BR 2: SAFEGUARD TOXIC MATERIALS STORED IN FLOOD ZONES

Rules of the City of New York
Proposal developed by the Climate Adaptation Committee

Summary

Issue:
The New York City Department of Environmental Protection requires facilities that store hazardous chemicals to file a risk management plan, but it does not require any special provisions for chemicals stored within the 100-year floodplain.

Recommendation:
Require toxic materials within the 100-year floodplain to be stored in a floodproof area.

Proposed Legislation, Rule or Study

Amendments to the Rules of the City of New York

1. Add a new paragraph (5) to subdivision (a) of section 41-05 as follows:

   (5) Determination whether the facility, or portions of the facility, lie within the area of special flood hazard (100 year floodplain) as mapped by the Federal Emergency Management Agency on the Flood Insurance Rate Map.

2. Add a new paragraph (5) to subdivision (b) of Section 41-10 as follows:

   (5) Determination whether the facility or portions of the facility lie within the area of special flood hazard (100 year floodplain) as mapped by the Federal Emergency Management Agency on the Flood Insurance Rate Map.

3. Add a new paragraph (9) to subdivision (b) of Section 41-11 as follows:

   (9) If the facility or portions thereof lies within the area of special flood hazard (100 year floodplain) as mapped by the Federal Emergency Management Agency on the Flood Insurance Rate Map, the risk management plan shall include engineering measures that flood proof any chemicals, processes, and or operations within the floodplain, or operating measures to ensure that chemicals, processes, and or operations shall be located in portions of the facility that are above or beyond the floodplain.

After revision of these rules, the City of New York should modify the Facility Information Forms (FIF), Risk Management Plans (RMP), and the regulatory review procedure at both the Department of Environmental Protection and the New York Fire Department to take into account: the location of facilities in the floodplain; and the potential mitigation measures or prohibition of storage of certain categories of chemicals within the 100 year flood plain. Consider expanding the categories of chemicals or buildings required to file RMPs.

Supporting Information

Issue – Expanded

Storing hazardous materials within floodplains in non-flood proof spaces can lead to serious environmental contamination and threaten health, especially when there is severe flooding. During the great floods in Mississippi (1993) and New Orleans (2005), for example, water became severely contaminated. In New Orleans, floodwaters were found to contain bacteria associated with sewage at least ten times higher than the acceptable safety levels as well as elevated lead levels. Contamination made it dangerous for rescue workers and remaining residents, especially children, to have direct contact with water. According to experts, the toxic chemicals in the flood waters in New Orleans will make the city unsafe for full human habitation for a decade.

In light of these far reaching consequences, it is crucial that New York City addresses the issue of safe storage of hazardous materials with the 100 year floodplain. Currently, several programs in New York City address toxic chemicals. However, they still do not contain provisions for toxic chemicals within the floodplain. It is anticipated that less than 750 buildings out of the city’s million buildings will be impacted if such provisions are incorporated within the existing programs (see Cost/Savings section for information).
New York City Department of Environmental Protection (DEP) has a regulatory program called the Community Right-to-Know for the storage of hazardous chemicals. It requires the annual filing of a Facility Inventory Form (FIF). Buildings that exceed minimum threshold quantities must also submit an annual Risk Management Plan (RMP). The professional who files the RMP must conduct a Risk Assessment, develop an appropriate risk reduction plan, and include appropriate emergency response procedures. DEP reviews the RMP, inspects the facility and forwards the RMP to the New York City Fire Department for their review.

In addition, Building Code Appendix G Flood Resistant Construction has rules for construction in or around the 100-year floodplain. However, there are no provisions for the storage of hazardous materials within the floodplain. Requirements are limited to the construction and location of tanks and sewage facilities and they apply only to newly constructed facilities and sometimes to altered facilities, depending on the extent of the alteration.

Since programs addressing the storage of hazardous materials are already in place in New York City, minimal work is necessary to implement this proposal. Doing so would require an additional determination by the RMP filer as to whether or not the facility lies within the 100 year floodplain. DEP would then inspect the facility to determine the adequacy of the chemical storage as a part of their current inspection practices.

**Environmental & Health Benefits**

This proposal would mitigate the risk of the release of hazardous chemicals during a significant flood, protecting water supplies and the general public.

This proposal was found to have no significant positive environmental impact.

This proposal was found to have a low positive health impact per building and to impact a small number of buildings. It was thus given an health score of 1.

**Cost & Savings**

As described in the Executive Summary, Bovis Lend Lease prepared cost estimates for each Task Force proposal in the context of well-defined construction projects in specific buildings. Where possible, members of the Technical Committees prepared savings estimates for some of these projects and buildings. These cost and savings estimates are presented in the February 1st draft version of Appendix A. The innate uncertainty in how construction and operation will vary from one building to another, the complexity of the Task Force proposals, and the wide range of applications in which the proposals may be realized mean these figures are truly estimates.

This proposal is not expected to have any significant impact on capital costs.

**Precedents**

There are numerous jurisdictions and municipalities throughout the United States that prohibit hazardous materials from being stored below the floodplain.

**LEED**

Under most rating systems, LEED prohibits new construction on previously undeveloped land whose elevation is lower than 5 feet above the elevation of the 100-year flood as defined by FEMA (Federal Emergency Management Agency). Therefore, the measures outlined in this proposal do not apply to LEED for these conditions.

Under the LEED for Neighborhood Development rating system, SLL Prerequisite 6 Floodplain Avoidance, a project located on an infill site or a previously developed site must follow the National Flood Insurance Program (NFIP) requirements for developing any portions of the site that lie within the 100-year floodplain. Projects registered for certification under LEED-ND must research NFIP to determine compliance with LEED. Any such regulations regarding toxic materials storage are relevant to this proposal, and these measures will therefore result in a positive impact on LEED ND certification.

**Implementation and Market Availability**

Since programs addressing the storage of toxic chemicals already exist in New York City, the implementation of the proposal will require minimal additional effort. Modification to the DEP program will involve: 1) revisions to the notification and filing provisions of the RMPs; 2) DEP staff modifying their forms and procedures to require the RMP filing to address this issue; 3) the RMP filing to include a determination as to location vis-à-vis the 100 year floodplain, and if so, appropriate storage procedures; 4) DEP staff evaluation to include knowledge of flood plain boundaries; and 5) the DEP determination of appropriate storage procedures, if the facility is located in the 100 year flood plain.
ENDNOTES:
