**CMGT 235 – Electrical and Mechanical Systems**

Department of Construction Management 🏵 California State University, Chico

Discussion No. 16 – Storm Drainage Systems

**Example: Roof Drain Sizing**

Size a horizontal roof drain serving 5,000 square feet of roof area on a building located in Dallas, Texas.

**Step 1. Determine the Rainfall Rate**

CPC 2016 Appendix D. Table D 101.1

Houston, TX

Rainfall rate of 4.6" per hour



**CHECK LOCAL CODE FOR ADMENDMENTS FROM THE CITY**

**City of Houston**



Must be based on a Rainfall Rate of 8" per hour

**Step 2. Select number of roof drains and calculate the roof area sloped to each drain.**

1 drain to serve 5,000 square feet.

**Step 3. Table 1101.8 to determine the required size horizontal rainwater pipe.**

From the chart, for 1/8" slope per 12" of pipe, for 5,000 square feet of roof area, with an 8" per hour rainfall rate, the required pipe size is 8". Use Column 1: 46 000 / 8 = 5,750 square feet



**Step 4. Table 1101.12 to determine the vertical drain (leader pipe)**

From the table the minimum size for the leader pipe is 6"

However, Section 101.5 of the IPC tells us not to reduce the pipe size in the direction of flow. This means that because our horizontal pipe from Step 3 was 8" our vertical pipe will be also 8".

