DPIS Engineering, LLC
The Builder's Solution

DPIS Newsletter

My son and I rode our motorcycles to Sturgis South Dakota a couple of weeks ago. He is now at Texas A&M beginning his freshman year. As he is my last child to leave home, I wanted to do something that we would both remember for the rest of our lives. I accomplished that goal. During the eight day journey we visited eight different states. We encountered hail storms, rain, 40 degree temperatures and blistering heat.

Sturgis itself was the craziest place I've ever visited. It was actually a little too much of a freak show for me, but I loved riding in the Black Hills. I'm glad that I did it and want to go back, but I want to trailer the bikes this time and fly there. This would allow more time for riding the hills and be less damaging for the motorcycles.

I've been talking to Joe Barwinski at Village and Joe Eudy with Meritage and it turns out that there are a lot of builders that ride. I was thinking there might be some interest in getting together for the purposes of planning a trip to Sturgis for next year. Who knows, it may even lead into the formation of a builder/biker gang. If you are interested in getting together to talk about planning a Sturgis trip or other biking trips please email me at dale@dpis.com.

Joe Barwinski's group and Joe Eudy's group are already riding on a regular basis. It may be advantageous to join forces in order to negotiate better rates for hotels, flights, etc. Please keep in mind that all of the accommodations in the southwestern portion of South Dakota start to book up during the next several months.

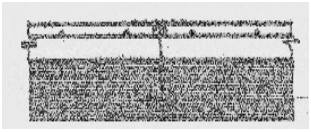
Dale Phillips

Brannon King at DPIS Engineering accepts the Energy Star for Homes " Outstanding Achievement Award "

Brannon King of DPIS Engineering recently accepted the Energy Star for Homes Outstanding Achievement Award from Sam Rashkin. Mr. Rashkin is the National Director of the Energy Star for Homes Program. The award was received at a recent Energy Star luncheon, sponsored by Centerpoint Energy.

This is the third consecutive year that DPIS Engineering has been awarded this Outstanding Achievement Award. This award is the direct result of your decision to make energy efficiency (through the Energy Star Program) an important component of your overall product. DPIS Engineering proudly accepts this award on your behalf. We thank you for choosing DPIS Engineering to provide Energy Star services to your company. Please remember that Energy Star is still the most recognized and respected energy efficiency program in the United States.

Hydrostatic Pressure Under Flatwork



The phenomenon of ground water percolating into expansion joints of flatwork occurs in approximately one new home per one thousand built in the Houston area each year. Hydrostatic pressure forces ground water to the surface where it may become trapped beneath flatwork (driveways, patios, sidewalks, etc). When hydrostatic pressure is great enough, ground water may begin to percolate through the path of least resistance, which usually means the expansion joints.

More often than not, this percolation process will create staining in the flatwork due to minerals being leached from the soils or reinforcement materials within the flatwork. In some cases the staining may be efflorescence caused by the percolating water penetrating the concrete rather than the expansion joints.

In all cases where hydrostatic pressure occurs there must be a source. The most common source of hydrostatic pressure in residential areas is leaking pipes located underground near the affected area. When underground pipes or sprinkler systems leak into the ground, the potential exists to saturate the surrounding soils beyond their liquid limits. Under certain conditions, this can lead to the formation of hydrostatic pressure under surfaces with low permeability - such as concrete.

In rare cases hydrostatic pressure beneath flatwork can be caused by natural geological formations or underground springs. Regardless of the source, hydrostatic pressure under flatwork rarely results in structural damage. The possibility of structural damage to the flatwork is only present if the underlying soils are being eroded by the percolation process.

Another major contributing factor for this phenomenon may be the strata of hard impermeable clay that occurs at a depth of 12-16 inches below the topsoil. Curvatures (or bowls) within this clay strata may allow ground water to accumulate in large volume under the driveway creating hydrostatic pressure.

In addition, leaks in swimming pools and/or underground piping occurring on adjacent properties may be a source for hydrostatic pressure. It is impossible to eliminate the possibility of leaking pipes/swimming pools located on neighboring properties as contributing factors without performing extensive testing. Overall, relieving the hydrostatic pressure from the affected area may be more cost effective than the performance of extensive soils and leak tests. In most cases, hydrostatic pressure will cease without any remedial action over a period of time.

Dale Phillips

Revisiting the way in which we dispose of the condensate generated by the HVAC coils may be in order.

In many houses that were built in the sixties, seventies, and eighties, where the primary was routed to a dedicated trap in the attic, it was found that in the relatively few months that these traps were not being regularly fed with condensate (roughly October through March), traps could dry out, allowing sewer gases to travel up the condensate piping corridor into the HVAC system and from there into the dwelling. We are all familiar with the negatives when the primary condensate drain line terminates in a vanity.

In the following photo, the trap at the right of the screen services the primary condensate drain line for the HVAC unit located in a 2nd floor mechanical closet directly behind the open stud wall. The builder has opted to use a dedicated trap with an extended trap seal (deep seal design). The extended trap seal (deep-seal trap) of this arrangement complies with the letter of the 2003 IRC. The builder also could have chosen to route the primary condensate drain line to terminate upstream of the vanity trap. The "Pro" of this option is that the condensate drain line would terminate in a "four season" trap (the vanity will get regular use and the vanity trap has a very low probability of drying out as long as there are people occupying the dwelling). The "Con" – the very cold water coming off the cooling coil in the HVAC will lead to a high probability of condensation forming on the exterior of the trap, dripping onto the base of the cabinet, resulting in damage to the cabinet; also, there may be some annoying noises from the condensate dripping into the trap.

(The trap in the wall cavity is also in conditioned space and may be subject to secondary condensation. The builder told me that there have been no negative effects reported as of yet.)

A trap primer may not be in the letter of the Code but it seems like a good idea for a dedicated trap for an HVAC system.

(continued)

TRAP PRIMER. A device or system of piping to maintain a water seal in a trap, typically installed where infrequent use of the trap would result in evaporation of the trap seal, such as floor drains.

This is a device or system of piping that maintains a water seal in a trap. See Section P3201.2.

P3201.2 Trap seals and trap seal protection. Traps shall have a liquid seal not less than 2 inches (51 mm) and not more than 4 inches (102 mm).
Exception: Traps for floor drains shall be fitted with a trap primer or shall be of the deep seal design.

A trap creates a seal of standing water in the elbow so that sewer gases will not enter the building through the fixture at the connection to the drainage system. The trap must hold a minimum of 2 inches (52 mm) and a maximum of 4 inches (102 mm) of water. See Figure P3201.1 (2). For this reason, a trap seal must be deep enough to resist the pressures that develop in the drainage system but not deep enough to hold solids, which promote the growth of bacteria.

Floor drains usually have trap seals that are subject to evaporation. This is why the code requires a trap for a floor drain to be provided with a means of maintaining its seal. There are two methods allowed by the code: a deep-seal trap and a trap primer. See Figure P3201.2.

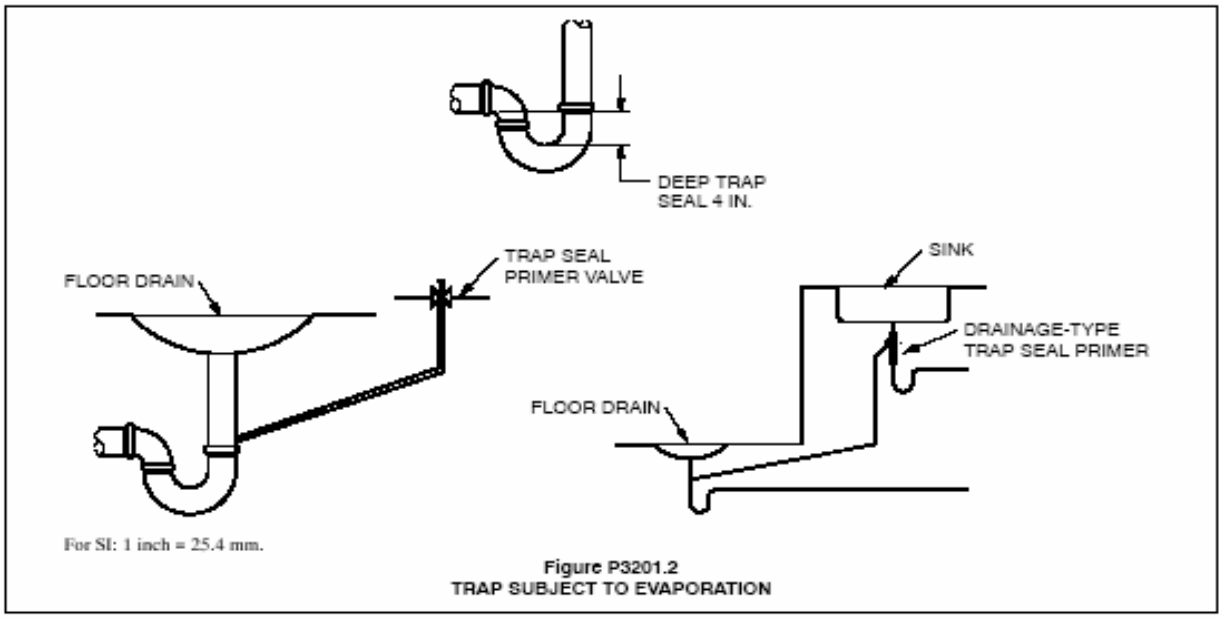


Figure P3201.2
TRAP SUBJECT TO EVAPORATION

❖ A deep seal does not eliminate evaporation. It merely slows down the evaporation process. Trap primers are more effective. They come in either a water-supply-fed type or a drainage type. They cause a small amount of water to discharge to the drain. The water-supply-fed-type does so automatically; the drainage type does so with each use of the fixture.

Billy Rogacki

Please don't forget to email me with suggestions for topics that need to be discussed. dale@dpis.com

Thanks Dale