NYC Buildings Department
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Robert D. LiMandri, Commissioner

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OTCR

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Purpose: This document establishes alternative acceptance and maintenance criteria, and clarifies the applicability and identification for water recycling systems as referenced in the 2008 NYC Construction Codes.

Related Code Section(s): AC 113.2.3
PC C101

Subject(s): Water recycling systems

Background: Water recycling systems are referenced in the 2008 NYC Construction Codes. Section PC C101 requires all water recycling systems to be regulated by the NYC Department of Health and Mental Hygiene. Currently there are no published standards for the basis of national acceptance and recognition. Therefore, it is the purpose of this bulletin to establish alternative acceptance and maintenance criteria for water recycling systems, and to clarify the applicability and identification requirements of piping systems containing treated water. The maintenance criteria establish an ongoing monitoring program and must be met for continued operation of the system.

Description: Water recycling systems collect and process wastewater and distribute non-potable water supply for uses identified in this bulletin.

Uses: As per section PC C101.1, water recycling systems include all wastewater and rainwater piped within a building.

The following applications are not addressed in the bulletin:

1. Rainwater collected from piping on the exterior to the building and used solely for subsurface irrigation, drip irrigation, rain barrels complying with NYC Department of Environmental Protection Rules and Regulations, or washing of sidewalks, streets, buildings or vehicles.
2. Commercial car washing facilities.
3. Water closet-sink combinations. A fixture that enables waste water from a lavatory to discharge directly into the flushing tank of a water closet may be utilized provided it complies with the NYC Construction Codes including all accessibility requirements. Water closet and lavatory shall be located in the same room.

Water recycling systems may be used in place of potable water for supplying water closets

and urinals, cooling tower makeup, washing of sidewalks, streets, or buildings, laundry and irrigation systems that are located in the same lot as the water recycling system. Spigots and hose bibs dispensing recycled water shall be secured from unauthorized use by a locking mechanism. Signage reading "*Non-potable water, do not drink*" shall be placed adjacent to the location of spigots and hose bibs.

Evaluation Scope: 2008 NYC Construction Codes

Evaluation Criteria: Acceptable water recycling systems shall comply with the following acceptance and maintenance criteria:

A. Acceptance Criteria

1. Water quality – The system shall be designed, installed and tested to meet the following water quality standards:

BOD	< 10 mg/l
TSS	< 10 mg/l
Total Coliform	< 100 per 100 ml
E. Coli	< 2.2 colonies per 100 ml
pH	6.5-8.0
Turbidity	< 2.0 NTU*
*The wastewater facility effluent must meet the performance standards of < 2.0 NTU for turbidity for 95% of the measurements. At no time can the turbidity result be above 5 NTU. These results shall be recorded and compiled in the annual report.	

2. Professional Certification – The application for construction document approval (PW1) and plans for the water recycling system shall be submitted as a professional certification by a registered design professional.

3. Certification Requirements – The following certifications and report of results shall be submitted to the Office of Technical Certification and Research (OTCR), Water Recycling System Certifications, 280 Broadway, 7th Floor, New York, NY, 10007.

   Phase I, Construction Completion Certification – The water recycling system must be certified upon construction completion to verify that it has been built in accordance with professionally certified plans, specifications and applicable sections of the NYC Construction Codes including PC sections C101.11 and C101.12. The certification shall be placed on company letterhead, signed and sealed by the registered design professional and shall include bar scan label for B-Scan into virtual job folder.

   Phase II, Wet Testing Certification – The system shall be "wet tested" with potable water to ensure no leaks exist and all equipment is fully functional. The system shall be certified confirming the absence of leaks and the integrity of the system components. The certification shall be placed on company letterhead, signed and sealed by the registered design professional after thoroughly inspecting the system and shall include bar scan label for B-Scan into virtual job folder.

   Phase III, Start-up Testing Results – The system shall be placed into start-up mode upon receipt of construction and wet testing certifications, and the occupancy of a sufficient number of units to produce an adequate flow rate for continuous operation (based on design requirements and nutrient loads). Samples shall be collected (five) 5 days per week and each sample tested must meet the water quality requirements of this protocol. Samples not meeting the water quality requirements

of this protocol shall be reported to the OTCR. Start-up testing shall continue for a two-week period, demonstrating 100% compliance with the water quality requirements of this protocol, with the results being submitted to the OTCR. Water treated in the system shall be placed into a floor drain, with the flow being directed to the sanitary sewers for discharge. The building shall continue to operate all fixtures using only the municipal potable water system.

Phase IV, Temporary Use Testing Results – The systems may be placed into temporary use once the start-up tests' results are approved by the (OTCR). During the temporary use mode treated water from the system shall be directed into the recycled water reservoirs and shall be utilized for applications identified in this bulletin. Testing shall continue on a weekly basis for a period of three (3) months, with monthly reports of results submitted to OTCR. The operation of the system shall immediately cease if any test sample does not meet the performance requirements of this protocol, in which case, the operator shall submit tests from at least (three) 3 consecutive days demonstrating full compliance along with a letter explaining why the performance was compromised and what actions were taken to prevent it from reoccurring, prior to restarting system use.

Phase V, Final Acceptance and System Certification – The system shall be certified confirming compliance with the 2008 NYC Construction Codes and the testing protocol requirements as defined by the start-up and temporary use modes. The certification shall be placed on company letterhead, signed and sealed by the registered design professional and shall include bar scan label for B-Scan into virtual job folder. In the absence of any deficiencies, OTCR will issue a final approval.

B. Maintenance Criteria

After the final approval, the system shall be operated in the maintenance mode. Testing shall continue on a monthly basis with an annual report of the results forwarded to OTCR along with a certification from the registered design professional stating that the monthly testing result complies with the performance requirements of the protocol outlined in this bulletin.

Conditions of Acceptance: Water recycling systems shall be designed and installed in accordance with the 2008 NYC Construction Codes and other applicable provisions including but not limited to the following:

A. Design

Water recycling systems shall be designed to meet the water quality standards as outlined in the Evaluation Criteria defined in this bulletin.

B. Installation Requirements

1. In accordance with section PC C101.12, recycled water distribution piping may be painted or manufactured as purple. In addition to painting, water distribution piping may also be identified by lettered legend in accordance with ANSI A13.1[1]. Where the piping is required to be listed and labeled such painting shall not obscure such labeling. The provisions of section PC C101.11 shall not be required if distribution piping is painted or manufactured as purple and signage reading "*Non-potable water, do not drink*" placed adjacent to the location of spigots and hose bibs.

2. Installation requirements shall be in accordance with the manufacturer's instructions and the conditions of this bulletin.

C. Maintenance Requirements

After system certification and final acceptance, the water recycling system shall not be permitted to treat wastewater or supply non-potable water to fixtures if the maintenance criteria enumerated in this bulletin have not been met.

Referenced Standards:

1. ANSI A13.1 *"Scheme for the Identification of Piping Systems"*