

# Roof Drains

The Hole Story

# What has happened to the roof drain?

- 30 years ago roof drains were rarely replaced at reroof time
- Today it has become a common occurrence
- Why?
- Light castings
- Unrepairable sumps/broken drain bolts
- Roofing materials manufacturers warranties

# What makes a good roof drain

- Understanding its not a floor drain
- Durability
- Low height of free area in assembled drain
- 1 ½" drain bolts
- 1 ½" deep and threaded bosses
- Integral gravel stop/debris guard
- No plastic
- Sump twice pipe diameter
- Open free flowing strainer- never install screens!!!!

# What makes a good installation

- Drain being installed at correct elevation
- What is that elevation?
- Roof insulation minus height of free area drainage
- Overflow installed so as to allow primary system to reach it's designed capacity.

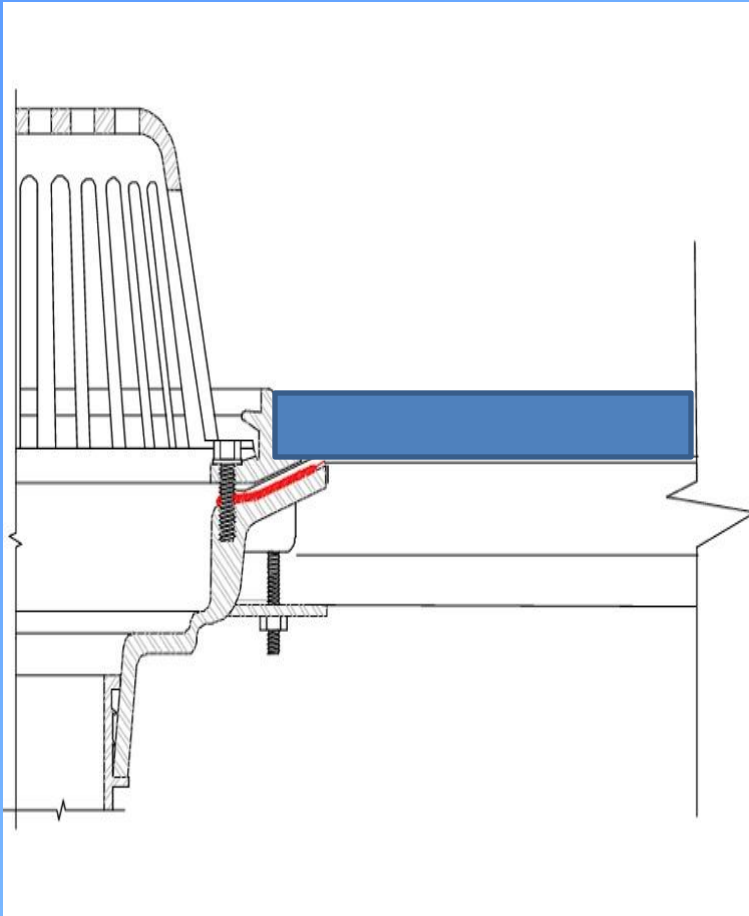
# Roof Drain & The Roof Membrane

- It's the architects problem right?
- When you specify a roof drain and its project design capacity is there anything that will prevent the drain from allowing your design GPM
- The roof membrane!
- Some manufacturers require for warranty the drain bolts must penetrate the membrane and the membrane must protrude 1" past the bolts.
- One 6" drain in the marketplace only has a 5/8" gap for the water to flow thru due to this requirement.
- After the roof is finished how do you fix it?

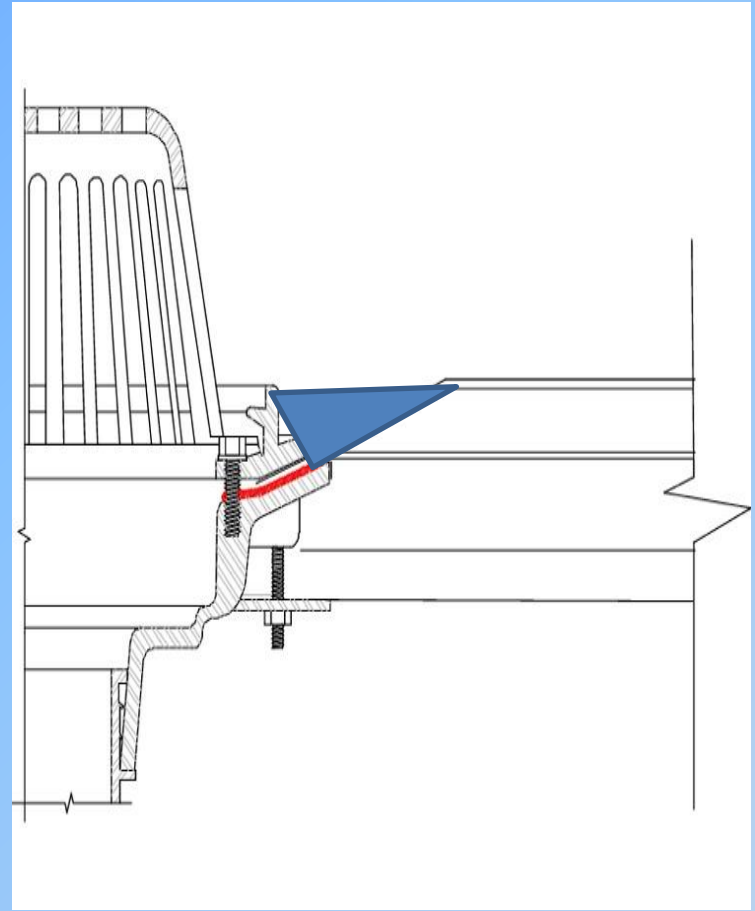
# Ponding Why?



# Wrong

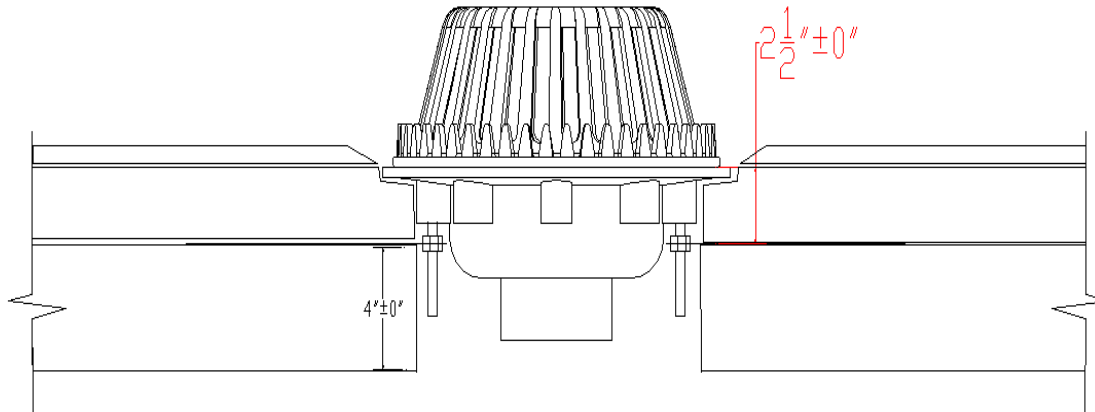


# Right



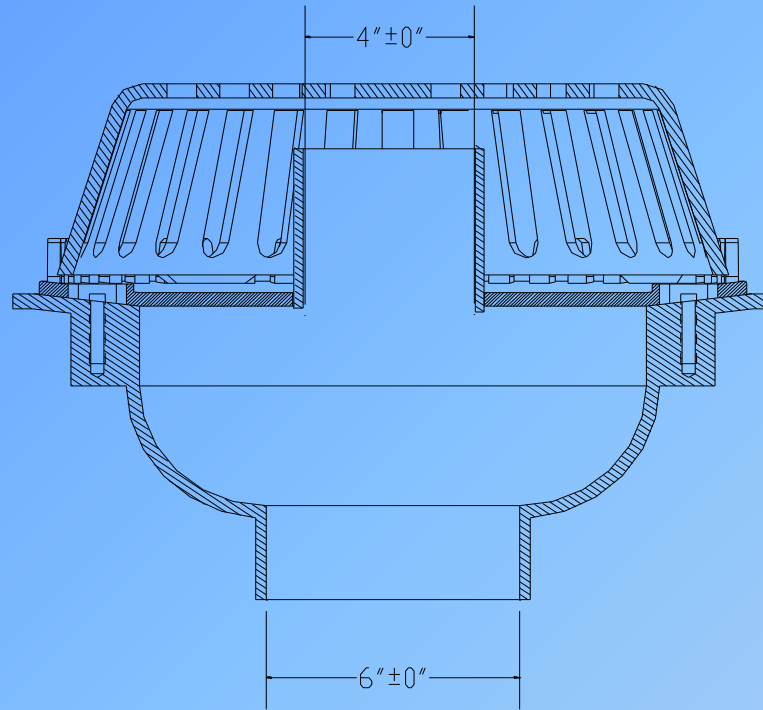
# Drain Elevation

This dimension is usually unknown to the plumbing contractor and plumbing engineer

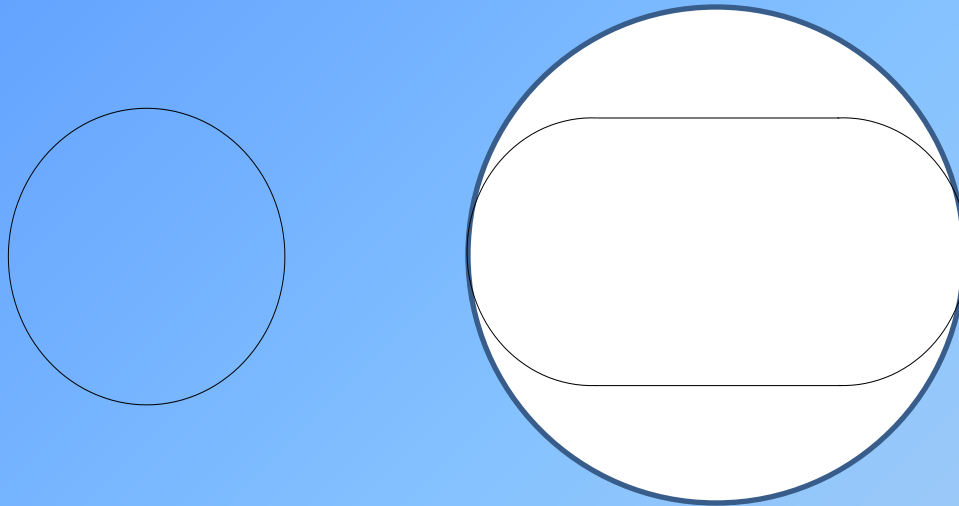




# What is wrong with this drain

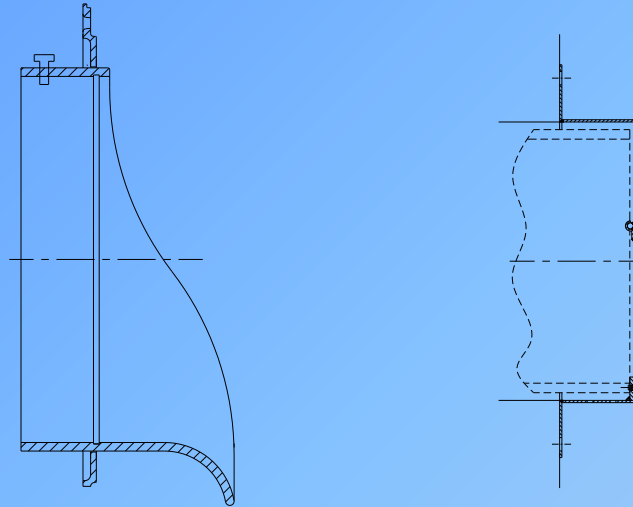


# Drain Shapes



- Most roof membranes contract equally in all directions
- Rounds work the best other shapes may require additional fastening

# Downspout nozzles



- What is the purpose of a nozzle?
- Would you put a locking cover over the emergency overflow relief outlet?

# Blue Roof Drains

- Roof drains utilizing Control Flow Weirs
- Controls the flow in to the storm system
- Is the weir removable without removing the drain ring

# ASPE/IAPMO

- Flow test criteria
- Standardization of test rig
- IPC has adopted the standard in to the 2015 code.
- All manufacturers will be required to provide test results
- Residual water retained by drain to be published
- No pressure sensor in test pipe

# ASME

- A112.6.4 is in revision
- Bringing larger sizes in to standard
- Roof drain with integral overflow is being added
- Lowest possible performance is being adopted
- Suggestion was made to remove thickness requirements from the standard.
- “Finish shall protect the drain during warehousing”
- Flange Diameter?
- Did you know a drain must meet the standard to comply with the code but a drain that meets the standard does not guarantee that it meets the code

# Parapet Drains

- Parapet 4" drain 20 in<sup>2</sup> Free Area
- Standard 4" drain 36 in<sup>2</sup> Free Area
- Promenade 4" drain 32 in<sup>2</sup> Free Area
- These drains are very difficult for the roofing to seal long term to the drain
- Get blocked with debris very quickly



# Green roof

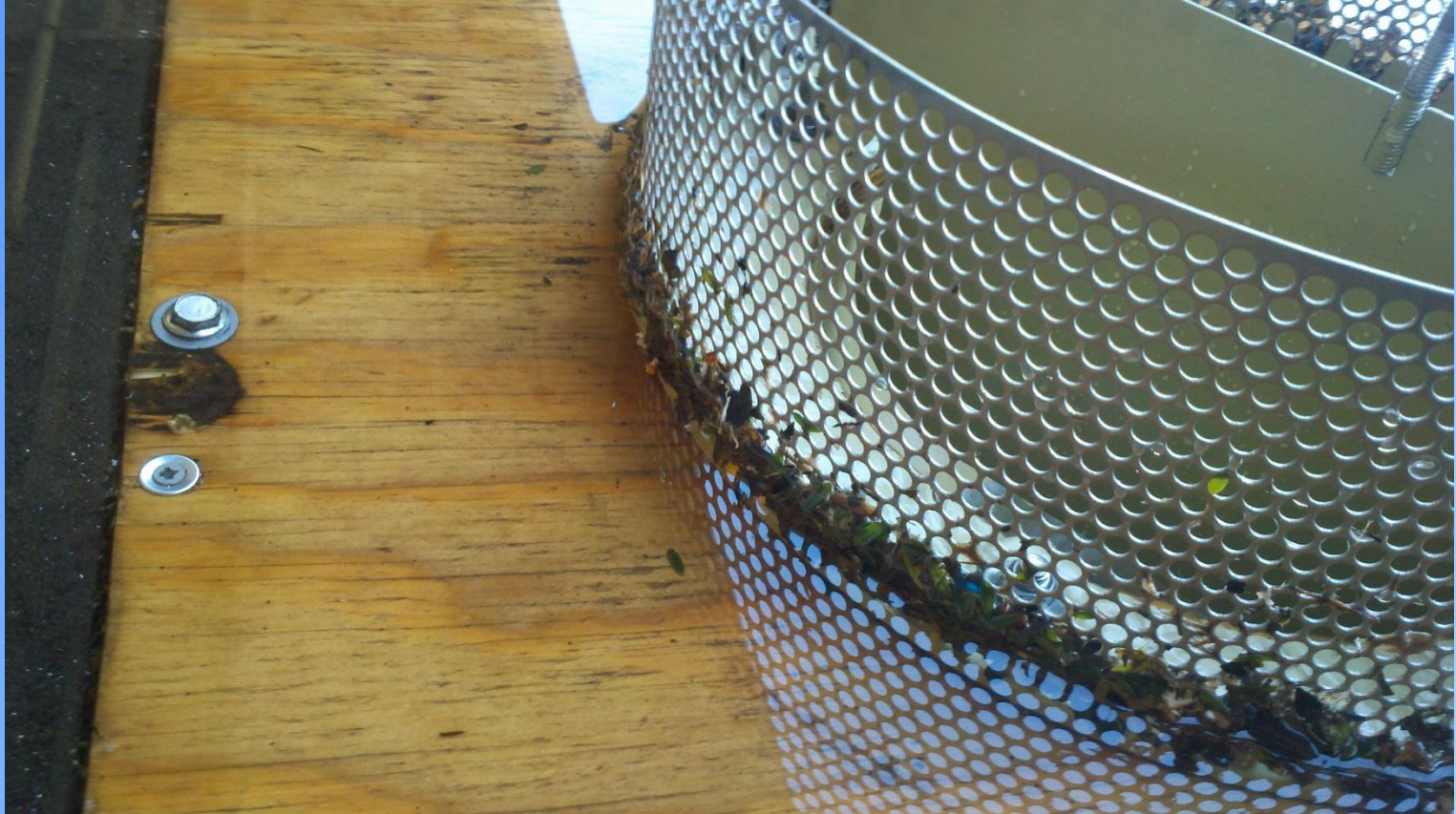




# Green Roof issues

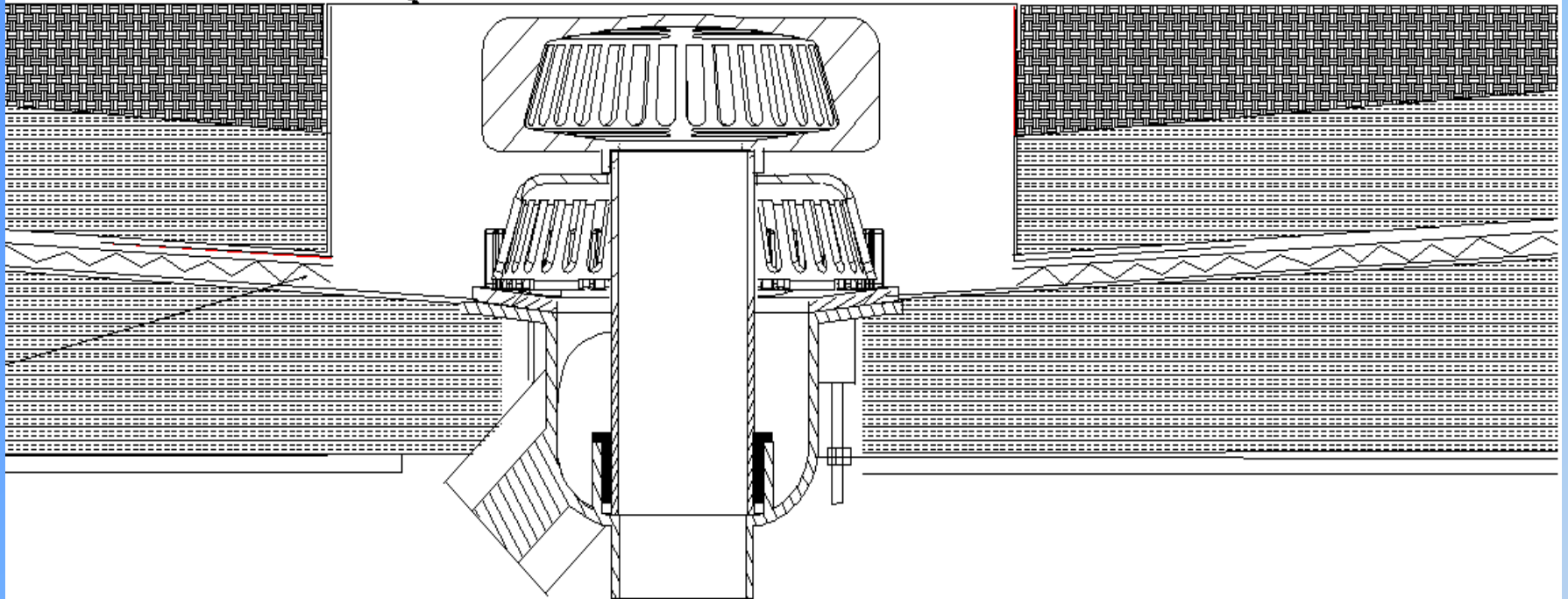
- What is the proper way to install a drain into a green roof, well that depends on the green roof
- How do you make sure it will always drain
- Are the new drain configurations safe?
- Have they been flow tested?
- How will maintenance be performed?

Only 20 minutes under perfect conditions



# Drainage must be unobstructed

Stainless steel



# Siphonic Drains

- Is a great idea and works, but what happens after it is installed?
- Does anything in a building stay the same for the life of the building
- What about building code variances
- It gets disassembled and reassembled four to five times at least throughout the life of the building.
- But by who?





**The Roofer!!!**