

DRAIN LAND DEFENSE

KEEPING ROOF DRAINS FREE AND CLEAR

BY DAN GENOVESE

The old saying, “an ounce of prevention is worth a pound of cure” can hardly be argued when it comes to good roofing practices. In this case, the problem to prevent is a clogged roof drain due to build-up of debris, leaves, and/or snow and ice around the strainer. A rarely used yet low-cost cure is to have a simple “drain guard” surrounding the drain to help keep it free and clear from trouble.

The problems – degradation and excessive weight

Many types of membranes will either degrade or become damaged from ponding water and vegetation growth and will weaken the roof system’s integrity. All efforts should be made to include positive drainage. This is clearly stated by such nationally recognized organizations such as the National Roofing Contractors Association (NRCA), the Asphalt Roofing Manufacturers Association (ARMA) and the EPDM Roofing Association (ERA).

Not only does ponded water damage waterproofing membranes, but the added weight of the water stopped by a drain loaded with debris such as leaves, trash, roofing material such as ballast and melted asphalt, and snow and ice can dramatically increase load on the roof deck and possibly induce collapse.

Maintenance program a nice idea, but...

A regular roof inspection and maintenance program to extend the life of the roof system and to avoid catastrophe is a great idea and one of the best preventive measures available. According to SPRI (Sheet Membrane and Component Suppliers to the Commercial Roofing Industry), “Periodic preventive maintenance can prevent small, easily-handled problems from becoming disruptive, big budget nightmares.” At the top of the list for a roof maintenance checklist, it recommends owners “keep roof clean and free of debris” and “keep drainage systems clear and functional.” This type of a preventive measure is talked about but often sidestepped. An added pre-



This photo shows a partial roof collapse from excessive weight of ponded water due to a clogged drain strainer.



The roof drain shown here is dangerously clogged with debris, an all-too-common condition.

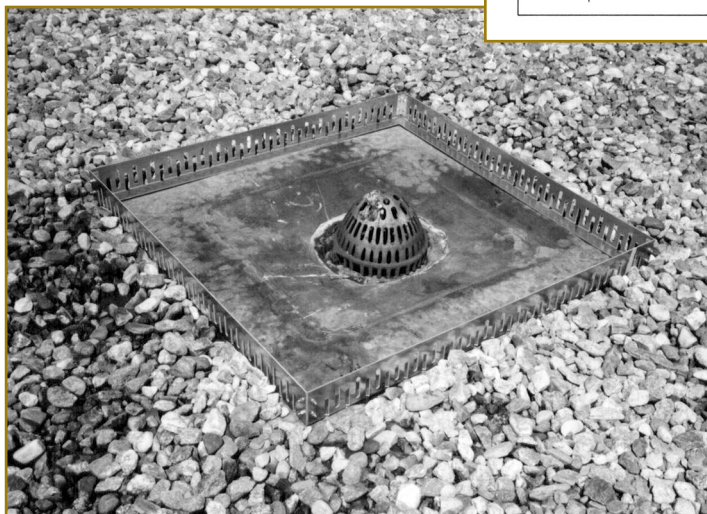
ventive measure, however, can help to keep the drain from clogging with or without a maintenance program.

Send in the guards

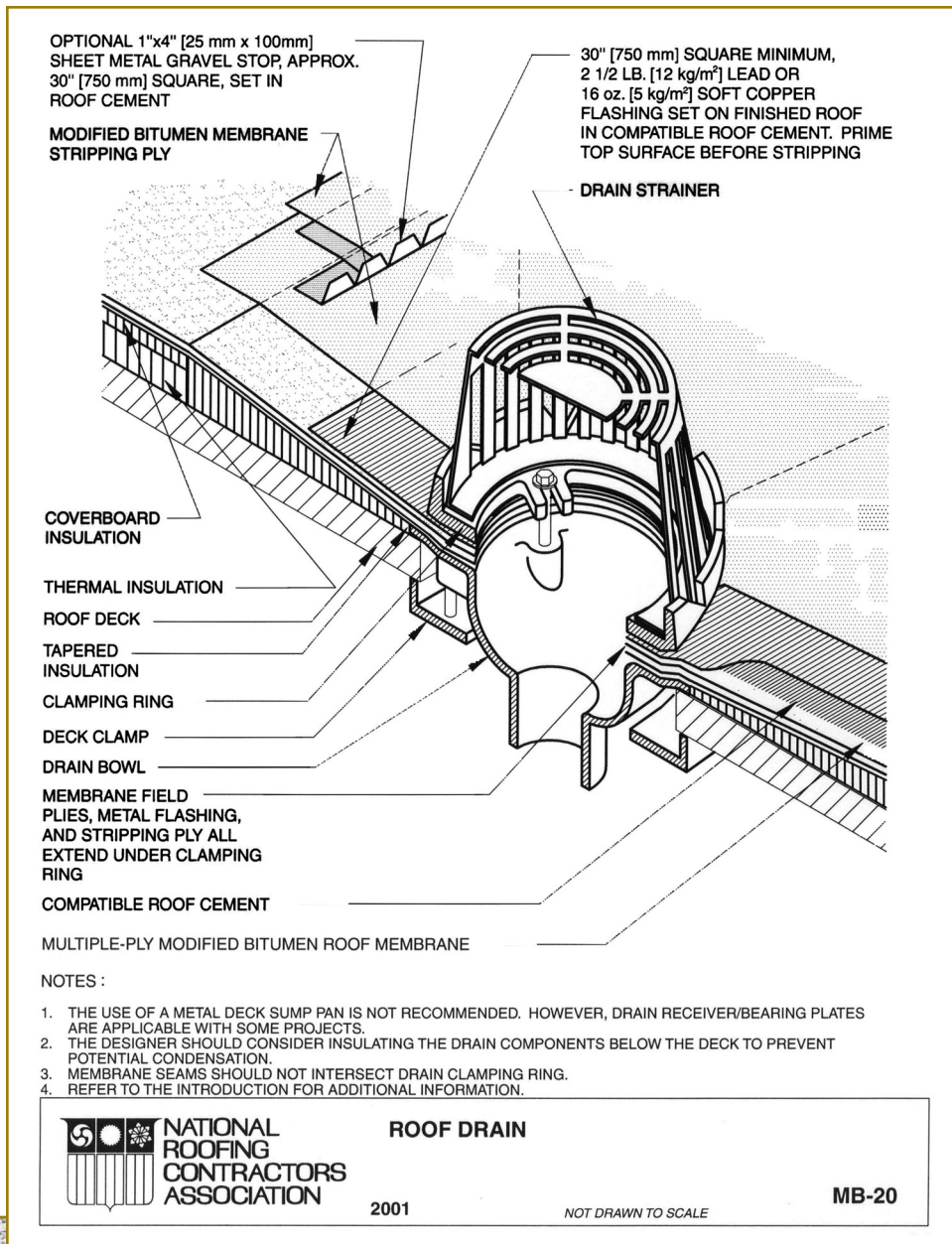
According to the NRCA's *Roofing and Waterproofing Manual – Fifth Edition*, "Because every roof has its own set of drainage criteria, either the architect/designer or the structural engineer is responsible for including proper drainage provisions in the roof system design." The Roofing Industry Educational Institute states, "Coal tar bitumen roofs must have special design care to avoid letting the bitumen get into the drain pipes." Beyond these statements, the design community is left with the question, "What can be done to improve drainage on a roof?" The answer – send in the guards – is a simple and low-cost way to improve drainage by blocking rooftop debris from clogging the strainer.

Whether the debris is roof ballast, gravel, leaves, or snow and ice, solutions are available. Depending on the situation, a roof's needs can be addressed with various metal forms that surround the drain – typically in 4' x 4' or 3' x 3' square designs with either perforated or slotted holes to allow drainage but hold back debris.

(EDITOR'S NOTE: *Specification of an overflow drain or scupper to handle any potential backup or clog of the roof guard is also recommended.*)



Right: This photo shows a "guard" with drainage slots in action, keeping ballast and debris away from the drain strainer.



Above: This roof drain detail, courtesy of the NRCA's *Roofing and Waterproofing Manual – Fifth Edition*, clearly shows a gravel stop within a modified bitumen roof membrane system.

Minimal cost/ maximum payoff

Recommendations are made with good intentions. But the design community has little control over whether or not building owners institute a maintenance program. In the design of the roof system, at least some control can be made by putting simple and efficient safeguards in place. An ounce of prevention really can be worth a pound of cure and more. ■

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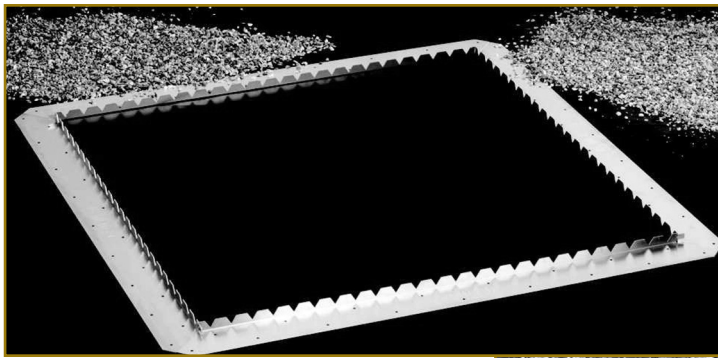
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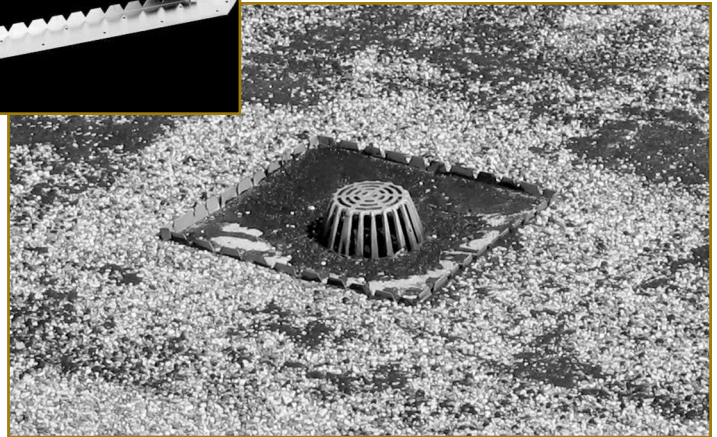
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Left: The precision-formed, 4' x 4' aluminum gravel stop shown here is designed to prevent the flow of coal tar pitch and gravel from clogging the drain strainer during times of high temperature.

Right: This photo shows a gravel stop in action keeping gravel and coal tar pitch away from the drain strainer.



ABOUT THE AUTHOR

Dan Genovese is the OlyFlow Product Manager for Olympic Fasteners. The OlyFlow product line incorporates both the U-Flow and RAC drains and accessories, both acquisitions of Olympic. Genovese has worked with the Retrofit Drain Task Force at SPRI, which has recently completed the U.S.'s first national standard for retrofit roof drains. Dan has worked for Olympic for seventeen years.

Retrofit Roof Drain Standard

APPROVED

America's first national standard for retrofit roof drains, developed by SPRI, was approved in early April as a national standard in accordance with protocol established by the American National Standards Institute (ANSI). This new standard is designated ANSI/SPRI RD-1, 2003, “Standard for Retrofit Roof Drains.”

SPRI, the association representing sheet membrane and component suppliers to the commercial roofing industry, developed this roof drain standard to fill the information void regarding retrofit drains.

John Hickman, chairman of SPRI's Standards Task Force, explains, “While the national plumbing codes have established standards for new roof drains, there have been no guidelines for what to do with an existing roof upon which retrofit drains are to be installed.”

The main differences between retrofit drains and new ones, Hickman notes, stem from the need to place them where existing drains already are installed. This means that capacities must be

checked and the connection to existing plumbing must be leak-free.

Retrofit drains, by their very nature, have smaller drainage diameter than the original drains, Hickman adds, because they must fit inside the existing plumbing. Assuring sufficient capacity depends upon the retrofit drain diameter, the number of drain sites, and the rainfall expectations for the building location

Therefore, this new retrofit roof standard features a test protocol designed to assure a leak-free connection to existing piping. Also included are methods intended to calculate sufficient drainage. An Isopluvial map (Rainfall Rate Map) of the continental U.S. shows maximum one-hour rainfall values with a 100-year return rate (“100-year rain”).

ANSI/RD-1 was officially canvassed in accordance with protocol established by the American National Standards Institute (ANSI). SPRI earned its certification as an official ANSI canvasser in 1994. For more information, visit SPRI's web site at www.spri.org.

— SPRI