



Resilient Environment Department
URBAN PLANNING DIVISION

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TECHNICAL BULLETIN No. 2013 - 5

DATE: JUNE 2013

SUBJECT: UPD ENVIRONMENTAL REVIEW OF COOLING TOWERS AND CHILLERS

PURPOSE: This Technical Bulletin is intended to clarify the procedures for submitting plans and obtaining subsequent approval of specific types of HVAC systems.

AFFECTED PARTIES: Municipal and county agencies that issue building permits for residential or commercial projects involving cooling tower or chiller installations, replacements or expansions. Contractors and developers who are installing, using or replacing cooling towers and chiller installations.

OVERVIEW: Because of its warm climate and large population most new construction projects in South Florida require that air conditioning systems be a part of any planned development. This technical bulletin is intended to provide guidance for the installation and maintenance of those systems which may have a negative impact to the environment by discharging chemicals and other pollutants to ground or surface waters. The major types of cooling systems this technical bulletin will address are:

Cooling Towers: devices for reducing the temperature of a liquid, usually water, by bringing it into contact with an air stream where a small portion of the liquid is evaporated and the major portion is cooled.

Chillers: devices in mechanical air conditioning systems that use refrigerant. This refrigerant cools a liquid medium, usually water or glycol, to a pre-determined temperature. A chilled water pump distributes this secondary refrigerant to appropriate equipment applications.

Chiller with a closed loop system: any cycle in which the primary medium is always enclosed and repeats the same sequence of events. Normally used on chilled water loops. A closed loop system typically does not have a continuous discharge or routinely need to be opened for service. However, in the event of riser repair or piping additions etc., the system, in most cases, will need to be drained.

Chiller with an Open loop system: mainly serving condensed water applications, routine maintenance is usually required to keep the system operating efficiently. In most instances this system will be drained or bled as part of the maintenance procedures. Even in the event of system component isolation with valves or bypasses, there will be some discharge from the component being serviced or replaced. Open circuit cooling tower loops are more subject to corrosion than closed circuit chilled water systems. Chemicals to reduce the growth of slime and algae are usually introduced into the system. In addition to preventing scale, chemicals are used to protect the system components against corrosion. Chemical treatment, regular draining, cleaning and flushing of the tower basin is a common practice in regular maintenance of HVAC systems. In some systems a continuous or intermittent removal of chemically treated water from the system through a bleed line or blow down valve is used to adjust overflow.

The above overview is not intended to limit specific types of HVAC systems that include chemicals in the cleaning or maintenance process. This is to be used as a guide only to requirements of a UPD Environmental Review Approval.

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DISCUSSION: Broward County Code Chapter 27, Sec 27-194 (b) (1) states drainage and condensate facilities shall construct a permanent mechanism to direct wastewater from cleaning the system, facility and drainpipes to the sanitary sewer. It is the determination of UPD and the Environmental Permitting Division that all flushing effluent MUST be disposed of to the sanitary sewer collection system or another approved method of disposal. (Most cooling towers and chillers either contain chemicals or periodically use cleaning chemicals that are considered hazardous.)

FOR COOLING TOWER AND/OR CHILLER APPROVALS:

1. To receive an Environmental Review Approval Certificate for a cooling tower, the applicant must submit plans indicating the cooling tower equipment and all associated piping and apparatus. The piping plans, including any overflow, must indicate discharge to an approved sanitary system.

A signed and sealed letter from the design engineer stating quantity and quality of all discharges from the cooling tower, including bleed rate, back flushing etc. to be discharged to the sanitary sewer system, calculated in gallons per day must be included with the application for UPD Environmental Review Approval.

2. To receive approval for chillers designed with a closed loop system, the applicant must submit plans indicating the chiller and all associated piping and apparatus. If no chemicals are used, the condensate line may indicate a discharge to ground. However, if this chiller has chemicals introduced into the system, these plans must indicate a discharge valve to an approved sanitary system. A signed and sealed letter from the design engineer indicating the quantity and

quality of water being discharged to the sanitary sewer system, calculated in gallons per day, must be included with the application for UPD Environmental Review Approval.

SUBMITTING COOLING TOWER AND/OR CHILLER PLANS

The applicant, developer or contractor must first obtain approval of the plans to be used for submitting their project to a building department to Urban Planning Division (UPD) and obtain an Environmental Review Approval Certificate to apply for a building permit that includes a cooling tower or chiller type of HVAC system. A UPD web based electronic application must be completed and plans uploaded at:

www.broward.org/epermits

Public use computers are also available for this at the UPD office. The electronic application may be completed and plans uploaded for Environmental Review at this website. A digital-signed and sealed signature or electronic-signed and sealed signature by the registered professional is required. When all UPD issues have been addressed and the required letters, licenses/ approvals have been issued and impact fees satisfied, UPD will calculate wastewater flows to an approved sanitary sewer system associated with the "installation and or replacement of a cooling tower or chiller" if any" and a review fee will be calculated. An Environmental Review approval is granted. After payment of the UPD review fee is received an Environmental Review Approval Certificate is issued. The building plans must be submitted to the appropriate building department for a building permit within 30 days of the granted approval.

FURTHER INFORMATION: For further information concerning UPD review and approval of plans to be submitted for building permits or for questions concerning this technical bulletin, please contact the URBAN PLANNING DIVISION at 954-357-6666 ext 2.