

*Submitted by staff at
4/18/13 committee meeting.
Item 8*

Memo

RE: Fire Sprinkler Testing
From: Stevie Kister
To: Stephanie Pintar
Date: 2/26/2013

Commercial Fire sprinkler systems are regulated by NFPA 13 (Installation), NFPA 25 (Inspection, Testing and Maintenance, and Title 19 (Maintenance). The regulations apply to all of California, and the Fire Departments and Contractors contacted all agree on the process.

NFPA 25 requires quarterly, annual and 5 year inspections. In all tests, the water is directed to either the sewer, the storm drain, or landscaping, depending on the system design and City regulations. During quarterly inspections, among other items, the alarm valves and devices are checked. The alarm should sound when water flows past the alarm trigger. To check this, the water is turned on at the main drain. It should only take 4 gallons of water flow for this alarm to sound. Once the alarm sounds then the check is complete and the water should be turned off.

The water is also turned on at the stand pipe to check the pressure of the system. Based on the one quarterly inspection I witnessed, it would be fair to say a quarterly inspection could result in 10-50 gallons of water being wasted. However, in reading guidelines online, many say the operator should flow the water only until it runs clear, a process that could take 2-3 min.

The annual inspection is very much the same; however the NFPA calls for testing the alarm for a full 90 seconds. With a flow rate of between 5 and 30 gallons per min. this test can use 45 gallons alone. One inspector I spoke to said the water does not need to be run this long and the NFPA guidelines should be amended to reduce the time.

During 5-year testing, or at any time work needs to be done on the system, the entire system will be drained. This is the largest waste of water. I was unable to get an average number of gallons held in these systems, as it varies greatly on the size of the building, the number of sprinkler heads, and the size of the pipe. At the site I visited (a small/medium building), the inspector estimated the system held around 180 gallons of water. The water held in the pipes is typically safe, however it is stagnant. People complain that it has an odor at times. When repairs and maintenance are needed, there is no way to avoid draining the system.

Residential systems are tested once when they are installed. They check the pressure of the system and the alarm trigger by flowing the water.

References: David Read- Monterey Fire Dept., Seaside Fire Dept., Carmel Fire Dept., Fire Sprinkler Systems Inc., A&B Contractor, Mid-state Fire, L&M Fire Protection

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Item 7

Monterey Bay 100 Greywater System Challenge Project Description:

Ecology Action and the Central Coast Greywater Alliance are sponsoring a 100 Greywater System Challenge to build community awareness about code-compliant greywater irrigation systems, landscape water conservation and drought/climate change preparedness. This civic engagement project was inspired by Sonoma County's successful 100-System Greywater challenge coordinated by Daily Acts in 2012 (<http://www.dailyacts.org/campaigns/100-greywater>). Our challenge is to activate Monterey Bay Area residents to install 100 greywater systems by September 30, 2013. Several public agencies are helping to spearhead this challenge to provide additional support for residents who want to save water and make a difference in the health of their watershed.

An average family of four uses 2-7 thousand gallons of water annually in their washing machine. 100 families could save over 500,000 thousand gallons water by irrigating their landscape with laundry greywater instead of drinking water. This water savings translates into 2,590 kilowatt hours of energy conserved annually because greywater will be treated ecologically on-site by the soil food web instead of at the waste water treatment plant.¹ In rural areas, greywater irrigation systems installed on properties with on-site waste water treatment systems can improve surface and ground water quality by reducing flows to failing or poorly maintained septic system leachfields.

Greywater Challenge Structure

The Greywater Challenge will provide expert mentoring support and resources for households that wish to install laundry to landscape greywater systems that meet the requirements of California Uniform Plumbing Code Title 24 Chapter 16A.

There are three ways that residents can participate in the Challenge:

1. Registering their existing greywater system on a map at www.greywater/ecoact.org. Registrants will be asked to provide information about their greywater system so that water savings can be tracked accurately. Privacy will be protected.
2. Enrolling in a free laundry-to-landscape weekend workshop where a commitment is made to install and register the greywater system during the workshop registration process. When a workshop is sponsored by a public

¹ This energy savings is the equivalent of 40% of an average California household's annual energy use, and does not take into account the energy required to pump the water to the treatment plant from the unincorporated County. Based on Avg. 3377 kWh/1,000,000 gallons dry season flows (communication with Dan Seidel, Santa Cruz Wastewater Treatment Plant) and average 1.8 kWh/1,000 gallons to treat and deliver potable water.

agency, residents of that jurisdiction will receive a do-it-yourself installation kit or system rebate as an incentive to participate. Workshop participants living outside of the jurisdiction will not receive an incentive, but will commit to volunteer to help with an installation in the sponsoring jurisdiction in exchange for free training.

3. Hire a Central Coast Greywater Alliance contractor to install a greywater system.

Weekend Workshop Structure

- Public agencies and partners advertise workshop to their customers
- Participants pre-register at the Central Coast Greywater Alliance website. During workshop registration process, participants answer a short questionnaire that is sent to the workshop coordinator.
- Workshop coordinator assigns participants to a trained Greywater Alliance member for installation mentoring. The Alliance member visits his/her assigned installation site(s) to verify that the site is appropriate for a greywater installation. Verified registrants receive a tools and materials list of what they will need to purchase and have on-site on installation day.
 - **Day One (Saturday):** 4-hour workshop. Participants engage in a powerpoint lecture, hands-on activities, and draw the design of their laundry-to-landscape greywater system with expert help. Installation kits are distributed to qualifying residents of participating water utilities.
 - **Day Two-Installation Day! (Sunday):** 4-8 hours. Participants install their systems with the help of neighbors, friends and other workshop participants. A trained Greywater Alliance member will spend 2 hours at his/her assigned site on installation day answering questions and guiding the installation.
 - **Post-Workshop:** Greywater Alliance members call or visit their assigned site(s) to ensure that the system is installed, is functioning well, and that the owner understands the maintenance requirements of system.

Train the Trainers Workshop

Greywater Alliance members, installers and public agency staff who wish to be mentors for the Greywater Challenge must complete a Train the Trainers workshop **on March 16, 2013**. Only greywater installers who complete the train-the-trainers workshop will be eligible to receive stipends for assisting residents to install systems in their assigned area. The workshop will provide an overview of the powerpoint to be used in greywater challenge workshops, and will result in the installation of a laundry to landscape greywater system to provide mentors with practical experience in managing volunteer work flow.

Goals for the 100-Greywater System Challenge

- 100 greywater systems installed
- At least one workshop is supported in each major water district in the Monterey Bay Area:
 - San Lorenzo Valley
 - Scotts Valley
 - City of Santa Cruz/Live Oak
 - Soquel Creek (Capitola, Soquel, Aptos)
 - Pajaro Valley/Watsonville
 - Monterey Peninsula
 - Marina
- 5 volunteers are trained to become mentors in each district
- 100% of users are 'satisfied' or 'very satisfied' with their greywater irrigation system.
- 500,000 gallons of water conserved.
- Water quality problems from poorly designed greywater systems are avoided.
- Can this civic engagement model work for other water conservation/water quality practices?