From: Steve Bilson [mailto:stevebilson@rewater.com]
Sent: Friday, September 14, 2012 12:09 PM
To: Gretler, Kristi@DGS
Subject: Chapter 16 comment and Request

Please consider this a formal request for a change to the proposed greywater irrigation code, Chapter 16 of the CPC.

There is one subsection in this Chapter 16 that conflicts with itself, and it causes grief and loss of time and money to anyone attempting to obtain a permit for a greywater irrigation system every time we go to get a permit where the plan checker actually reads the code (versus, say, the City of LA or San Diego County, where they just make up their own criteria despite state law) - that section is section 1611A.2(7).

1611A.2(7) states "Each irrigation zone shall include a flush valve/antisiphon valve to prevent back siphonage of water and soil".

How that section conflicts with the rest of the code is that the basic premise of the greywater irrigation code is to keep greywater from ponding or running off (see Definitions), yet 1611A.2(7) requires greywater on the surface, which then creates run-off, or to pool underneath the surface, to pond and then run-off.

ANTI-SIPHON VALVES CAUSE SURFACE RUN-OFF

Anti-siphon valves are typically used for sprinkler irrigation systems. By law, and per every manufacturers' operation guidelines, anti-siphon valves must be placed at least 6" above the lowest downstream emission point. Because a greywater emitter can be within 2" of the soil surface, anti-siphon valves are placed above the soil surface.

Anti-siphon valves function by raising and lowering a diaphragm based on water flow direction. When water flow is in the wrong direction, as it always is momentarily upon initiation of an opening or closing cycle, that valve spills a little (and sometimes a lot) of greywater on the surface, which is a violation of the basic premise of the greywater law and code. As soon as that greywater irrigation system operates with the inspector standing there to sign off the permit, that system is in violation of the code. The only way to make that system comply with the code is to replace the anti-siphon valves with in line valves and flush valves, an expensive endeavor at that point. But even that does not make a safe system, for the reasons described below at Flush Valves.

FLUSH VALVES CAUSE PONDING AND RUN-OFF

Flush valves aren't used in sprinkler irrigation systems, so there is no body of law regarding them. However, they are used in many types of drip irrigation systems. They are almost always buried in the soil in a valve-type box to protect them from accidental damage, but whether they are on the surface or not, they operate the same. Most manufacturers recommend that flush valves be used on the same horizontal plane (depth) as the irrigation tubing to which they attach. Thus, flush valves in a legal greywater irrigation system, which are at least 2" under soil or something, are always buried under something.

Flush valves all work basically the same, with a valve inside a chamber being open when in the resting/non pressurized phase of irrigation, that slowly or eventually close after initiation of the pressurized irrigation cycle. Before that valve closes, the water flowing through that tubing, which is carrying any debris in that tubing, flows out the valve and into that chamber and then out into the soil. The volume of water that flows into the soil depends on water pressure and other factors, but it is usually about one gallon. That wet spot, located 2" from the soil surface, then becomes saturated and eventually ponds. Ponding is a violation of this code.

SOLUTION

The stated reason for section 1611A.2(7) is to "prevent back siphonage of water and soil". However, this problem has already been completely addressed in the code much more efficiently. Section 1601.0(A) requires either an air gap or other physical device on any municipal water supply to prevent backflow. That mandate alone does away with backflow concerns. There are other mechanical aspects of a greywater irrigation drip system that prevent back siphonage farther downstream in the system, like the fact that a drip system pressurized by a pump in a tank with air on top, as found in a greywater tank under this state code, physically can't create backflow pressure, and/or that many manufacturers have figured out ways to build emitters that aren't susceptible to back siphonage, but those methods aren't codified. Section 1601.0(A) already solved this back siphonage issue anyway.

The solution is to simply delete section 1611A.2(7). We have asked HCD to do so, but even though they have relatively major changes compared to this request, they never make this change. Consequently, obtaining permits has continued to be an unnecessary financial and time burden on homeowners and builders alike, as we always

have to explain this same problem to the permitting agency, which either has to make an exception to this contradicting section (1611A.2(7)) or to deny the permit.

We are asking you to not approve Chapter 16 until section 1611A.2(7) does not defeat the basic intent of the entire code.

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