

**REPORT OF THE
DEPARTMENT OF HOUSING AND
COMMUNITY DEVELOPMENT ON**

**Current Safety Regulations
Applicable To
Boat Storage Marinas**

**TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA**



HOUSE DOCUMENT NO. 64

**COMMONWEALTH OF VIRGINIA
RICHMOND
1990**



COMMONWEALTH of VIRGINIA
DEPARTMENT OF
HOUSING AND COMMUNITY DEVELOPMENT

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TO: The Honorable L. Douglas Wilder and the Honorable Members of the 1990 Virginia General Assembly

The 1989 General Assembly, by House Joint Resolution 337, requested the Board of Housing and Community Development to study the current safety regulations applicable to boat storage marinas.

Enclosed for your review and consideration is the report that has been prepared in response to this resolution.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Neal J. Barber".

Neal J. Barber, Director
Department of Housing and
Community Development

NJB/jh

Enclosure



**REPORT OF THE BOARD OF HOUSING AND
COMMUNITY DEVELOPMENT**

**Study to determine the adequacy
of the current Building Regulations
Applicable to Boat Storage Marinas**

**TO THE GOVERNOR AND THE GENERAL
ASSEMBLY OF VIRGINIA**

INTRODUCTION

House Joint Resolution 337 of the 1989 General Assembly requested the Department of Housing and Community Development to study the safety, or lack of safety, of the construction or location of boat dry storage marinas which involve 100 or more boats and which are located in or near residential areas. The resolution also requested the study to include a review of the construction regulations regarding sprinkler system requirements, boat and fuel storage requirements, availability and proximity of fire hydrants, proximity to residential neighborhoods, and the requirements for placing fire hydrants on piers.

This resolution was presented to the Board of Housing and Community Development, which is responsible for promulgating the regulations governing the construction of all buildings and structures within Virginia. The Board responded to this resolution by directing staff to conduct public meetings for the purpose of developing a draft of proposed amendments to the current regulations.

FINDINGS

Status of Current Regulations

Volume I - New Construction Code of the 1987 Edition of the Virginia Uniform Statewide Building Code (USBC) is a mandatory, statewide uniform regulation which must be complied within all buildings or additions hereafter constructed, altered, enlarged, repaired, or converted to another use group. Its purpose is to protect the health, safety and welfare of building users, and to provide for energy conservation, water conservation, and accessibility for the physically handicapped and aged. Enforcement by local governments is mandatory. Provision is made for modifications by the building official when alternate means will provide equivalent health and safety. An administrative appeals system is established for resolution of disagreements between the building owner and the building official.

The technical requirements of the USBC are based on the 1987 National Building Code, which is a nationally recognized model building code published by the Building Officials and Code Administrators International (BOCA). The purpose of adopting the BOCA code is to benefit the citizens of Virginia by promoting efficiency in the building industry, many aspects of which are interstate in nature.

The 1987 BOCA code classifies boat dry storage marinas as Moderate Hazard Storage facilities (Use Group S-1). This Use Group designation is the mechanism used

by BOCA to establish and reference the levels of fire safety which must be provided in the structure. These fire safety criteria are developed in recognition of accepted firefighting practices and the historical fire safety record associated with the type of building under consideration.

The building code requirements which are pertinent to this study include:

1) Exterior wall fireresistance ratings:

The code requires that the exterior walls of a building provide a prescribed level of fire protection to adjacent properties. For example, the exterior walls of boat storage buildings are required to provide a 2 hour fireresistance rating when the building is located within 5 feet of adjacent property, and 1 hour when located between 5 and 10 feet from adjacent property. No fireresistance ratings are required when the structure is more than 10 feet away from adjacent property.

2) Suppression system requirements:

The building code requires automatic fire sprinkler systems be installed in all Use Group S-1 buildings;

- a) When the building is more than 12,000 square feet in area; or
- b) When the building is more than 24,000 square feet in total area on all floors; or
- c) When the building is more than 3 stories in height.

3) Standpipe system requirements:

The code requires standpipe systems to be installed in boat storage buildings when;

- a) The building is three or more stories in height, and more than 3,000 square feet in area per floor; or
- b) The building is four or more stories in height regardless of the area per floor.

4) Fuel storage:

The code regulates the construction of containers in which any fuels are stored, the amount of fuel which is permitted to be stored inside the building, and the arrangement of the storage. The code also requires that inside storage of more than 100 gallons of fuel be located within rooms that are enclosed by construction which provides a 2 hour fireresistance rating.

Summary of Public Input

The Department solicited public input at four meetings which were advertised in accordance with the Administrative Process Act. The comments received during the public input period were submitted by Delegate Harry R. Purkey (R) 82nd District, Fairfax County Division of Fire and Rescue, Henrico County Building Inspection Department, the Virginia Marine Resources Commission, the Virginia Department of Fire Programs, and the Virginia Marine Industries Association.

These comments suggested that proposed amendments should be drafted that;

- a) Apply only to new boat storage facilities, regardless of the number of boats which might be stored in any building, and
- b) Reference the construction requirements contained in the National Fire Protection Association Standard for Fire Protection of Boatyards and Marinas (NFIPA 303).

Fairfax County suggested that the current provisions of the Statewide Fire Prevention Code adequately regulate boat and fuel storage; therefore, no amendments were needed for this aspect of the study.

The Virginia Marine Industries Association further suggested that halon fire suppression systems be installed in boats, and that boats have master disconnect switches installed on their electrical systems.

Draft Regulations Proposed

The Board of Housing and Community Development reacted to the public input by promulgating a draft of proposed regulations which incorporated the construction requirements from the NFIPA 303 Standard into the USBC. The NFIPA Standard requires automatic fire sprinklers to be installed in all boat storage buildings which exceed 5,000 square feet in area, and in any combustible building exceeding 500

square feet in area that is located on a pier. The NFPA Standard also requires smoke detection systems to be installed in boat storage buildings, and standpipe systems for all piers exceeding 200 feet in length extending from shoreline.

The Board determined that installing halon fire suppression systems within stored boats was not an acceptable alternative to providing sprinklers. The effectiveness of halon fire suppression systems is limited by the ability of the protected area to retain a percentage of the halon extinguishing agent over an extended period of time. Therefore, the boats would need to be individually enclosed and sealed to prevent the escape of the extinguishing agent.

Summary of Public Hearing

The Board received public comment on the draft regulations at a public hearing held on August 21, 1989 in House Room C of the General Assembly Building.

Comments supporting the draft regulations were submitted by Isle of Wight County, Fairfax County, the Virginia Department of Fire Programs, and the Virginia Code Change Advisory Committee. The Virginia Code Change Advisory Committee is a group of building related professionals representing the Virginia Fire Prevention Association, the Virginia State Fire Chiefs Association, the Virginia Chapter of the American Institute of Architects, the Virginia Home Builders Association, and 25 other professional organizations.

The Board also received recommendations to retain the current text of the regulations from the Virginia Building and Code Officials Association and the State Building Code Technical Review Board. Section 36-100 through 36-118, Code of Virginia, establishes the State Building Code Technical Review Board and their responsibility to interpret the provisions of the building and fire prevention code, and to hear appeals which arise from the enforcement of these regulations. The Code of Virginia also provides that the State Technical Review Board make recommendations to the Board of Housing and Community Development regarding the modification, amendment or repeal of these regulations. These parties suggested that the proposed amendments were not justified by sufficient documentation, and that the current regulations provided appropriate levels of fire safety to the public. The statistical fire data compiled by the National Fire Protection Association was cited as documentation that the current code requirements are adequate. The National Fire Protection Association's Fire Analysis and Research Division has compiled statistics on the numbers of fires, property loss, and fire related deaths and injuries for the years 1983 through 1987. This data reveals that fires in boat storage facilities account for an average of .01% of all structure fires that occur in the United States. These structure fires resulted

in total dollar loss of \$6,045,500,000 each year; of which \$3,140,000 (.05%) was attributed to the 130 fires in boat storage facilities. Structure fires were responsible for an average of 4,950 civilian deaths, and 23,820 civilian injuries each year, of which 2 injuries and no deaths were attributed to the 130 boat storage fires.

Governor's Review and Comments

Governor Baliles's review and comments on these regulations urged the Board to carefully consider public comment as well as all available alternatives, and measure the balance between the impact of the amendments on the regulated entities and the present situation with respect to public safety. The Governor cited the substantial financial burden which would be placed on the owners and investors of boat storage facilities as the basis for his comment.

FINAL ACTION

The Board of Housing and Community Development resolved that adoption of amendments to the current regulations was not justified. This decision was based on the recommendations of the State Building Code Technical Review Board, the limited impact these amendments would have on public safety, and the fiscal impact which would be placed on the construction of small boat storage buildings.

The Board concluded that any newly constructed boat dry storage marina which houses 100 or more boats will exceed 12,000 square feet in area; therefore, current regulations would require installation of sprinklers prior to being occupied. The proposed amendments would only affect those facilities which are between 5,000 and 12,000 square feet in area. These small structures are normally located in areas which do not have an adequate public water supply available to meet the demands of a sprinkler system. Therefore, the building owner would be required to provide a private water supply which is dedicated to the sprinkler system. Private water supply costs can easily approach \$50,000, not including the costs for installing fire pumps and piping used to transfer the water from the supply source to the sprinkler heads.

The Board determined that the functional use of boat storage buildings inhibits the protection provided by a sprinkler system. The typical boat storage building is a pre-engineered steel frame structure, enclosed by a metal shell. Boats are brought in through large openings located at the ends of the building, and then stored within racks that are adjusted to accommodate the height of any individual boat. The sprinkler heads are usually located above the adjustable boat storage racks, with the

sprinkler piping attached to the steel bar joists and purlins which support the roof. Therefore, boats stored in upper racks obscure those located on lower levels from the protection provided by the sprinkler system. Based on this finding, the Board concluded that no single national standard adequately addresses the functional use of boat dry storage marinas.

The Board also resolved that the storage of flammable and combustible liquids was adequately regulated by the USBC, and can be continually monitored through the application of the Statewide Fire Prevention Code.

