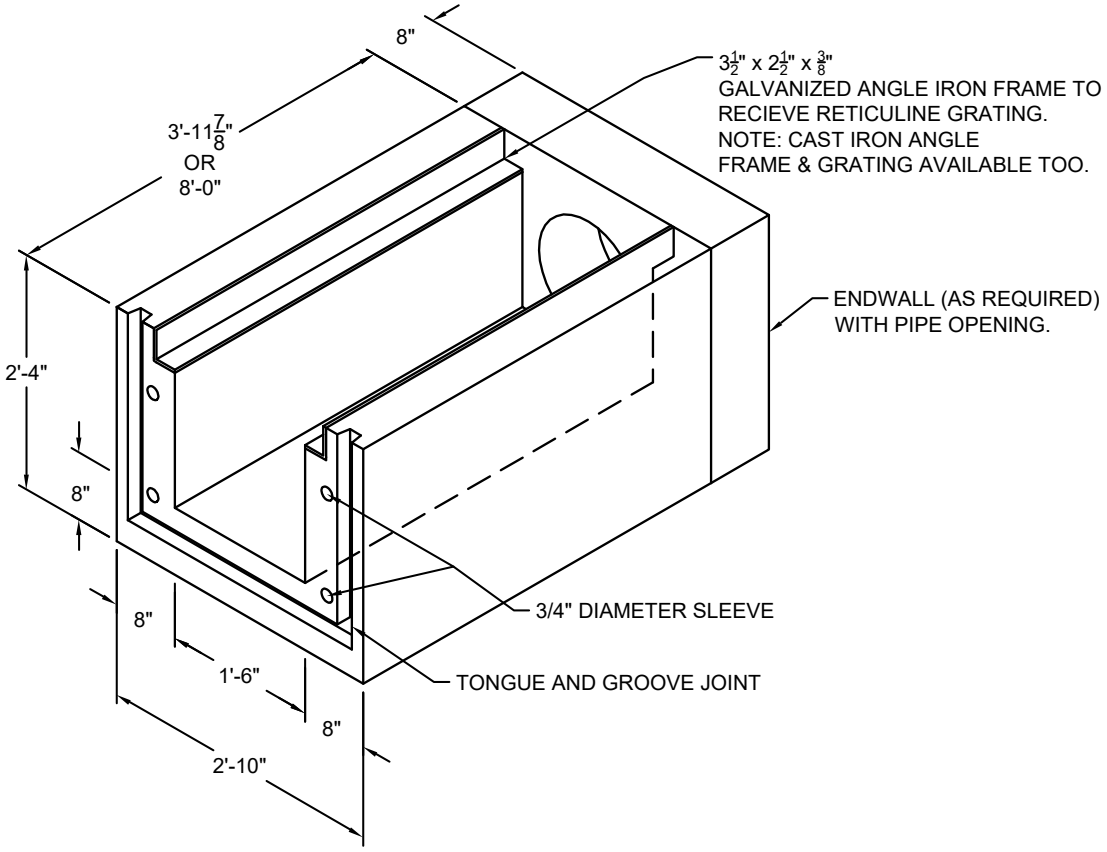
| | |
|---|---|
| CONCRETE: | 25 MPa (3626 PSI) |
| REINFORCEMENT: | ASTM A615 - GRADE 60<br>ASTM A185 - GRADE 65 |
| ENTRAINED AIR: | 5.0% - 9.0% |

| NYSDOT CATCH BASINS | | | | |
|---|---|---|---|---|
| | METRIC (mm) | | ENGLISH | |
| CB TYPE | WIDTH | LENGTH | WIDTH | LENGTH |
| "A" | 915 | 915 | 3'-0" | 3'-0" |
| "B" | 1220 | 915 | 4'-0" | 3'-0" |
| "C" | 1525 | 915 | 5'-0" | 3'-0" |
| "D" | 2030 | 915 | 6'-8" | 3'-0" |
| "E" | 915 | 1220 | 3'-0" | 4'-0" |
| "F" | 1220 | 1220 | 4'-0" | 4'-0" |
| "G" | 1525 | 1220 | 5'-0" | 4'-0" |
| "H" | 2030 | 1220 | 6'-8" | 4'-0" |
| "I" | 915 | 1525 | 3'-0" | 5'-0" |
| "J" | 1220 | 1525 | 4'-0" | 5'-0" |
| "K" | 1525 | 1525 | 5'-0" | 5'-0" |
| "L" | 2030 | 1525 | 6'-8" | 5'-0" |
| "M" | 915 | 2030 | 3'-0" | 6'-8" |
| "N" | 1220 | 2030 | 4'-0" | 6'-8" |
| "O" | 1525 | 2030 | 5'-0" | 6'-8" |
| "P" | 2030 | 2030 | 6'-8" | 6'-8" |
| "Q" | 865 | 915 | 2'-10" | 3'-0" |
| "R" | 865 | 1170 | 2'-10" | 3'-10" |
| "S" | 610 | 815 | 2'-0" | 2'-8" |
| "T" | 660 | 1065 | 2'-2" | 3'-6" |
| "U" | 865 | 965 | 2'-10" | 3'-2" |

# TRANSVERSE INTERCEPTORS

# PRECAST TRANSVERSE INTERCEPTOR

| | |
|---|---|
| CONCRETE: | 3000 PSI OR 4,000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 |
| ENTRAINED AIR: | 5.5% - 9.5% |




NOTES:

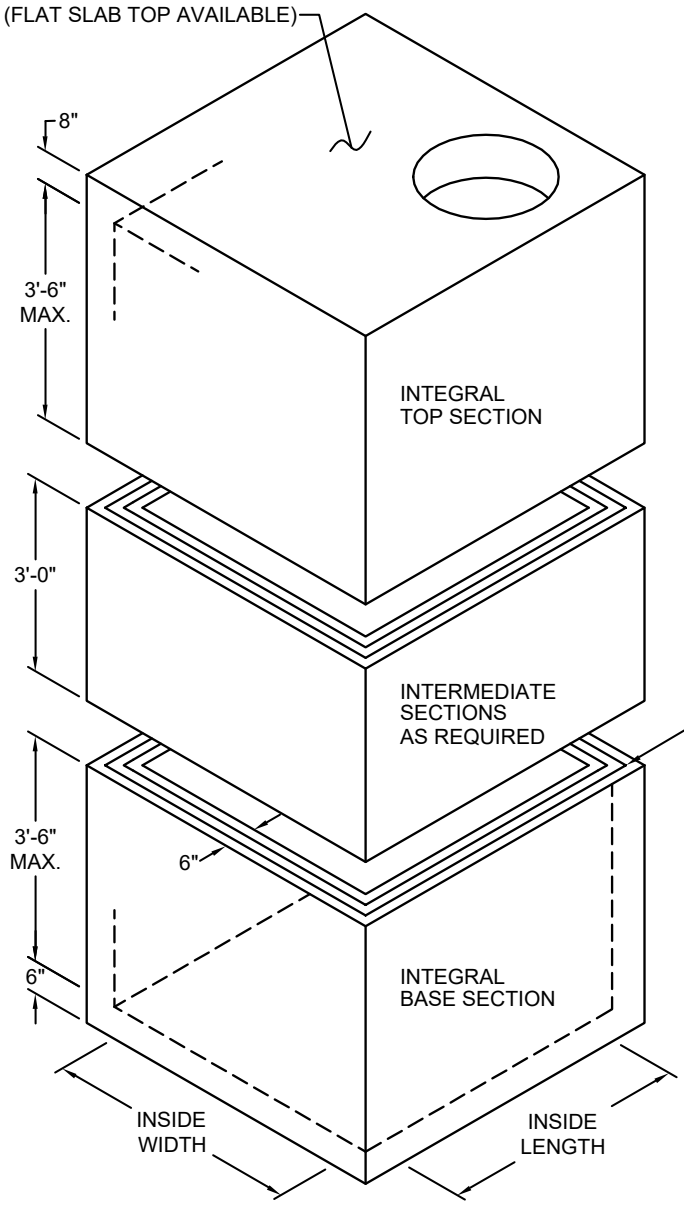
- FOR ADDITIONAL INFORMATION SEE NYS DOT STANDARD SHEET 604-1.

WEIGHT 625 LBS PER L.F.

# SQUARE & RECTANGULAR STRUCTURES

# SQUARE STRUCTURES

CONCRETE: 4000 PSI
REINFORCEMENT: ASTM A615 - GRADE 60
ENTRAINED AIR: 5.0% - 9.0%
-MEETS ASTM C890, C857-



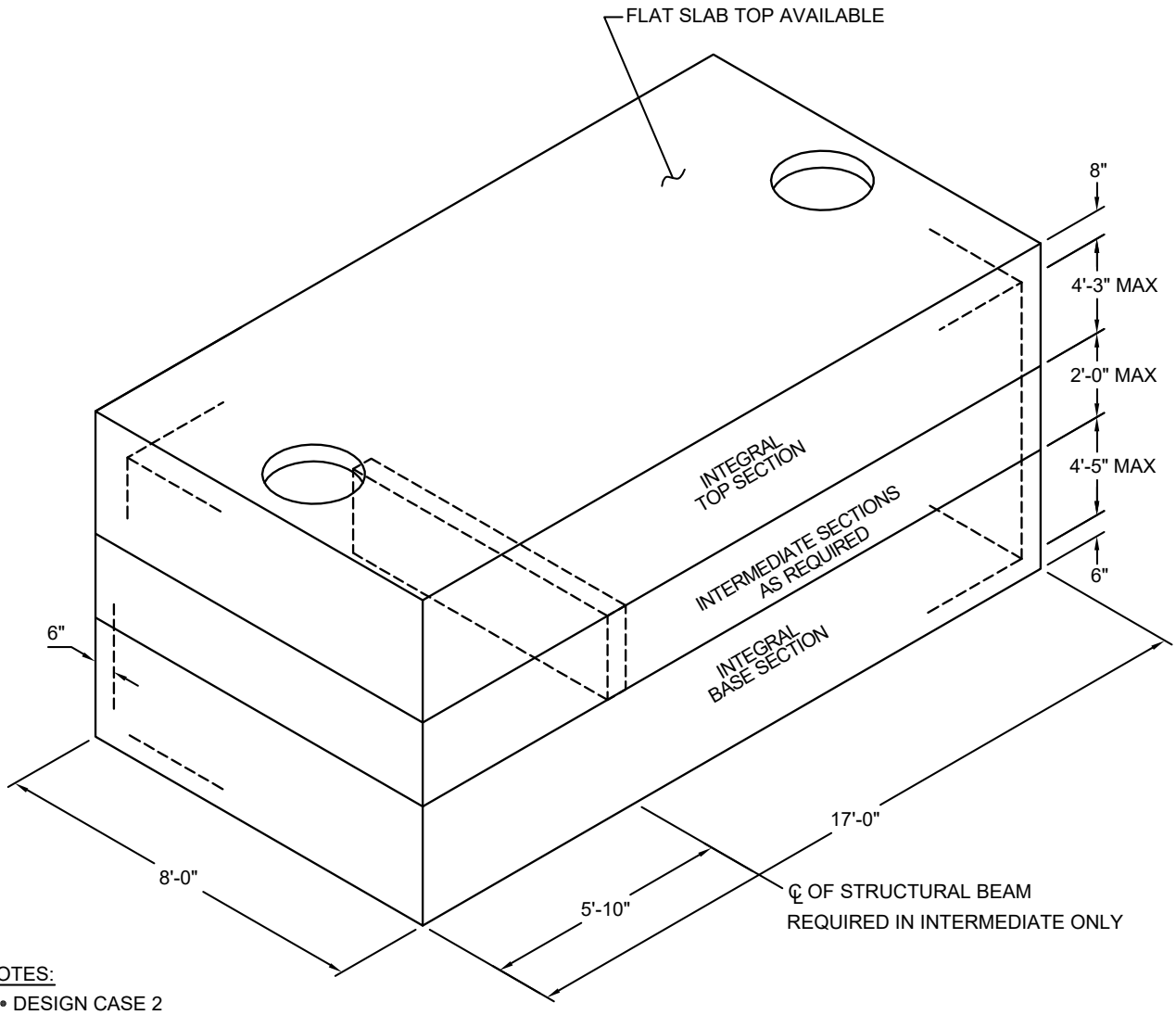

NOTES:

- CUSTOM OPENINGS AS REQUIRED.
- POLYPROPYLENE STEPS AVAILABLE.
- SEE DESIGN SECTION FOR DESIGN PARAMETERS.
- EXTENDED BASES AVAILABLE ON SOME SIZES. PLEASE CONSULT OUR OFFICE.
- SPECIAL HEIGHT SECTIONS AVAILABLE SUBJECT TO DESIGN CRITERIA & REVIEW.
- DESIGN CASE 3 (TRAFFIC)

| SIZE (I.D.) WIDTH x LENGTH | WEIGHTS | | |
|---|---|---|---|
| | BASE SLAB (LBS.) | ROOF SLAB (LBS.) | VERT. FT. (LBS.) |
| 4'-0" x 4'-0" | 1880 | 1880 | 1350 |
| 4'-0" x 6'-0" | 2630 | 3520 | 1650 |
| 5'-0" x 5'-0" | 2700 | 3620 | 1650 |
| 5'-0" x 7'-0" | 3600 | 4825 | 1950 |
| 5'-0" x 10'-0" | 4950 | 6630 | 2400 |
| 6'-0" x 8'-0" | 4725 | 6330 | 2250 |
| 6'-0" x 10'-0" | 5775 | 7740 | 2550 |
| 6'-0" x 12'-0" | 6825 | 9150 | 2850 |

# 7'-0" X 16'-0" ID RECTANGULAR STRUCTURE

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60 |
| ENTRAINED AIR: | 5.0% - 9.0% |
| | -MEETS ASTM C890, C857- |




NOTES:

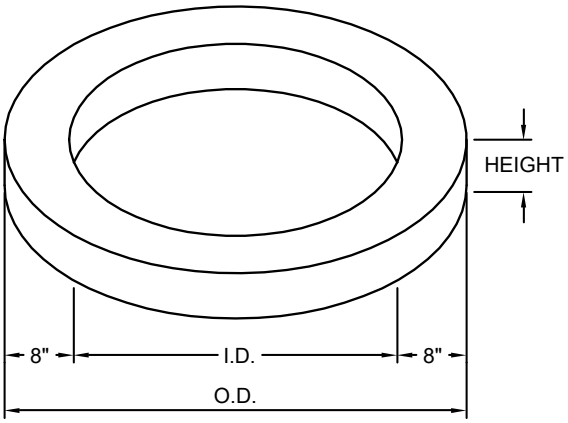
- DESIGN CASE 2 (TRAFFIC)
- DESIGN CASE 3 (TRAFFIC)
- OPENINGS AS REQUIRED

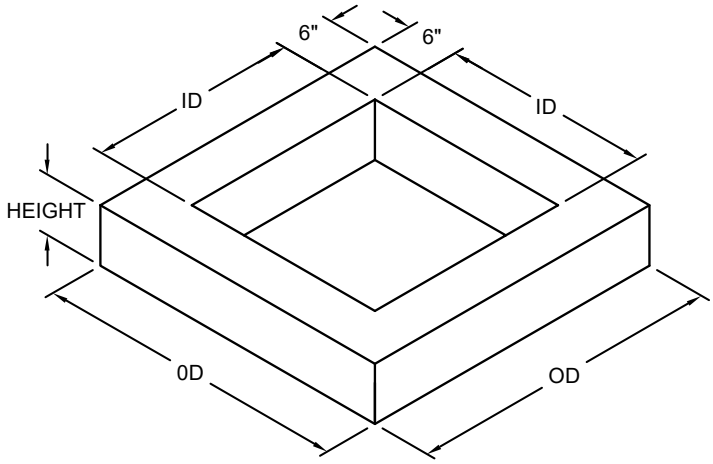
| WEIGHTS | | |
|---|---|---|
| BASE SLAB LBS. | ROOF SLAB LBS. | PER VERTICAL FOOT LBS. |
| 10,200 | 13,668 | 3,600 |

# GRADE EXTENSIONS, ACCESS EXTENSIONS & HATCH INFO

# STOCK GRADE EXTENSIONS

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60<br>ASTM A185 - GRADE 65 |
| ENTRAINED AIR: | 5.0% - 9.0% |




| ROUND GRADE EXTENSIONS | | | |
|---|---|---|---|
| WEIGHTS, LBS | | | |
| I.D. | O.D. | HEIGHTS AVAILABLE | LBS./IN |
| 2'-0"Ø | 3'-4"Ø | 2", 4", 6", 8" & 10" | 70 |
| 2'-6"Ø | 3'-10"Ø | 3", 5", 7" & 9" | 85 |
| 3'-0"Ø | 4'-4"Ø | 3", 4", 6" & 8" | 96 |

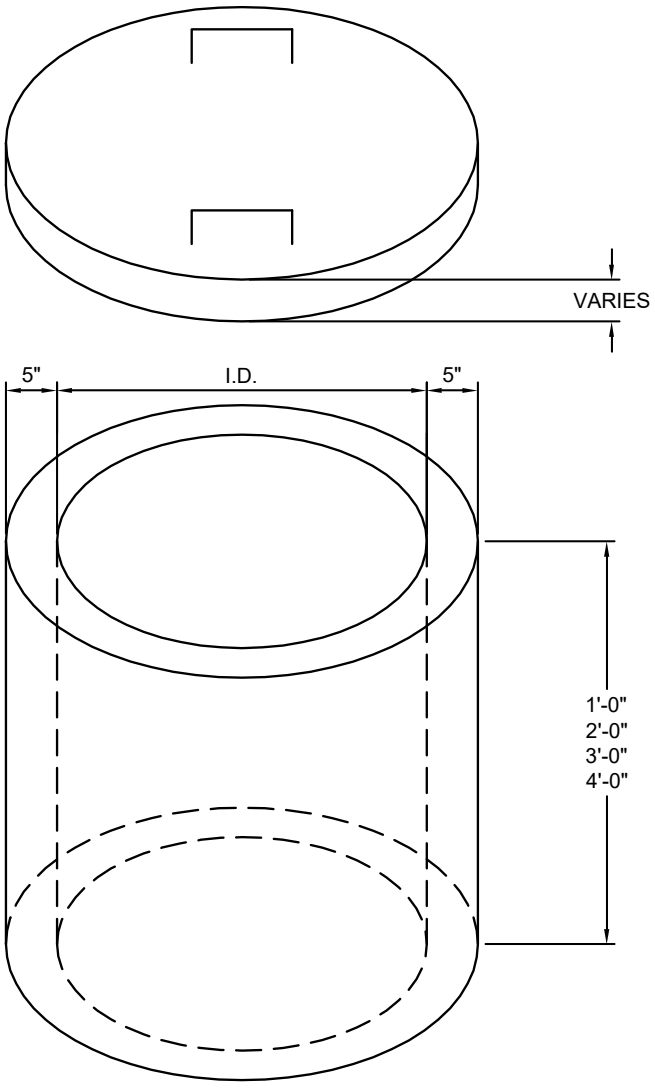
| SQUARE GRADE EXTENSIONS | | | |
|---|---|---|---|
| WEIGHTS, LBS | | | |
| I.D. | O.D. | HEIGHTS AVAILABLE | LBS./IN |
| 2'-0" x 2'-0" | 3'-0" x 3'-0" | 2", 4", 6", 8" & 10" | 62 |
| 2'-6" x 2'-6" | 3'-6" x 3'-6" | $1\frac{1}{2}$", 4", 6" & 8" | 75 |

NOTES:

- SOME GRADE EXTENSIONS ARE AVAILABLE IN PALLETIZED QUANTITIES ONLY.
- QUANTITIES AS FOLLOWS:
  $1\frac{1}{2}$" & 2" THICK @ (6) PER PALLET
  3" THICK @ (4) PER PALLET
- ALL OTHER SIZES ARE AVAILABLE INDIVIDUALLY.
- DESIGNED FOR AASHTO H-20 LOADING
  30% IMPACT
  SOIL PRESSURE 120 PCF
- DESIGN CASE 1
  (TRAFFIC)

# ACCESS EXTENSIONS

| | |
|---|---|
| CONCRETE: | 4000 PSI |
| REINFORCEMENT: | ASTM A615 - GRADE 60<br>ASTM A185 - GRADE 65 |
| ENTRAINED AIR: | 5.0% - 9.0% |

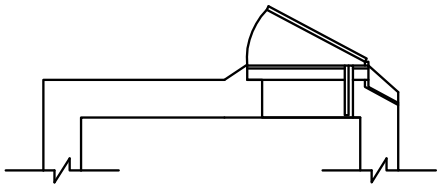



NOTES:

- DESIGN CASE 1 (TRAFFIC)
- SQUARE AND RECTANGULAR ACCESS EXTENSIONS ARE ALSO AVAILABLE. PLEASE CONSULT OUR OFFICE.

| WEIGHTS, LBS | | | |
|---|---|---|---|
| I.D. | SLAB THICKNESS | SLAB WEIGHT | LBS./FT |
| 2'-0" | 4" | 238 | 480 |
| 2'-6" | 5" | 433 | 578 |
| 3'-0" | 6" | 570 | 665 |

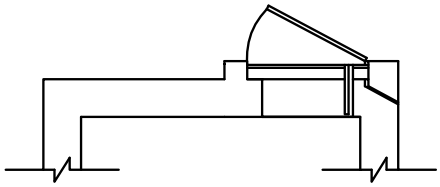
# TYPICAL ACCESS HATCH INSTALLATION DETAILS



TYPE A TAPER MOUNT

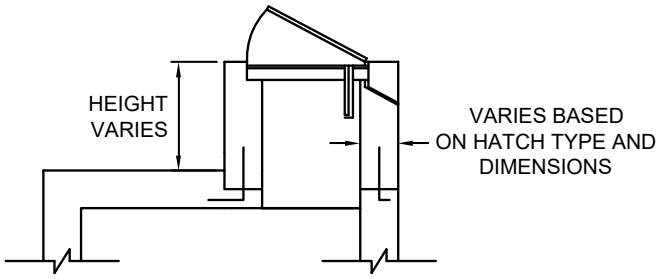
NOTE:
A VARIETY OF HATCH STYLES AD SIZES CAN BE USED IN SQUARE,RECTANGULAR OR ROUND STRUCTURES. BEFORE WE CAN PREPARE SHOP DRAWINGS, WE MUST HAVE A TECHNICAL DATA SHEET OF THE HATCH SHOWING THE FOLLOWING INFORMATION:

1. TYPE OF MOUNT
2. STEP LOCATION
3. LOCATION OF HATCH IN ROOF SLAB
4. DRAIN LOCATION (IF REQUIRED)
5. HINGE LOCATION & ORIENTATION
6. DESIGN LOADING

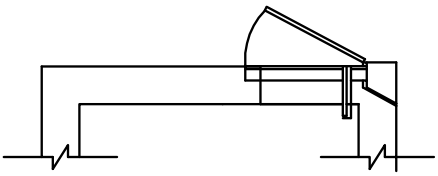


TYPE B CURB MOUNT

NOTE:
SKIRTS FOR HATCHES ARE AVAILABLE UPON REQUEST.




TYPE C RISER/FLUSH MOUNT



TYPE D FLUSH MOUNT

# NOTES

# PERMA-CURB™ PRECAST CONCRETE CURB

# PERMA-CURB™ PRECAST CONCRETE CURB

## Perma-Curb™ provides an aesthetically pleasing and cost effective alternative to conventional cast-in-place and granite curb.

Not only is the linear foot price competitive, but the product can also be installed by a small crew not inhibited by seasonal limitations. The material is produced locally and delivered quickly. A layout drawing can be supplied indicating the piece mark number and location. The wide variety of lengths, radii and shapes in stock will expedite your installation schedule. Perma-Curb™ provides a durable, consistent texture that resists abrasion and freeze- thaw cycles.

### PRODUCT FEATURES

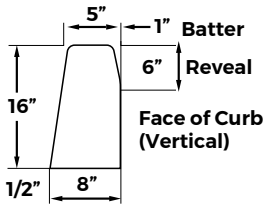
- **Concrete strength 5,000 psi at 28 days**
- **Entrained air 5.0% to 9.0%**
- **Water cement ratio less than 0.40**
- **Average freeze thaw loss less than 4%**
- **No steel reinforcement**
- **Smooth form finish**
- **Over 500,000 linear feet installed**

# TYPICAL INSTALLATION NOTES

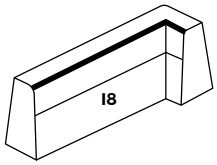
Set and adjust to line and grade on pads of bedding material. Bedding to be dry concrete or gravel. Units should be “backed” with concrete for all radius pieces and 1’-0” on both sides of the joint for straight pieces. Units butt together without mortar, 0” - 3/8” joint allowable. Field cut units as required.

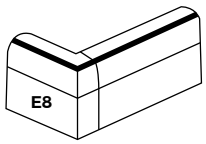
## STANDARD RADIUS UNITS

| Radius (Ft) | Inside Radius | Outside Radius | # Pieces per 1/4 Circle | Length | Arc Length per Degree (inches) | Approx. Weight (lbs/piece) |
|---|---|---|---|---|---|---|
| 1.5 | | R1 1/2 | Bullnose | 3’-8” | 0.31 | 410 |
| 2.5 | | R2 1/2 | 1 | 3’-11” | 0.52 | 440 |
| 5.0 | | R5 | 2 | 3’-11” | 1.05 | 440 |
| 6.5 | | R6 1/2 | 2 | 5'- 01" | 1.36 | 560 |
| 7.5 | | R7 1/2 | 3 | 3’-11” | 1.57 | 440 |
| 10.0 | IR10 | R10 | 2 | 7’-10” | 2.09 | 875 |
| 15.0 | IR15 | R15 | 3 | 7’-10” | 3.14 | 875 |
| 20.0 | IR20 | R20 | 4 | 7’-10” | 4.19 | 875 |
| 25.0 | IR25 | R25 | 5 | 7’-10” | 5.24 | 875 |
| 30.0 | IR30 | R30 | 6 | 7’-10” | 6.28 | 875 |
| 35.0 | IR35 | R35 | 7 | 7’-10” | 7.33 | 875 |
| 40.0 | IR40 | R40 | 8 | 7’-10” | 8.38 | 875 |
| 50.0 | IR50 | R50 | 10 | 7’-10” | 10.47 | 875 |
| 60.0 | IR60 | R60 | 12 | 7’-10” | 12.57 | 875 |
| 70.0 | IR70 | R70 | 14 | 7’-10” | 14.66 | 875 |
| 80.0 | IR80 | R80 | 16 | 7’-10” | 16.76 | 875 |
| 90.0 | IR90 | R90 | 18 | 7’-10” | 18.75 | 875 |




**TYPICAL PERMA-CURB SECTION**




## STANDARD STRAIGHT UNITS

| Unit | Mark No. | Length | Weight (lbs/piece) |
|---|---|---|---|
| Standard | S4 | 4’-0” | 410 |
| Standard | S6 | 6’-0” | 440 |
| Standard | S8 | 8’-0” | 440 |
| Drop Type I (driveway areas) | DL1, DR | 7’-6” | 560 |
| Driveway Drop Section (1” reveal) | D4 | 4’-0” | 440 |
| | D8 | 8’-0” | 875 |
| Drop Type II (handicapped areas) | DLII, DRII* | 6’-0” | 875 |
| Inside Corner | I8 | 8’-0” | 875 |
| Outside Corner | E8 | 8’-0” | 875 |

Drop sections Type II can utilize straight and radius sections. 0” reveal in handicap drop section areas with a 1:12 translation slope.

# CUSTOMER SATISFACTION - NUMBER ONE

**Fort Miller Precast was founded on the belief that customer satisfaction and product quality were paramount to success. Over the years this philosophy has proven itself many times over, elevating The Fort Miller Co, Inc. to be the #1 choice for precast concrete products for local and regional markets. We endeavor to consistently improve our product line, explore new concepts and be the leader throughout the industry.**

Most significantly, we at Fort Miller Precast know our success is based on your success. Listening, designing, providing and servicing have never been taken lightly at our company. These are not only our roots, but also the embodiment of our entire business philosophy.

If you're new to Fort Miller Precast, WELCOME ABOARD! We're looking forward to working with you every step of the way on any project where we may be of service. If you're an existing customer of ours- THANK YOU for your support, we will do our best to keep YOU number ONE.

## CONTACT US

**(518) 695-5000**

**info@fortmiller.com**

**fortmiller.com**

**P.O. Box 98 Schuylerville, NY 12871**

## YOUR IMAGINATION IS OUR ONLY LIMITATION.