



In This Issue...HVAC Units and “Roof Leaks” – Part 1

Most roofs have some sort of roof mounted HVAC equipment, frequently mounted on curbs. Roof mounted HVAC units contribute to leaks if not properly maintained. The two most common problems with HVAC units are improperly piped condensate drains and outright leakage of the units. Improper handling of the condensate can also shorten the life of the roof.

HVAC units typically have a “wet” side and a “dry” side. The wet side is exposed to the sky and readily allows rain water to enter. It is designed to conduct this water out of the unit without leaking into the building. The dry side, on the other hand, is not designed to be wet and if water does enter it can and will get down into the building. Wet sides, however, sometimes do leak into the building and dry sides often get wet (especially when their access doors are not properly secured and come loose.) When there are repeated roof leaks in the vicinity of an HVAC unit that roofers can not solve after two attempts it is best to assume that the unit may be the problem.

Most curb mounted HVAC units dump their condensation through a pipe on the side of the unit. These outlets require a “P-trap” to be installed to insure proper operation of the drain. Without a trap it is possible that the condensate drain will not function and the condensate pan will overflow into the building below causing what appears to be a “roof leak”. Often this drain problem is not constant, so the unit drains properly sometimes and sometimes not. This makes finding the “roof leak”, which doesn’t exist at all, much more difficult isolate. See the arrow in the photo below for a proper P-Trap.



Once condensate gets out of the unit it is either dumped directly onto the roof or conducted away in piping. With built up roofs it is desirable to not dump the water directly on the roof. Continuous wetting of the built up roof surface, especially for granulated modified bitumen cap sheets and aluminized smooth surfaced roofs, accelerates the deterioration of the protective surface and shortens the life of the roof. See the next photo.



The “staining” shown in the arrow (and also clearly visible in the first photo as well) is actually a thinning of the granules because the roof has been continuously wet over prolonged periods of time. The water coming out of the P-trap should be piped all the way to the drain. This roof now needs restorative repairs which would otherwise not be required had the condensate been handled properly.

With gravel surfaced roofs condensate handling is less of a problem. However, the gravel tends to hold the condensate and become a breeding ground for plant growth which can harm the roof. These conditions are more easily observed in the South where A/C runs year around, but hold true everywhere. So, on all built up roofs, condensate should be conducted off the roof in piping. Single ply roofs are generally not harmed by condensate drainage and piping condensate to the gutter or internal drains is not necessary for these reasons. On single ply roofs, however, continuous wet areas tend to develop a slimy/slippery coating of algae like material and can be dangerous safety/tripping hazards. We will say more about HVAC maintenance issues in Part 2.