DEB Notice 050908 – Rainwater Harvesting Systems

Effective 05/09/2008

Add the following to the Construction and Professional Services Manual

915.15 Rainwater Harvesting Systems

Rainwater harvesting is permitted for the purposes of flushing water closets and urinals; landscape irrigation systems; fire protection systems, and other water handling systems to the extent such rainwater harvesting systems are feasible, reasonable and consistent with the agency mission, program, functionality, and project budget.

915.15.1.1 Interior Plumbing Fixture System Design

The capturing, harvesting, collection, storage, and filtering of rainwater for the purpose of flushing water closets and urinals shall be designed in accordance with the guidelines of 2007 *Virginia Rainwater Harvesting Manual* presented by the Cabell Brand Center, Salem, VA; the ASPE *Design Handbook* or a similar nationally recognized standard. The minimum design standards include the following:

a. the rainwater collected is classified as non-potable and is limited to supplying water closets and urinals only;
b. the installation of the harvesting and reclamation system shall comply with all applicable sections of the VUSBC;
c. the rainwater shall be collected solely from hard surfaced roofs and all overhanging tree branches shall be trimmed back beyond the roofs edge to reduce the organic matter build up and thwart animal access;
d. connection to exterior hose bibbs or faucets is prohibited;
e. the collection storage system shall be covered;
f. the rainwater shall be filtered through a minimum 6 micron sieve before supplying to the water closets and urinals;
g. the effluent and first flush from these systems shall be discharged to a sanitary sewer or septic field system;
h. overflow from tanks shall be connected to the storm water system;
i. the piping systems conveying the rainwater from the system shall be separated from all other piping systems and clearly identified; and
j. the supply rainwater itself shall be colored blue or green with biodegradable dye.

915.15.1.2 Rainwater Quality Standards

Rainwater delivered to indoor plumbing fixtures shall meet the minimum water quality standard of limiting *fecal coliform* to a number less than 2 of a most probable number (MPN) per 100ml and pH levels between 6.5 SU and 7.9 SU.

915.15.1.3 Rainwater Treatment

Treatment may be required to ensure the quality of the rainwater meets the standards herein. The agency shall make the determination to install special water treatment equipment at the onset of the project, or shall be prepared to implement a water treatment program or install water treatment equipment at a future date should the water fail to meet the prescribed Rainwater Quality Standards.

915.15.1.4 Rainwater Quality Monitoring
In order to ensure a continued safe and beneficial use of captured rainwater the agency shall collect water samples and perform testing. Water samples shall be taken from all outside storage tanks or cisterns as well as the inside post-filtered water holding tanks. Monitoring shall commence on the date the Certificate of Occupancy is issued. Water samples shall be analyzed by a competent and licensed laboratory. Test reports shall be maintained consistent with the agency's Building Permit Policy for Construction State Owned Buildings and Structures record keeping criteria.

For systems where special water treatment equipment is installed, after an initial system test results demonstrate that the Rainwater Quality Standards have been met, no further testing is required. Special water treatment equipment shall be maintained.

For systems where no water treatment equipment is installed, quarterly testing is required. If the tests do not meet the Rainwater Quality Standards, then a water treatment program shall be implemented to assure compliance with the Rainwater Quality Standards and testing shall continue in accord with the treatment program, but no less than on a quarterly basis; or water treatment equipment shall be installed.

915.15.1.5 Signage
Signage shall be posted in a conspicuous location in each room where rainwater is used. Signage shall be as follows:

NON-POTABLE WATER
RAINWATER USED TO FLUSH
WATER CLOSETS AND URINALS

915.15.2 Lawn Irrigation System Design
The harvesting of rainwater for the sole use in landscape irrigation systems is permitted. The minimum design standard shall include the following:

a. each potable water supply connection to the irrigation system shall be protected from backflow in accord with the VUSBC; and
b. any connection to exterior hose bibbs or faucets is prohibited.

915.15.3 Fire Suppression Sprinkler System Design
The capturing, harvesting, collection, storage, and filtering of rainwater for the sole use of water supply to a fire suppression sprinkler system is permitted and shall meet the requirements of the Virginia Uniform Statewide Building Code and the National Fire Protection Association standards and guidelines for water supply and storage.