

ROOF DRAINS

Conventional Roof Drainage Systems

SIZING WORKSHEET

The number of roof drains for a given project can be determined by the ratio method which indicates that roof drains be installed at the minimum of one roof drain for each 10,000 sq. ft. of roof area. The rainfall for a given locality is found in Figure 4, or in Figure 5 if the locality is not listed. Figure 7 converts the rainfall to G.P.M., and Figure 8 provides the system sizing data. The sizing worksheet shown in Figure 1 offers a quick sizing procedure to be followed by the engineer, and it also serves as a file record on the project. The conventional roof drainage requirements for a project have been determined on the example worksheet (Figure 1).

Note: A supply of worksheets can be obtained from your local JOSAM Representative.

PLUMBING CODE AUTHORITIES

Even though rainfall data in Figures 4 and 5 are composites of official recordings at the time of this publication, it is recommended that local code authorities be consulted for rainfall amounts they specify for design purposes. In those instances where local specified rainfall is different from that in Figures 4 and 5, use the local specifications in completing the worksheet.

LAYOUT OF DRAINS AND PIPING

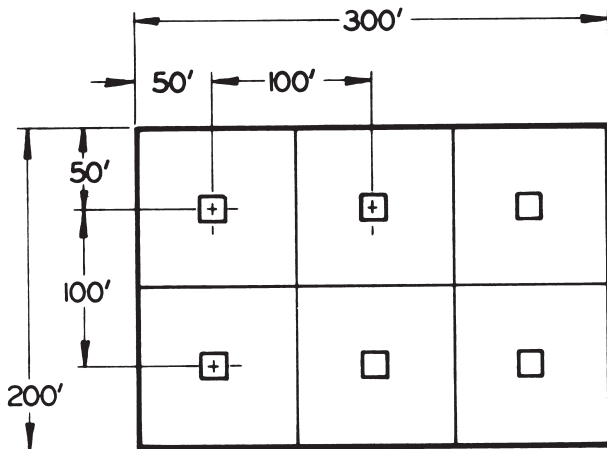
Using the conventional roof drainage requirements as determined in the worksheet (Figure 1), a suggested placement of roof drains is shown in Figure 2, and a typical drainage piping arrangement is shown in Figure 3. With reference to Figure 2, the drains should not be located more than 50 ft. from the roof perimeter nor more than 100 ft. apart. With reference to Figure 3, the horizontal piping is sized based on a slope of 1/4 inch per ft.

Note: Cleanouts should be provided in both the vertical and horizontal drainage piping systems. Local plumbing codes should be consulted relative to acceptable design and installation of the drainage piping system and its components.

CONVENTIONAL ROOF DRAINAGE SYSTEM SIZING "WORKSHEET"		FORM # RDS-1 PAGE 1 OF 1						
PROJECT NAME: () INDUSTRIAL PLANT	DATE:							
LOCATION (CITY): CHICAGO	STATE: ILLINOIS							
NOTE: FOR MULTIPLE ROOF AREAS USE A SEPARATE SIZING "WORKSHEET" FOR EACH SPECIFIC ROOF AREA AND IDENTIFY EACH AREA AS ROOF "A," "B," "C" OR OTHER MEANS OF DESIGNATION. (ROOF AREA)								
TO FIND REQUIRED NUMBER OF ROOF DRAINS AND CONVERT RAINFALL TO G.P.M./SQ.FT.								
A. ROOF AREA (LENGTH) 300' x (WIDTH) 200' =	60,000	TOTAL SQ. FT.						
B. ROOF DRAINS (TOTAL SQ. FT.) 60,000 ÷ (10,000 SQ. FT. PER DRAIN) =	6	DRAINS						
C. * RAINFALL (GIVEN LOCATION - SEE FIG. 4) (IF NOT LISTED SEE FIG. 5) =	3	IN. PER HR.						
D. * CONVERT RAINFALL (IN. PER HR.) TO (G.P.M. PER ONE SQ. FT.) SEE FIG. 4 =	.0312	G.P.M./SQ. FT.						
TO FIND THE TOTAL G.P.M. ROOF DRAINAGE REQUIREMENTS								
E. (TOTAL SQ. FT. AREA) x (G.P.M. FACTOR) = (TOTAL G.P.M. DISCHARGE REQUIREMENT)								
FROM "A" ABOVE	FROM "D" ABOVE	(TOTAL G.P.M. DISCHARGE REQUIREMENT)						
60,000	x .0312	= 1872 G.P.M.						
TO FIND THE REQUIRED G.P.M. DISCHARGE PER ROOF DRAIN								
F. (TOTAL G.P.M. DISCHARGE) ÷ (NUMBER OF DRAINS) = (DISCHARGE IN G.P.M. PER DRAIN)								
FROM "E" ABOVE	FROM "B" ABOVE	(DISCHARGE IN G.P.M. PER DRAIN)						
1872 G.P.M.	÷ 6	= 312 G.P.M.						
TO FIND THE SIZE OF ROOF DRAINS AND VERTICAL LEADERS								
G. DISCHARGE IN G.P.M. PER DRAIN (FROM "F" ABOVE) =	312 G.P.M.							
H. * REFER TO FIG. 8 (ROOF DRAIN AND VERTICAL LEADER COLUMN) AND SELECT PIPE SIZE THAT IS EQUAL TO OR LARGER THAN G.P.M. SHOWN IN "G" =	5"	PIPE SIZE						
TO FIND THE SIZE OF HORIZONTAL DRAINAGE LINES								
I. * THE PEAK FLOW DISCHARGE IN G.P.M. PER DRAIN (FROM "F" ABOVE) CAN BE APPLIED TO THE 1/8" □, 1/4" □ OR 1/2" □ SLOPE COLUMNS IN FIG. 8 TO DETERMINE THE SIZES OF THE HORIZONTAL STORM DRAINAGE PIPING SYSTEM.								
* FOR SIZING DATA AND TECHNICAL INFORMATION SEE JOSAM PRODUCT CATALOG OR CONTACT YOUR JOSAM REPRESENTATIVE.								
NOTE: BE SURE TO PROVIDE OVERFLOW RELIEF PROTECTION MEASURES ON THE ROOF TO AVOID ANY POSSIBILITY OF ROOF STRUCTURE OVERLOAD IN THE EVENT OF A DRAINAGE SYSTEM BLOCKAGE.								
NOTE: WHEN SPECIFYING AND/OR ORDERING JOSAM CONVENTIONAL ROOF DRAINS, PLEASE INCLUDE THE FOLLOWING INFORMATION:								
<table border="1"> <tr> <td>JOSAM SERIES NO.</td> <td>21500 OR 21000</td> </tr> <tr> <td>QUANTITY OF DRAINS</td> <td>6</td> </tr> <tr> <td>SIZE & TYPE OF OUTLET</td> <td>5" THREADED</td> </tr> </table>			JOSAM SERIES NO.	21500 OR 21000	QUANTITY OF DRAINS	6	SIZE & TYPE OF OUTLET	5" THREADED
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FIGURE 1

ROOF PLAN
FIGURE 2



TYPICAL PIPING ARRANGEMENT
FIGURE 3

