MIFAB Roof Drain Selection Guide

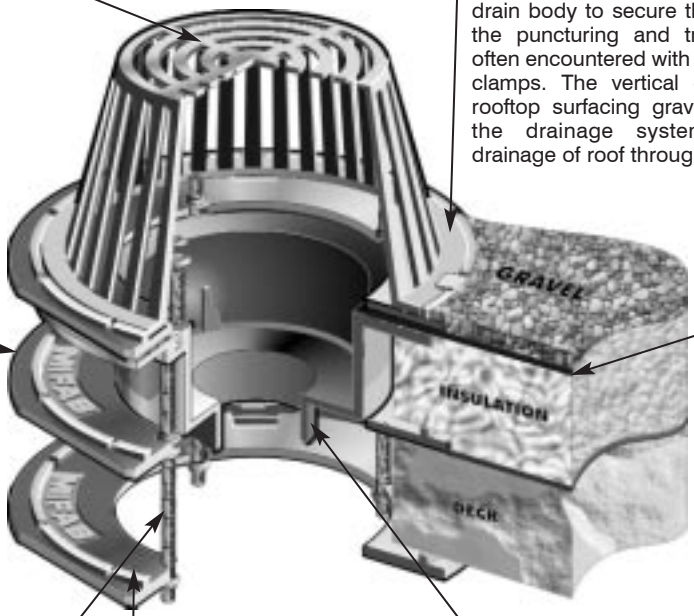
The object of equipping a roof drain with an adjustable top via its adjustable extension is to place the top or inlet of the drain at the right height above structural deck level to accommodate various thicknesses of insulation. This avoids the necessity of tapering or feathering the insulation layer down to the fixed body flange level of the drain causing a loss of insulation value at the drain location. MIFAB ACCOMPLISHES THE ADJUSTMENT BY INSTALLING A DECK FLANGE ONTO THE ROOF DECK AND SUPPORTING THE ROOF DRAIN BODY FLUSH OR SLIGHTLY BELOW THE MEMBRANE LEVEL (ABOVE THE INSULATION) UTILIZING THE HS-3 HARDWARE SET. A DECK CLAMP (SUFFIX -U) IS SECURED BENEATH THE DECK ON THE SAME HARDWARE TO ENSURE A RIGID INSTALLATION.

IN ALL CASES, THERE IS NO USE OF GASKETS OR MASTIC COATINGS. THIS PRECLUDES THE POSSIBILITY OF ANY LEAKAGE DUE TO BACK-UP IN THE DRAINAGE SYSTEM AS A RESULT OF SURCHARGE OR BLOCKAGE.

On Promenade decks, a collar with a cam provides finite adjustment, with the collar being secured by three locking screws to the body of the roof drain. A similar system is used with the R1200-HC in IRMA (Inverted Membrane) systems. You do achieve the precise height with MIFAB roof drains with a minimum of effort. Moreover, MIFAB roof drains provide flexibility in top height often necessary to overcome construction irregularities impossible to compensate for with fixed extension drains.

LOCKING DOME
Once in place stays in place to provide positive protection for the roof drain and drainage system entrance. The vertical perimeter openings provide sufficient free drainage area, in compliance with codes and standards, for prompt and efficient drainage of the roof while protecting the system against entrance of potentially damaging objects. With the open or free area on top, which is merely for flood conditions, the dome has a total free area in excess of 136 square inches.

COMBINED FLASHING CLAMP AND GRAVEL STOP
Features a broad clamping area with ridges that match grooves in the flange of the roof drain body to secure the membrane without the puncturing and troublesome wrinkling often encountered with so-called locking type clamps. The vertical gravel stop prevents rooftop surfacing gravel from washing into the drainage system while permitting drainage of roof through the V-type weirs.



ADJUSTABLE EXTENSION DECK FLANGE (SUFFIX –E)
Adjustable extension is placed on the structural deck level to accommodate various thicknesses of insulation, thereby avoiding the necessity of tapering or feathering the insulation layer down to the fixed body flange level of the drain causing a loss of insulation value at the drain location. **MIFAB accomplishes the adjustment by installing a deck flange onto the roof deck and supporting the roof drain body flush or slightly below the membrane level (above the insulation) utilizing the HS-3 hardware set. A Deck clamp (suffix -U) is secured beneath the deck on the same hardware to ensure a rigid installation.**

ROOF MEMBRANE

R1200-EU (ILLUSTRATED)

BODY
This basic component made of cast gray iron of commercial drainage fitting quality features a wide top entrance and support flange with large contoured deep sump for optimum flow of water into the roof drainage system.

HARDWARE SET (HS-3)

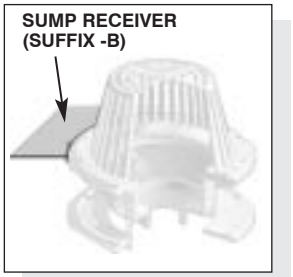
UNDERDECK CLAMP (SUFFIX –U)
Serves to unite roof drain and roof deck in a common bond through a vise-like compression principle that assures a positive permanent installation. The deck is sandwiched between the drain flange, or sump receiver and the underdeck clamp to preclude membrane or flashing rupture that could occur if the underdeck clamp is not utilized.

MIFAB Roof Drain Selection Guide (Cont'd)

Roof drains and accessories combine to form the upstream or entrance terminals of the roof drainage system and as such play a key role in the success or failure of the system. Sizing and placement of roof drains are thoroughly covered in the next section of this catalog. However, prior to sizing and placement of drains, there are certain basic roof design factors that must be considered when selecting and specifying the proper roof drains and accessories for the job. Even though all roofs serve the same basic purpose of protecting the building and its contents from the elements, their design, composition, construction and drainage requirements do vary. Accordingly, when the specifications for the roof drains and accessories are developed, it is of vital importance that all design factors of the roof be addressed and reflected in the products specified to ensure a trouble free, successful installation. Also, insistence upon compliance with the specifications is essential, for departure therefrom could result in a substandard roof drain installation potentially doomed to ultimate failure. Basic roof design factors for consideration with recommended drainage products follow.

ROOF DECKS
ROOF DRAIN SUPPORT SUMP RECEIVERS

Roof decks, owing to the broad range of types and materials of construction, provide perhaps the greatest challenge to the specifier in his quest for the proper method of roof drain support for installation in a given deck. Unless the drain is being installed in a poured concrete deck with drain in place completely surrounded and supported by the deck it will be necessary to provide a deck opening in which to set the drain. It is when such openings are required that drain support becomes the foremost consideration. Even though minimum deck openings are recommended in this catalog for each drain and maximum openings are stated based on the drain's outside sump diameter, maintenance of the actual opening size within the range cannot always be assured. Therefore, a sump receiver, sometimes called drain receiver should be specified with the drain to compensate for deck opening irregularities and provide proper support for the drain. The sump receiver is simply a thin steel ring with a wide, flat flange and depressed center opening into which the roof drain body flange fits, supported by the lip of the opening. In addition to easing the deck opening tolerance requirements, the sump receiver helps to distribute the weight of the drain over a broader surface of the deck. **By placing the top of the drain flange at deck level where it should be, the sump receiver helps to avoid the dam-like effect created when the drain flange rests on top of the deck opening. Specify Suffix –B**



ROOF DECKS
ROOF DRAIN SECURING UNDERDECK CLAMPS

Proper roof drain support having been resolved through employment of the sump receiver, it becomes necessary to consider a practical method of securing the drain to the deck. If the drain is not in a "poured-in-place," thus secured, installation of an auxiliary securing means must be provided. The most effective and positive means available in response to this requirement is the underdeck clamp (suffix -U). With the drain in place and the sump receiver on top of the deck, the underdeck clamp of circular configuration, surrounding the drain and connected piping, is brought to bear against the bottom of the deck and drawn tightly in place with hardware provided. This in effect sandwiches the deck into a positive union with the drain. Thus secured into place, the roof drain becomes an integral component of the deck with assurance of installation stability and optimum performance in its role as entrance terminal of the roof drainage system. **Specify Suffix –U**

MIFAB Roof Drain Selection Guide (Cont'd)

ROOF DECKS

EXPANSION AND CONTRACTION EXPANSION JOINTS

Expansion and contraction, primarily caused by alternating hot and cold environmental conditions, are of particular concern with roof decks and topping materials. Accordingly, these opposing reactions are compensated for in the roof structure by strategically located expansion joints which yield to maintain integrity of the roofing system. Equally important in the preservation of integrity of the roofing system is the roof drain's connection to the drainage piping system. This must permit the drain, an integral component of the roof, to move with the roof during the expansion and contraction process without rupture of either the connection or the watertight bond of drain to roof. In response to this requirement, horizontal offsets in leader piping immediately below the drain connection, which provide a swing joint effect, are employed as are in some cases a side outlet. When bottom outlet roof drains are selected, flexible expansion joints should be used to compensate for expansion and contraction of the roof if the leader cannot be horizontally offset. **Specify Series R1900 Vertical Expansion Joints.**

ROOF DRAINS

APPLIED INSULATION ROOF DRAINS WITH ADJUSTABLE EXTENSION (DECK FLANGE)

The insulation layer, which is normally applied over the structural deck, merits consideration in the selection and specification of the roof drains. A common practice has been to feather or taper the insulation layer down to meet the drain top at the structural deck level. This creates a sump surrounding the drain into which roof topping materials are brought for bonding with the drain flange by means of the flashing clamp. Such sumps, or roof depressions at the drains, even though favored by some designers for their positive drainage aspects, have a downside as receptacles for debris with adverse effects to drainage and potential premature failure of the drain-roof bond. To avoid these potential problems, an adjustable extension is placed on the structural deck level to accommodate various thicknesses of insulation. This avoids the necessity of tapering or feathering the insulation layer down to the fixed body flange level of the drain causing a loss of insulation value at the drain location. MIFAB accomplishes the adjustment by installing a deck flange and supporting the roof drain body flush or slightly below the membrane level utilizing the HS-3 hardware set.

R1200-EU (ILLUSTRATED)

Specify Suffix –E.

PARAPETS

ROOF PERIMETER PROJECTIONS DRAINAGE

Parapets, normally building outer wall projections above roof elevation, serve important functions in building structure and architectural aesthetics. Parapets also act as barriers against water being swept off the roof during storms, a potentially hazardous condition to passersby and to the building walls themselves. However as an adjunct to the primary roof drainage system, drainage through the parapets at their roof level base or at a predetermined overflow elevation through proper drains or scuppers is recommended, for parapet base-roof level drainage. **Specify Series R1300 or R1320 and for overflow drainage specify Series R1940.**

ROOF DECKS (IRMA)

INSULATED MEMBRANE ROOF DRAINS WITH EXTENSION BALLAST GUARD

The increased popularity of insulated roof membrane assembly (IRMA) type roof construction, sometimes referred to as inverted roof construction (because the membrane is under the insulation layer) has led to the development of roof drains equipped with ballast guards. The primary object of insulating the membrane is to protect it from damaging weather conditions thereby prolonging its integrity. In the insulated roof membrane assembly, the waterproof membrane is applied directly to the structural deck surface. Then specially designed insulation planks with drainage grooves are set in place on top of the membrane. Above this, a percolation layer of aggregate gravel is applied to secure the insulation, while permitting efficient

drainage away from the surface. With this arrangement of layers, rainfall quickly percolates through the gravel to the surface of the insulation layer from where over 90 percent gravitates to the roof drain and the balance finds its way between the insulation planks via the grooves to the roof drain. Thus with the bulk of the water arriving at the drain well above waterproof membrane elevation it is desirable to provide a ballast guard on the drain above structural deck level to screen out the undersized aggregate gravel that is carried through the gravel layer with the flowing water. Roof drains equipped with ballast guards are ideally suited for this application and should be specified for installation in all insulated roof membrane assembly type roofs. There are basically two schools of thought as to the proper location of the dome on ballast guard equipped roof drains. One suggests it be in its normal position assembled to the flashing clamp at structural deck level with the ballast guard surrounding the dome making for a dome recessed drain assembly. The other option is to place the dome and its retaining ring on top of the ballast guard at the surface of the aggregate gravel layer The decision as to which type to specify remains with the engineer, as either type will function satisfactorily for the purpose intended.

R1200-HC (ILLUSTRATED)

ROOF DECKS
ROOF DRAINS WITH WATER DAM

Sometimes, roofs are designed to contain a predetermined amount, thus depth, of water at all times for various reasons. Roof drains for installation in such roofs are equipped with a watertight open top collar either internal or external of the dome, with its flood level at the prescribed elevation above deck to serve as a dam to retain and maintain the desired amount of water on the roof. Excess water, treated for drain sizing purposes as rainfall, floods over the dam and is discharged into the roof drainage system in the normal manner. Specify suffix -R or -W.

R1200-R (ILLUSTRATED)

ROOF DECKS
OVERFLOW DRAINAGE

Most codes require that an overflow system be installed in the event of a blockage or surcharge of the main storm drain system. This may be accomplished by installation of scupper drains (R1300) with downspout nozzles (R1940). Another method to meet the code requirement is install a completely separate with external water dams (R1200-R) or internal standpipes (R1200-W). MIFAB has also developed a combination primary and secondary roof drain in one unit requiring a single deck opening. Specify R1150 Series.

R1150 (ILLUSTRATED)

ROOF DECKS
GUTTER AND BALCONY DRAINAGE
GUTTER DRAINS

Drainage requirements for gutter and small roof areas, such as balconies and the like, are handled by small compact roof drains referred to as gutter drains. Such drains, owing to their compact size, can readily be installed in confined locations which otherwise may not be properly drained. Specify Series R1400 through R1420.

ROOF DECKS
VENT STACKS
VENT CAPS

Even though vent stack and stack vent terminals extending above roof deck level are components of the sanitary drainage system of the building, they are included for consideration in this section because of roof penetration and roof level maintenance requirements. Vents maintain the air-hydraulic balance of the building's sanitary drainage system and in serving that purpose must be maintained open for positive circulation; i.e., the escape of gas and intake of fresh air. Because of the vent terminal's exposure to the elements above the roof, it is vulnerable to fouling by various means-leaves, twigs, bird nests, etc., that somehow have a tendency to become lodged therein. To preclude this undesirable condition protective vent caps that permit free circulation of air while protecting the vent terminal against fouling are recommended.

Specify Series R1940.

ROOF DECKS
VANDALISM
VANDALPROOFING

Because of their "out of building" rooftop location, the exposed components of the roof drainage system, particularly roof drain domes and grates, are subject to vandalism. This is especially true on roofs having easy access. Domes are occasionally removed and at times flung over the roof edge to the detriment of any unfortunate person below. Also, drains congested with debris are rendered useless. To avoid these unlawful damaging circumstances, vandalproofing of roof drain domes and grates is recommended. Vandalproofing is accomplished by securing these components to their fixed mating parts with vandalproof screws or bolts which require special tools, available only to authorized maintenance personnel, for application and removal.

Specify Suffix -6.