



# Floor Drains

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## INTRODUCTION

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### Floor Drains

Floor drains are standard fixtures throughout every commercial and institutional building. Floor drains serve the purpose of removing wastewater from floor areas discharging the water directly into the sewer and wastewater systems.

Floor drains come in all shapes and sizes. What separates floor drains apart from one another is its application. The Zurn Plumbing Products Group Specification Drainage Operation has been manufacturing drainage products for over 100 years. We have standard floor drains to meet the more common installation, as well as specialize in manufacturing drains for the not-so-common application.

By application, we are referring to where the drain is to be installed. For example, a floor drain in a typical corridor will not be exposed to as much water drainage compared to a floor drain located in a locker room. One of the key pieces of information needed for determining which floor drain best suits your application is knowing the maximum amount of water the floor drain may be exposed to. Even though the drain may not be continuously exposed to water, consideration should be given for times when abnormal conditions may exist.

Here is a simple check list of questions that may help you determine what product you need in most situations:

- What is the size of your pipe connection?
- Do you need a round or square top?
- Is the drain going to be in a finished area that requires a polished nickel or brass finish to match the decor?
- Does the drain require a special finish for added protection? (i.e., a galvanized finish if the drain may be exposed to severe water conditions; an acid resistant epoxy finish if the drain is repeatedly coming in contact with chemicals or highly concentrated cleaning materials.)
- What type of traffic is the drain going to be exposed to? Will it require a ductile iron grate suitable for heavier loads or vehicular applications?
- What other conditions might exist requiring you to consider other options?

Don't hesitate to call upon our engineers to help you find a drain that meets your specific application.

## APPLICATION INDEX

The Zurn Floor Drains below are recommended for the applications listed. Most Zurn Floor Drains can be readily adapted for use in finished areas by using Bronze or Nickel Bronze Grates and Strainers. (Use Prefix "ZB" or "ZN" preceding the product number in place of the usual "Z" Prefix.)

APPLICATION	RECOMMENDED PRODUCT
Automobile Parking Area	Z533, Z534, Z535, Z536, Z537, Z541, Z543, Z662, Z761, Z784, Z792, Z793, Z794
Basement and Subterranean Areas	Z560, Z566, Z568, Z730, Z753
Boiler House and Maintenance Areas	Z541-90, Z645, Z761
Clinical, Surgical, Detention Areas	Z300, Z310, Z315, Z319
Entrances and Concourses	Z340, Z587, Z664, Z665, Z667, Z780, Z784, Z792, Z793, Z794
Equipment Rooms, Computer Rooms, Laboratories	Z624, Z625, Z626, Z627
Finished Area/Gutter	Z572, Z573, Z574, Z575, Z576, Z585
Finished Interior Floor Areas Adjustable	ZN415, ZS415, ZN450, ZN453, ZN455, ZN456, ZS415, ZN529
Food Preparation Areas	Z320, ZN610-SS (Also See Sani-Flor Receptors – Z1900 Series)
Garage, Hangar and Service Areas	Z664, Z665, Z667, Z673, Z675, Z676, Z784, Z792, Z793, Z794
Volatile Liquid Interceptors	Z690, Z691
Indirect Waste Area (Condensate and Drip)	Z325, Z326, Z328, Z329, Z566, Z568, Z586
Industrial Areas – Vertical Adjustment	Z520, Z521, Z525, Z526, Z556
Extra Heavy Duty	Z503, Z516, Z541, Z610, Z645, Z662, Z664, Z668, Z673, Z675, Z676, Z679
Heavy Duty	Z504, Z505, Z508, Z509, Z511, Z512, Z513, Z517, Z520, Z521, Z526, Z532, Z539, Z541, Z543, Z545, Z548, Z575, Z609
Medium Duty	Z507, Z525, Z530, Z550, Z551, Z576, Z585, Z587, Z609, Z611, Z667, Z730, Z753
Traps and Backwater Valves	Z548, Z730, Z761
Pit Drains	Z629
Planting Area	Z348, Z349, Z350, Z352
Prison Cell (Multi-Purpose)	Z355, Z356
Roadways	Z610, Z668, Z673
Sur-Set Drains	Z538, Z540, Z554
Waste Disposal Areas	Z670 (See Sani-Flor Receptors – Z1982)

## PRODUCT COMPLIANCE

Zurn Floor Drains are constructed of high quality materials and, in general, are designed to meet the requirements of ASME Specification A112.6.3 (revision and redesignation of ANSI A112.21.1M). For an explanation of materials used, see Page 31.

## TOP LOADING – CLASSIFICATION\*

Selection of a Zurn Floor drain should be based on the load factor and the anticipated traffic. Many of Zurn's cast iron grates may be furnished in duresist iron when increased working load requirements are necessary. Specify duresist grate (-DG) when required or contact your Zurn representative when special applications are necessary. For a description of duresist iron, see Page 31.

Zurn drains are rated as follows: (Reference ASME Standard A112.6.3M)

### 6.1 Loading Classifications

Grates and top rims shall be designed to meet the following loading classifications.

**6.1.1 – Light Duty** All grates having safe live load (as calculated in para. 6.2.5) under 2000 lb. [900 kg].

**6.1.2 – Medium Duty** All grates having safe live load (as calculated in para. 6.2.5) between 2000 lb. [900 kg] and 4999 lb. [2250 kg].

**6.1.3 – Heavy Duty** All grates having safe live load (as calculated in para. 6.2.5) between 5000 lb. [2250 kg] and 7499 lb. [3375 kg].

**6.1.4 – Extra Heavy Duty** All grates having safe live load (as calculated in para. 6.2.5) between 7500 lb. [3375 kg] and 10,000 lb. [4500 kg].

**6.1.5 – Special Duty** Grates having safe live load (as calculated in para. 6.2.5) over 10,000 lb. [4500 kg] shall be considered special and treated accordingly.

### 6.2 Test Procedure for Grate Loading

Live Load – Requirements listed in 6.1 through 6.1.5 shall be determined as follows:

**6.2.1 – Load Classifications** Load classifications as stated in 6.1 shall be determined by laboratory tests.

**6.2.2 – Platen Size** A 3.5 in. [89 mm] diameter platen shall be applied to the center of the grate specimen.

**6.2.3 – Loading** Loading shall be applied slowly so that point of failure can be observed.

### 6.2.4 Point of Failure

(a) Brittle Materials (Cast Iron). The load (in pounds or kilograms) at which the first fracture on any part of the specimen appears.

(b) Ductile Material. The load which the permanent set (at the point of loading) is greater than 2% of the longest transverse dimension of the specimen.

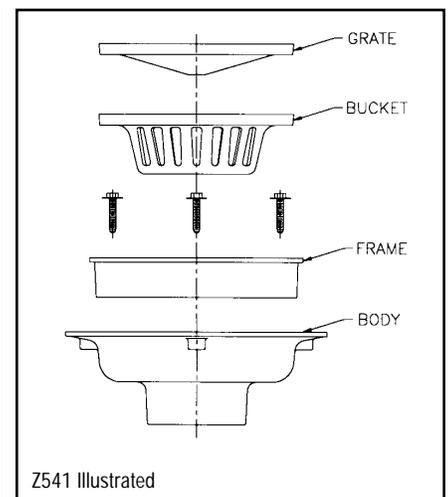
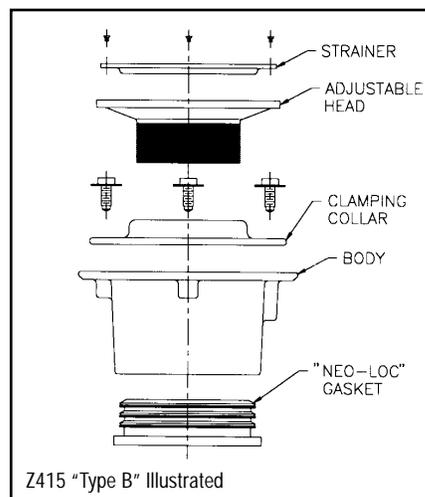
**6.2.5 – Grate Classification** The maximum safe live load is computed by dividing the load at failure by two.

\*Safe live load rating of grates is for general classification purposes only. For the actual load of any given grate, contact your Zurn representative. ZB and ZN 400 Series drain head assemblies are rated for light-duty applications only.

## GENERAL INFORMATION

Zurn floor drains are generally made up of a body, combination frame/clamp collar and top grate. The assemblies shown at right illustrate the more common components utilized in floor drains.

Zurn floor drains are available in 2" through 10" outlet sizes with Inside Caulk, Threaded, No-Hub, and Neo-Loc connections. For an explanation of these outlets, see Page 5.



## FLOOR DRAIN SIZING and LOCATION

The location, number, and size of floor drains are all important factors in the design of a drainage system. Proximity of the drain to the source of water is important, as well as the grade, so that water on any floor area naturally flows to the drain. The number of drains must be considered based on anticipated volume and proximity. In any case, local and national codes should be followed for drain sizing and placement.

The size of floor drains is important as it affects the number of drains required and the amount of water which can be efficiently drained. As a general reference, floor drains should be sized to handle an overflow condition of water that may be discharged onto the floor. The chart below illustrates water outlets and the demand (GPM) requirements.

Type of Water Outlet	Demand (GPM)	Type of Water Outlet	Demand (GPM)
Aspirator (Operating Room or Laboratory)	2.5	Ordinary Lavatory Faucet	2.0
Ball Cock in Water Closet Flush Tank	3.0	Self-Closing Lavatory Faucet	2.5
Bath Faucet, 1/2"	5.0	Shower Head, 1/2"	5.0
Dishwashing Machine (Domestic)	4.0	Sink Faucet, 3/8" or 1/2"	4.5
Drinking Fountain Jet	0.75	Sink Faucet, 3/4"	6.0
Hose Bib or Sill Cock, 1/2"	5.0	3/4" Flush Valve (15 PSI Flow Pressure)	15.0
Laundry Faucet, 1/2"	5.0	1" Flush Valve (15 PSI Flow Pressure)	27.0
Laundry Machine (8 lbs. or 16 lbs.)	4.0	1" Flush Valve (25 PSI Flow Pressure)	35.0

## HOW TO CHOOSE A FLOOR DRAIN

Given a piping system with a designed flow rate, an appropriate floor drain can be readily selected. Factors such as flow rate, length of horizontal pipe, and pipe size are some of the predominate factors upon which the selection of a floor drain depends. These factors are the first to be considered because together with a floor drain, they fulfill the purpose of a drainage system, which is to carry all water efficiently from the floor. Also to be considered is the maximum head and buildup of water on the floor. This value can range typically up to 2" depending on pipe size or any other design consideration of the particular application.

### Pipe Size and Open Area

Pipe size and open area of grate should be one of the first specifications decided on in the selection of a floor drain because they are most important in fulfilling the requirements of the specified flow rate and drainage system. However, additional criteria exists in selecting the most appropriate drain. The type of connection, either Inside Caulk (IC), Threaded (IP), No-Hub (NH), Neo-Loc (NL) or Spigot (SP), needs to be chosen. Backwater valves are useful to reduce drainage backup. Sediment buckets can filter out of the water flow such items as leaves, jewelry, hair, paper, and dirt, which can cause the drainage system to clog.

### Flow Rate Calculation

Based upon a specified flow rate and head, the grate open area of the required drain can be calculated using the following equation:

$$Q = 448.2 \text{ Cd } A \sqrt{2gh} \quad \text{where}$$

- Q = Flow Rate (Gallons per Minute)
- Cd = Discharge Coefficient (Typically 0.6)
- A = Open Area of Grate (ft<sup>2</sup>)
- g = Acceleration (32.2 ft/s<sup>2</sup>)
- h = Head Above the Floor (ft)

### Open Area Calculation

The equation can be easily arranged to solve for 'A':

$$A = \frac{Q}{448.2 \text{ Cd } \sqrt{2gh}}$$

Example: For a maximum 0.25" (0.021 ft.) head (h), flow rate of 10 gallons per minute (Q), and an average discharge coefficient (Cd) of 0.6 yields a grate with an open area (A) of 0.032 sq. ft., multiplying by 144 in<sup>2</sup>/ft<sup>2</sup> yields an open area of 4.62 sq. in.

### Grate Loading

Depending on the purpose and location, an extra heavy, heavy, medium, or light duty drain may be selected. Extra-heavy and heavy-duty drains are useful in places where heavy and medium size trucks are being operated. Medium duty drains can be used where there is lighter vehicle traffic. For pedestrian traffic and bicycles, light duty drains may be used. The type of material chosen is important for corrosion characteristics, as well as for blending into the surroundings. The top shape (round, square, rectangular, etc.) and finish should be selected in accordance with the surrounding environment.

### Heel-Proof Grates

In areas where pedestrian traffic is the norm, floor drains with heel-proof grates should be used. Heel-proof grates are designed to provide a relatively secure surface in which the maximum grate hole size in least dimension shall be 5/16 inch. The heel-proof feature, if available, is contained in the Engineering Specification of that product.

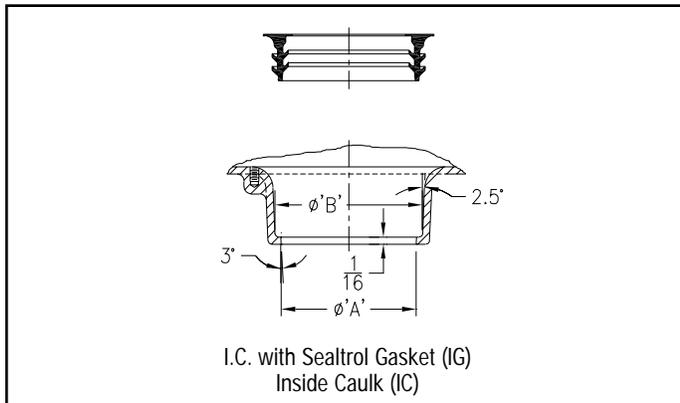
## ZURN OUTLET PIPE CONNECTIONS

### INSIDE CAULK (IC)

Often specified where drain body is positioned on pipe, bottom of outlet is sealed with oakum and connection is then completed according to local plumbing codes.

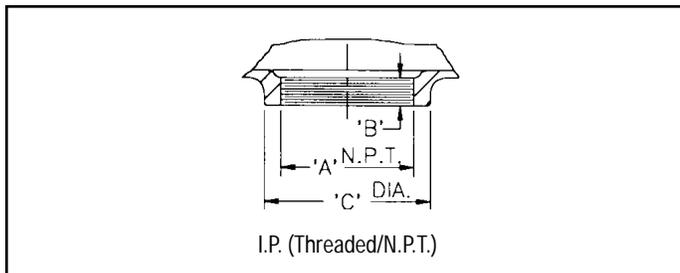
### INSIDE GASKET (IG)

The IG connections utilize an inside caulk drain body and a Zurn "Sealtrol" gasket. **This connection is only recommended for basement or ground floor applications.**



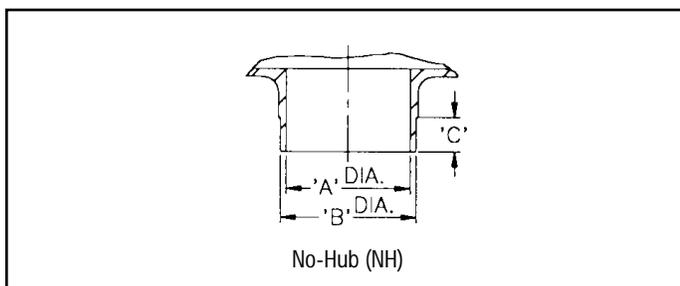
### IRON PIPE (IP)

Zurn Iron Pipe Threaded connection is an old industry standard. The female (NPT) threaded outlet is often specified on industrial and institutional applications.



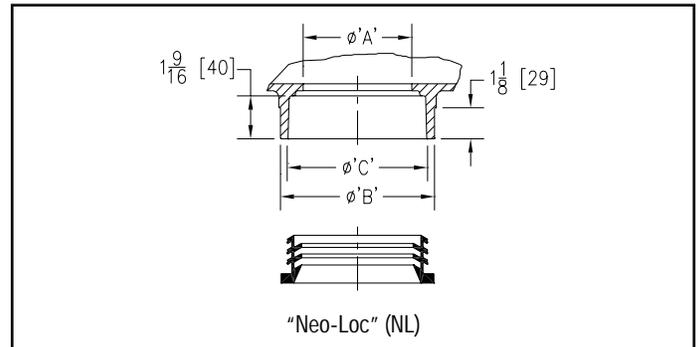
### NO-HUB (NH)

The most widely used connection. A No-Hub connection is achieved by butting No-Hub soil pipe or plastic pipe to the bottom of drain and securing it with a NH joint clamp. (Clamp furnished by others.)



### NEO-LOC (NL)

Zurn Neo-Loc is a unique labor saving compression gasketed connection designed to simply push on the stub end of the pipe. The Neo-Loc drain body and gasket can be utilized with plastic, steel, No-Hub and service weight soil pipe. A unique pipe stop cast in each Zurn Neo-Loc drain body ensures a proper fit.

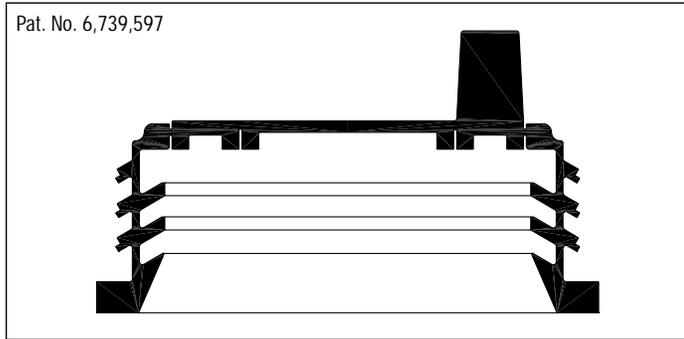


**Special Note:** Zurn "Neo-Loc" and "Sealtrol" gaskets are designed for use exclusively with Zurn drainage products. They are not sold separately and all warranties either expressed or implied would be forfeited if used in other than a Zurn drainage product.

OUTLETS	Dimensions in Inches [mm]		
	'A'	'B'	'C'
2" [51] No-Hub Outlet	2 [51]	2-3/8 [60]	1-1/8 [29]
3" [76] No-Hub Outlet	3 [76]	3-3/8 [86]	1-1/8 [29]
4" [102] No-Hub Outlet	4 [102]	4-3/8 [111]	1-1/8 [29]
5" [127] No-Hub Outlet	4-15/16 [126]	5-5/16 [135]	1-1/2 [38]
6" [152] No-Hub Outlet	5-15/16 [151]	6-5/16 [160]	1-1/2 [38]
8" [203] No-Hub Outlet	7-15/16 [202]	8-3/8 [213]	2 [51]
10" [254] No-Hub Outlet	10 [254]	10-9/16 [268]	2 [51]
12" [305] No-Hub Outlet	12 [305]	12-9/16 [319]	2 [51]
2" [51] Neo-Loc Outlet	2 [51]	3-3/8 [86]	3 [76]
3" [76] Neo-Loc Outlet	3 [76]	4-3/8 [111]	4 [102]
4" [102] Neo-Loc Outlet	4 [102]	5-1/2 [140]	5-1/8 [130]
2" [51] I.C. Outlet	2-5/8 [67]	3-1/16 [78]	-
3" [76] I.C. Outlet	3-3/4 [95]	4-3/16 [106]	-
4" [102] I.C. Outlet	4-3/4 [121]	5-3/16 [132]	-
5" [127] I.C. Outlet	5-3/4 [146]	6-3/16 [157]	-
6" [152] I.C. Outlet	6-3/4 [172]	7-3/16 [183]	-
8" [203] I.C. Outlet	8-7/8 [226]	9-1/2 [241]	-
2" [51] N.P.T. Outlet	2 [51]	9/16 [14]	3-1/4 [83]
3" [76] N.P.T. Outlet	3 [76]	3/4 [19]	4-1/2 [114]
4" [102] N.P.T. Outlet	4 [102]	15/16 [24]	5-5/8 [143]
5" [127] N.P.T. Outlet	5 [127]	15/16 [24]	6-11/16 [170]
6" [152] N.P.T. Outlet	6 [152]	15/16 [24]	7-3/4 [197]
8" [203] N.P.T. Outlet	8 [203]	1-1/8 [29]	9-3/8 [238]
2" [51] NL w/-TC	2 [51]	3-3/8 [86]	3 [76]
3" [76] NL w/-TC	3 [76]	4-3/8 [111]	4 [102]
4" [102] NL w/-TC	4 [102]	5-1/2 [140]	5-1/8 [130]

## NEO-LOC DRAIN GASKET with INTEGRAL TEST CAP

The Zurn Neo-Loc Gasket with Integral Test Cap is a unique pipe connection designed to secure a drain fixture to the drain line. This labor-saving compression gasket is compatible with plastic, steel, no-hub, extra heavy, and service weight cast iron soil pipe. Both the Neo-Loc drain body and compression gasket are designed to simply push onto the stub end of the pipe. A pipe stop molded into each drain body ensures a proper fit.



It is often required by plumbing codes that drain lines be tested for leakage once installation is complete. This test is typically performed by plugging all openings in the drain line system and applying a hydrostatic pressure charge of not less than 10-ft. head pressure to the lines for at least 15 minutes prior to inspection. The slightest loss of pressure in the system may indicate a possible leak.

Preparation to perform such testing can be a time-consuming and labor-intensive process. All drain fixtures must be plugged prior to line pressurization, and unplugged upon test completion. Current methods of preparation may involve the use of an inflatable test plug (Figure 1). Each plug is inserted into an opening in the drain line and inflated to block off the line. Once testing is complete, the plugs have to be deflated and removed. This whole process requires initial setup and post-test removal of the plugs, costing valuable time.

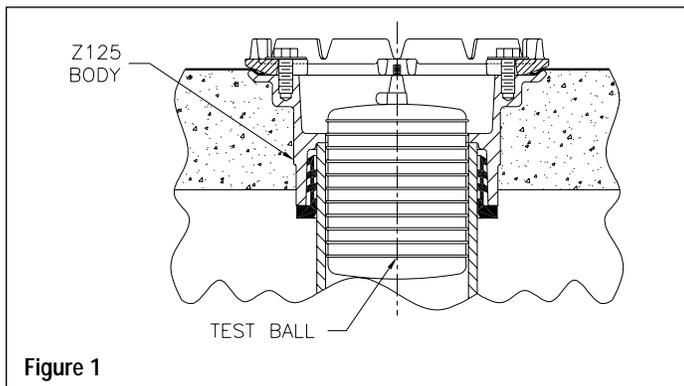


Figure 1

The Zurn Neo-Loc Gasket with Integral Test Cap eliminates the need for multiple test plugs and requires no loss of time for setup, prior to line system pressurization. The test cap is already in place when the drain body is installed, allowing for immediate testing (Figure 2). There is no need to carry multiple plugs from one drain fixture to another.

**Maximum Operating Pressure - 10 psi.**  
**Material conforms to ASTM standard C564.**

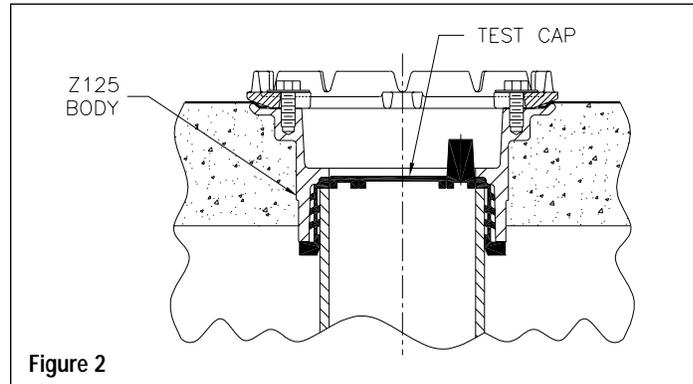


Figure 2

### Benefits of Using the Neo-Loc Gasket with Integral Test Cap

- No setup time required. The test cap is already installed along with the gasketed drain body. There is no need to carry around separate test plugs and equipment from drain to drain.
- During construction and installation, dirt and debris often fall down into the drain line, creating possible blockage problems. The test cap portion of the gasket prevents this from occurring prior to line system pressurization.
- Ease of removal. The test cap portion is easily removed and discarded, leaving a clean-edged opening for water to flow through the gasket and pipe.
- Individual test plugs may become lost, damaged, and unusable after some use. The need to replace these plugs is eliminated, saving the contractor and customer money.

### Installation of the Gasket

1. Make sure that the end of the drain pipe is cut square, is free of any burrs, and all sharp edges are broken.
2. Lubricate the inner and outer ribs of the gasket and the outside diameter of the pipe.
3. Fully insert the gasket into the properly sized Neo-Loc drain body.
4. Push the drain body and gasket onto the end of the drain line until the pipe comes to a secure stop.

## NEO-LOC DRAIN GASKET with INTEGRAL TEST CAP, continued

### Instructions for Removal of the Test Cap

Once testing of the drain line system is complete and permission has been given to open the lines, the test cap portion of the gasket can be removed by following these quick, easy steps:

1. Locate the dotted cutting line near the pull handle on the top surface of the gasket (Figure 3).
2. Using a sharp-bladed utility knife, reach down into the drain body and cut into the gasket along the dotted line. It is important to make sure that the cut is made fully through the two annular shaped rings shown in Figure 4. Failure to cut through these rings can result in tearing of the pull handle during removal of the cap.
3. Using a pair of long-handled channel lock pliers, grab the handle firmly and pull in a radial direction opposite of the cutting line (Figure 3).
4. Continue pulling the handle until the cap portion is completely severed from the body of the gasket.
5. Figure 5 shows a finished installation of the gasket after testing has been completed.

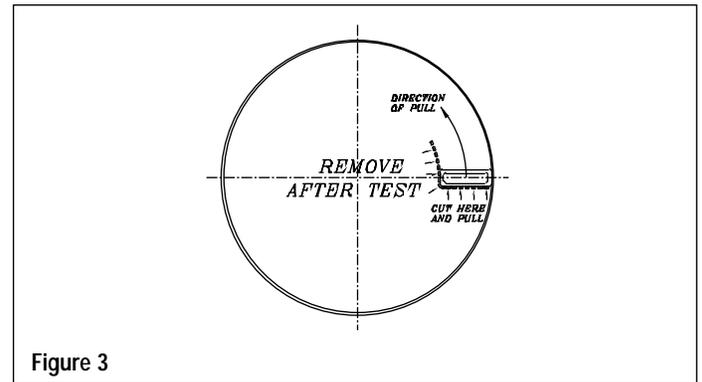


Figure 3

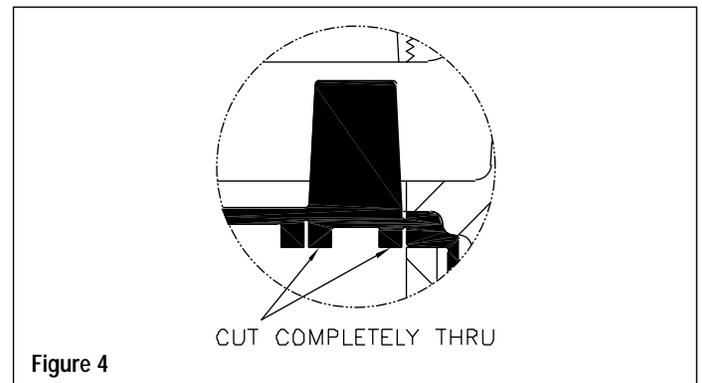


Figure 4

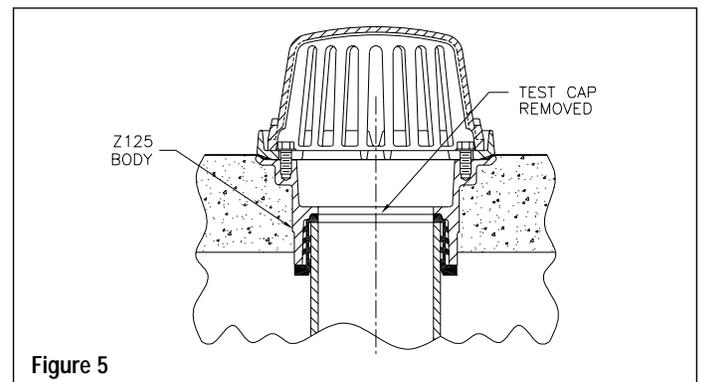


Figure 5

## OPTIONS and VARIATIONS

All Zurn floor drain options are specified as a PREFIX and/or SUFFIX letter or number added to the series designation. Below are the available options. Each item in this section is listed with its individual prefix and suffix variation. For illustrations of certain products and options, refer to the installation drawings shown on the following pages.

### PREFIXES

<b>Z</b>	D.C.C.I. Dura-Coated Cast Iron or Standard Assembly
<b>ZB</b>	D.C.C.I. Body with Polished Bronze Top
<b>ZN</b>	D.C.C.I. Body with Polished Nickel Bronze Top
<b>ZS</b>	D.C.C.I. Body with Stainless Steel Top
<b>ZAB</b>	Bronze with Polished Top
<b>ZANB</b>	Nickel Bronze with Polished Top
<b>ZARB</b>	Plain Bronze Body and Top

### SUFFIXES

<b>-A</b>	Auxiliary Vent Connection
<b>-AA</b>	All Acid Resisting Epoxy Coated
<b>-AR</b>	Acid Resisting Epoxy Coated Cast Iron
<b>-BS</b>	Bronze Mesh Screen Over Dome/Liner for Bucket
<b>-BT</b>	Bell Trap Bucket Bucket used in conjunction with extended piping (IC outlet only) which allows a bell trap to form in bottom of drain. This feature traps water in the bottom of a drain and should not be used where freezing conditions occur, nor where a sanitary environment is required.
<b>-C</b>	Clamp Collar or Underdeck Clamp Clamp collar should be used when a waterproofing membrane is part of the floor construction. Underdeck clamp should be used to clamp drain body into deck.
<b>-CP</b>	Chrome-Plated Top
<b>-D</b>	Dome Grate
<b>-DB</b>	Bottom Dome Strainer
<b>-DC</b>	Dura-Coated Interior
<b>-DF</b>	Deflector Grate Grate is placed at an angle within the drain body to deflect flow, prevent splashing and the forming of a whirlpool action.
<b>-DG</b>	Duresist Grate or Cover Used to replace a cast iron grate or solid cover where heavier loading is required. Consult general reference section for specifications on Duresist (Ductile) iron.
<b>-DP</b>	Decorative Polished Top
<b>-DX</b>	Dex-O-Tex Flange Required when applied latex flooring is used. Wide flange assures watertight and permanent bond to drain.
<b>-EF</b>	Extension Frame
<b>-ES</b>	Extension Section (Trench Grate Section – See Z664 and Z665)
<b>-F</b>	Extension Frame When specified this option allows for extension of the drain body. Additional height requirements must be specified.
<b>-FC</b>	Extension Frame and Secondary Clamp Collar (Specify extension height.) When specified, this option allows for a waterproofing membrane to be clamped at body.
<b>-FG</b>	Free Set Grate

### SUFFIXES, continued

<b>-G</b>	Galvanized Cast Iron
<b>-GG</b>	Galvanized Cast Iron Grate
<b>-GT</b>	Top Grate (See Z566 and Z568)
<b>-H</b>	Hinged Grate
<b>-HD</b>	Heavy-Duty Grate Grate having a safe live load between 5,000 and 7,499 pounds.
<b>-HL</b>	Hinged Locking Grate
<b>-HP</b>	Heel-Proof Grate
<b>-HT</b>	Square Hinged Grate
<b>-IG</b>	Integral Grate One-piece grate and frame (see Z300 and Z310).
<b>-J<sub>1</sub></b>	Auxiliary Inlet Connection (Specify 1-1/2" or 2" size.)
<b>-J<sub>2</sub></b>	Two (2) Auxiliary Inlet Connections 90° Apart
<b>-J<sub>3</sub></b>	Two (2) Auxiliary Inlet Connections 180° Apart
<b>-J<sub>4</sub></b>	Three (3) Auxiliary Inlet Connections
<b>-J<sub>5</sub></b>	Four (4) Auxiliary Inlet Connections
<b>-K</b>	Seepage Pan/Anchor Flange
<b>-KC</b>	Seepage Pan with Clamp Collar
<b>-LB</b>	Less Shallow Drain Body
<b>-LD</b>	Less Dome
<b>-LG</b>	Less Grate
<b>-LV</b>	Less Backwater Valve
<b>-LY</b>	Less Sediment Bucket
<b>-M</b>	Side Outlet Adapter via End Plate
<b>-NE</b>	Spark Proof Non-Conductive Top
<b>-P</b>	Trap Primer Connection (Specify 1/2" or 3/4" size.) Either a NPT tap on side wall of drain or an adapter piece used for connecting a Z1022 trap primer.
<b>-PD</b>	Prom Deck Grate
<b>-PH</b>	Packing House Grate with 3/8" Diameter Holes Heavy-duty deep flanged (tractor) grate designed with (39) 1/2" diameter concave holes for vermin proof applications.
<b>-PS</b>	Perforated Standpipe
<b>-R</b>	Sump Receiver
<b>-S</b>	Secondary Strainer
<b>-SB</b>	Shallow Drain Body
<b>-SC</b>	Solid Cover
<b>-SD</b>	Longer Standpipe (Specify height required.)
<b>-SG</b>	Solid Gasketed Cover Solid secured gasket cover specified when drains may not be used for extended periods of time, or where special purpose drains are not used for normal drainage.
<b>-SH</b>	Four (4) Securing Holes in Flange
<b>-SS</b>	Stainless Mesh Screen Over Dome/Liner for Bucket
<b>-ST</b>	Solid Top (See Z300 and Z310)

## OPTIONS and VARIATIONS

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### SUFFIXES, continued

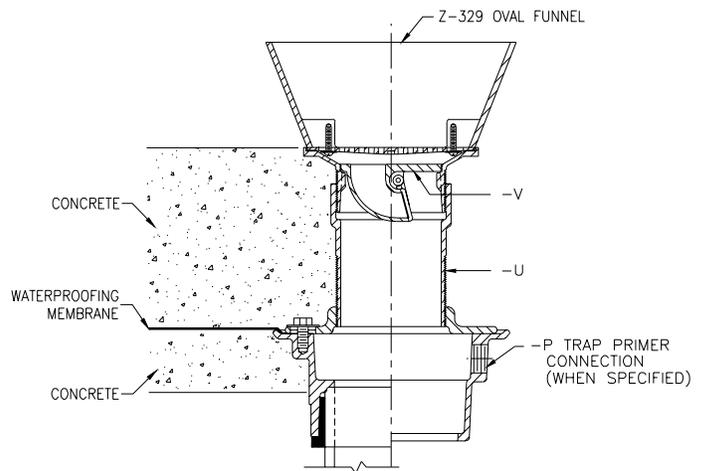
-SW	Spanner Wrench for Cover (See Z400, Type T)	-XJ	Expansion Joint (See Z190)
-S6	6" Diameter Stainless Steel Top	-Y	Sediment Bucket
-T	Square Top	-YA	Aluminum Sediment Bucket
-TG	Tractor Grate	-YF	Free Standing Bucket
-TS	Top Secured with Slotted Screws	-()L	Grating/Frame Placed in Long Dimension (See Z700 Series)
-U	3" High Extension Adapter (See Z400 Series)	-()W	Grating/Frame Placed in Wide Dimension (See Z700 Series)
-UC	Upper Body Clamp Collar (See Z627)	-4	4" Diameter Funnel
-V	Backwater Valve Designed for gravity flow applications. If kept clean and properly maintained it will restrict backflow surges, providing a degree of protection.	-6	6" Diameter Funnel
-VP	Vandal-Proof Secured Top	-9	9" Oval Funnel
-W	Winter Closure Plug (See Z511)	-45	45° Outlet
-WB	Water Supply Control Box (See Z1464)	-90	90° Side Outlet
-WS	Wide Slotted Grate		

## TYPICAL APPLICATIONS

### Z415-U-V with Type "B" with Z329 Oval Funnel

The Z415 Adjustable Floor and Shower Drain is one of Zurn's most versatile drains. Drain is illustrated with adjustable strainer extension (-U), backwater valve (-V), and "Type B" top with Z329 oval funnel. Regularly furnished with an invertible clamping collar and adjustable head assembly which allows maximum adjustability.

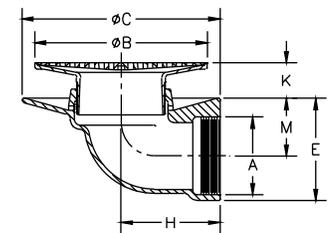
For other available strainer variations, see the Z400 series.



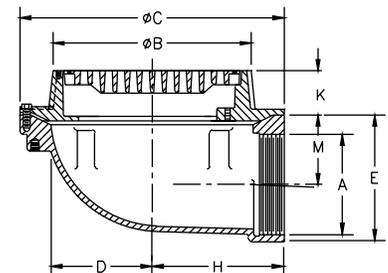
### Z415-90, Z508-90, Z541-90

Typifies a Zurn floor drain with a 90° side outlet. Drains of this type are designed for applications which require horizontal piping where depth is a problem. The (-90) 90° side outlet option is available on various types of Zurn floor drains. See chart below for dimensional data.

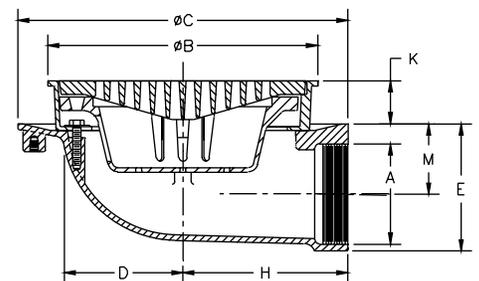
Z415-90 Illustrated



Z508-90 Illustrated



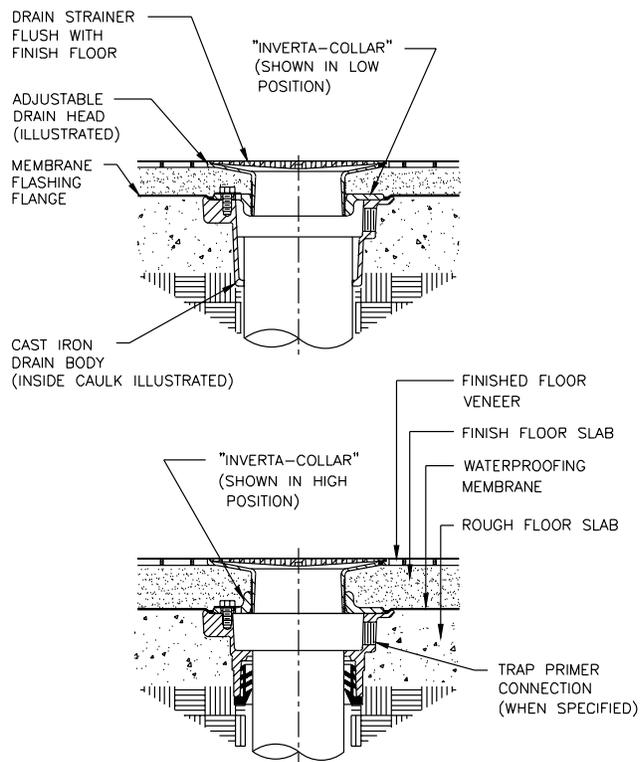
Z541-90 Illustrated



Product No.	Dimensions in Inches							
	A	B	C	D	E	H	K	M
Z415-90	2	6	9	-	4-3/8	4-1/2	1 Min	3-1/2
	3	7	9	-	4-3/8	4-1/2	2 Max	2-1/2
Z505-90	2	12-1/4	15	5-1/2	5-3/4	7-1/2	2	4-1/8
Z509-90	3	12-1/4	15	5-1/2	5-3/4	7-1/2	2	3-5/8
Z512-90	4	12-1/4	15	5-1/2	5-3/4	7-1/2	2	4-3/4
Z540-90	5	12-1/4	15	5-7/8	7-7/8	7-1/2	2	4-3/4
Z541-90	6	12-1/4	15	5-7/8	7-7/8	7-1/2	2	4-1/4
Z610-90								4-1/4
Z508-90	2	9	12	4-3/4	5-3/4	6	2	4-1/8
Z550-90	3	9	12	4-3/4	5-3/4	6	2	3-5/8
Z554-90	4	9	12	4-3/4	5-3/4	6	2	3-1/8
Z555-90	5	9	12	4-3/4	6-3/4	6-1/2	2	3-5/8

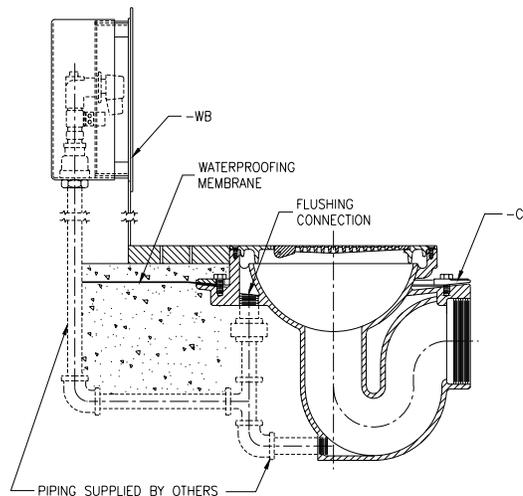
## TYPICAL APPLICATIONS

A typical Zurn Floor Drain (See Z415 illustrated at right) can be installed in most floor construction. The drain pipe is run to an elevation below the expected finished floor level, so that the drain top will be flush with (or slightly below) the finished floor. Dimensional data for all drain heights and outlet types are shown in this Technical Information Guide and Zurn Submittal Drawings. The drain body is secured to the pipe with any of four connections – threaded, no-hub, inside caulk, or the Zurn Neo-Loc. The type of connection should be specified upon ordering any Zurn drain. Once the drain is set in place, the initial concrete subfloor is poured to an elevation level with the top flange of the drain body. The waterproofing membrane is run up to and over the flange. The clamping collar is placed on the drain and secured. The strainer is then screwed into the clamping collar and finished floor is poured to finished grade. Note the Z415 collar can be used on either side to change the total adjustment of the head elevation (for example 1/2"-1-5/8" on one side, 1-3/8"-2-3/8" on the other). Also, care should be taken to protect the top finish during installation through the use of cardboard, tape, or other protective material applied by the plumber.



### Z300-C-WB

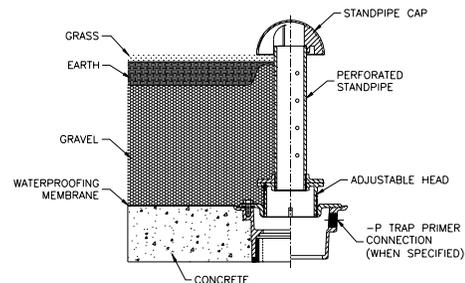
Thoroflush Drain is designed for use in areas where frequent flushing and cleanliness is required. Drain is illustrated with clamping collar (-C) and water supply control box (-WB). The Z300 is also available with a loose set grate (-LG) or integral grate (-IG) if desired.



### Z350

Planting Area Drains are ideally suited for indoor atrium areas, outdoor roof top promenade deck areas, and ground level planting areas where excess water must be drained. Perforated standpipe should be encased in gravel to allow adequate percolation.

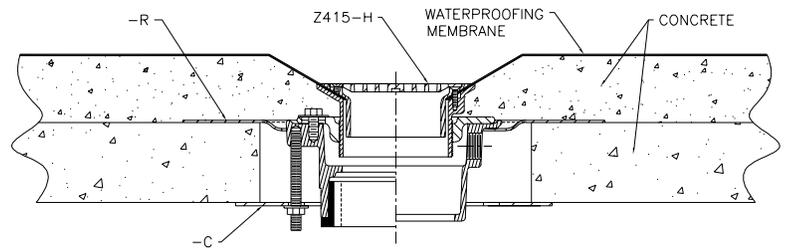
For other available Planting Area Drains, see Z348, Z349, and Z352.



## TYPICAL APPLICATIONS

### Z415-C-R with Type 'H' Strainer

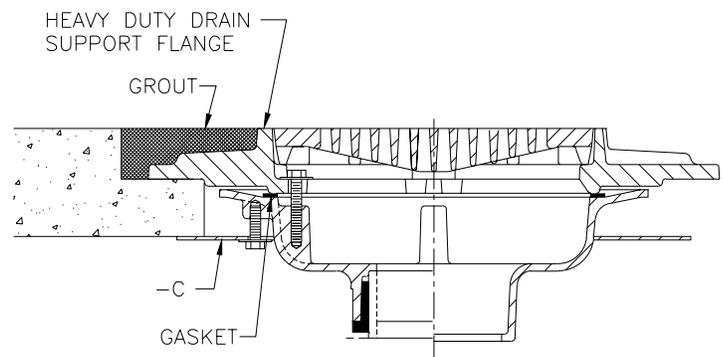
6" or 9" top floor and shower drain installed in concrete floor with underdeck clamp (-C) and sump receiver (-R). Type 'H' Strainer is used to clamp membrane at top surface of finished floor structure.



### Z534-C

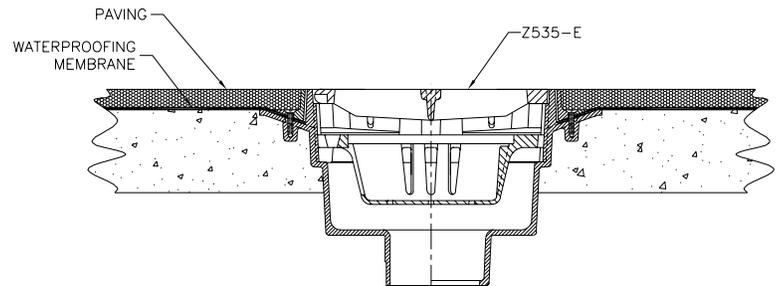
Parking Deck Drains are designed for economical installation in precast construction. Wide heavy-duty flange allows shallow core drilling or boxing out and maximum strength at load bearing surface. Heavy-duty non-tilt grate is standard and underdeck clamp (-C) is available to securely fasten drain body to deck from underside.

For other available Parking Deck Drains, see Z533, Z535, Z536, and Z537.



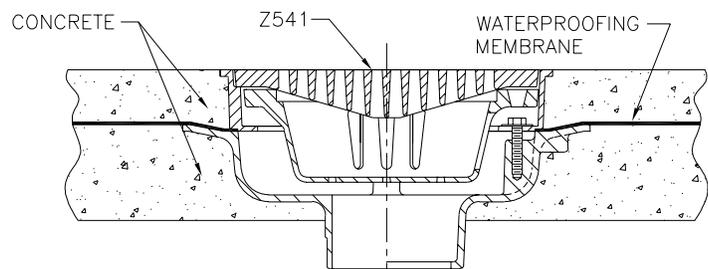
### Z535-E

Heavy-duty parking structure drain illustrated with top extension section (-E) installed in a concrete slab with waterproofing membrane and top pavement surface.



### Z541

12" diameter heavy-duty drain with suspended sediment bucket installed in a multiple poured concrete slab with waterproofing membrane secured with combination flashing clamp and frame.

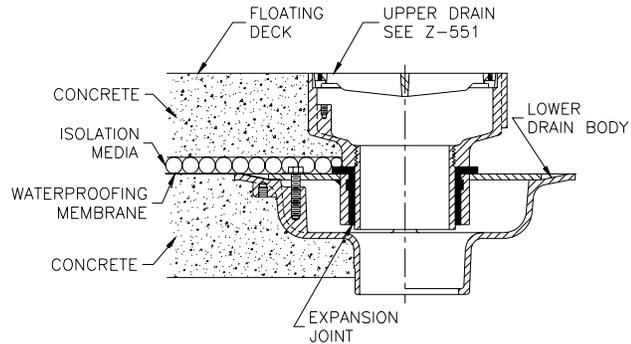


## TYPICAL APPLICATIONS

### Z624

Isolation Drains are designed for areas where building construction requires the drain to function in a floor structure which is independent of the concrete sub-structure. Construction of this nature is typical to mechanical equipment rooms, studios, music rooms, computer rooms and laboratories.

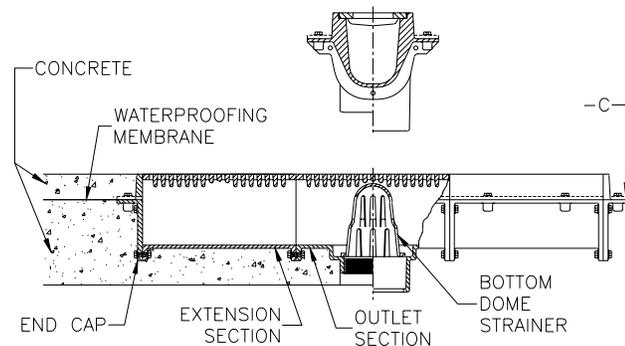
For other available Isolation Drains or Cleanouts, see Z625, Z626, and Z627.



### Z664-C

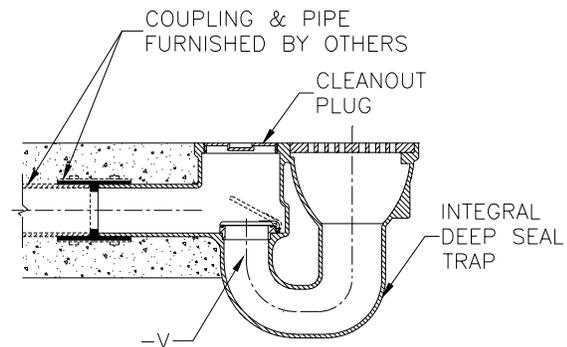
Extra-heavy-duty modular trench drain is illustrated with bottom dome strainer and clamping collar (-C). This drain is used in areas where single drainage units are not practical. For example, where inclined or sloped surfaces require drainage across a wide area. The Z664 is also suited for vehicular traffic applications and grating may be ordered in ductile iron when greater load requirements are desired. Outlet and extension modules should be ordered in 12" increments, and it is advisable that one outlet be used for each 8-foot section of drain.

For other available trench drains, see Z665 and Z667.



### Z730-V

9" top medium-duty drain is installed in a concrete slab. The Z730 offers an integral trap, no-hub side outlet and a floor level cleanout as standard. Drain is illustrated with flapper type backwater valve (-V) to resist backflow.



## MATERIALS and FINISHES

**Zurn Cast Iron** conforms to ASTM Specification for Gray Iron Castings A 48-83, Class 25. It is produced utilizing the latest equipment and newest developed foundry techniques. Zurn cast iron castings are characterized by a high degree of strength, corrosion-resistance, workmanship, and finish.

**Zurn Duresist** is a ductile iron complying with ASTM Specification A 536-84, Grade 60-45-10. Its physical properties make it ideal for grates and drain components that are subjected to severe and heavy duty service. Its chemical characteristics make possible a degree of corrosion-resistance far superior to that of cast iron. Zurn Duresist exhibits remarkable stress qualities, possessing a yield strength in the same range as that of cast carbon steel, while its ability to absorb the shock loading of traffic areas is unequalled, making its use ideal for all areas where extra heavy duty service is a requirement – whether indoors or outdoors – in chemical and metal processing plants or other industrial applications.

“**Zurn Dura Coat**” is a specially formulated paint designed to resist cracking and chipping. Dura Coat is a latex based coating developed to be used with cast iron substrate.

**Zurn Galvanized Cast Iron** is a process of applying heavy zinc coating to a thoroughly cleaned iron casting. This coating contains 95% zinc. Zurn galvanizing can be supplied on all cast iron parts. It increases longevity and is recommended wherever the discoloration caused by oxidation of cast iron is objectionable. Galvanize should be used in coastal and industrial areas where corrosive atmosphere may be encountered. Zurn galvanizing meets and exceeds Federal Specification MIL-P-21035, MIL-P-26915A, MIL-P-26433, and MIL-C-10578 (Type II). It also meets ASTM A239-89 and is listed by Underwriters Laboratories, Inc. (U.L.)

**Cadmium Plated Cast Iron** is a process of applying a heavy cadmium coating to a thoroughly cleaned iron casting. This coating contains 95% cadmium in a cold applied process. Cadmium plating can be supplied on all cast iron parts. It increases longevity and is recommended wherever the discoloration caused by oxidation of cast iron is objectionable.

### Properties of Basic Ductile Versus Cast Iron

Metal	Cast Iron	Ductile Iron
Specification	Class 25	60-45-10
Tensile Strength (PSI)	25/30,000	60/80,000
Yield Strength (PSI)	NIL	45/60,000
Elongation	NIL	10% to 25%
Modules of Elasticity	16 x 10	24 x 10

**Zurn Bronze** is a semi-red brass conforming to ASTM Specification for Copper Alloy Sand Casting B 584-90, Copper Alloy No. 844. The exposed surface is normally supplied possessing a satin sheen texture which allows it to blend unobtrusively with surrounding finishes. When the application requires, Zurn Bronze can be polished to a high gloss.

**Zurn Nickel Bronze** is a unique material that is ideally suited to traffic-bearing grates and strainers in finished floor areas. It affords the combined advantage of greater strength, better appearance, and longer service life at the same price as chrome plated brass. Superior ductility and shock resistance are the result of a copper nickel alloy (Copper Alloy 997) having a wearing surface similar in appearance to satin chrome plate; however, because it does not have a plated surface it cannot chip, peel, crack, or wear off. It is highly resistant to corrosion; however, the process of oxidation will naturally occur over time with most metals. Methods have been developed to prevent, preserve, and restore metals affected by oxidation.

**Chrome Plated Bronze** is ideal for installation in walls, gutters, and other areas where a bright decorative finish is desired, and is not subject to the abrasive action of foot and other traffic. It is not recommended for installations where the abrasion will eventually wear through and cause peeling. It should always be specified for swimming pool fittings due to its high resistance to the halogens (chlorine, etc.), encountered in swimming pool sanitation.

**Aluminum** supplied is casting grade 319. This is an alloy containing both silicon and copper. It is a solid cast metal in a pleasing light gray color. The light weight, coupled with its exceptional strength and corrosion resistance, makes it ideal for drain components such as sediment buckets and strainers. When used with acid-resisting porcelain enamel coated drains, the possibility of chipping is minimized.

**Zurn Stainless Steel** castings are normally produced in Type CF8 (304) which is an 18-8 Austenitic Stainless possessing excellent corrosion resistant qualities. For some applications where conditions demand, Type CF8M (316) stainless steel can be supplied. Items formed from stainless steel sheet and other stainless steel products are regularly furnished in Type 304 with 316 as an optional material.

**A.R.C.** Acid Resisting Epoxy Coating is a baked-on powder coating, which produces a smooth, hard, high gloss finish. This epoxy based coating offers high impact resistance and excellent life expectancy in all drainage applications. Zurn A.R.C. coating conforms to the requirements of F.D.A. (Food and Drug Administration) Regulation 21-CFR5 117.1360.

**A.R.E.** Acid Resisting Porcelain Enamel is a substantially vitreous or glassy inorganic coating bonded to metal by fusion at a high temperature above 800°F. This coating offers excellent acid, abrasion, and wear resistance. The coating is extremely hard and is the ultimate for sanitation in drainage applications. Zurn A.R.E. coating conforms to the requirements of F.D.A. (Food and Drug Administration) Regulation 21-CFR5 117.1360.