



BATTALION CHIEF THOMAS J. PIGOTT- CHIEF OF TECHNOLOGY MANAGEMENT
OFFICE OF TECHNOLOGY MANAGEMENT
BUREAU OF FIRE PREVENTION



9 METROTECH CENTER – BROOKLYN, NY 11201

TECHNOLOGY MANAGEMENT BULLETIN # 02/2011 (REV. 02/13)

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Effective Date: Immediately

Purpose: This document establishes guidelines for the submission of the TM-5: Application for Rooftop Access Variance/Plan Review, in accordance with the rooftop access and obstruction requirements set forth in the NYC Fire Code (2008) §FC504.

Background: This bulletin is a guidance document, intended to help provide a better understanding of the Fire Code requirements for rooftop access and obstructions. **It does not supersede any applicable laws, rules or regulations.** FC504 sets forth detailed requirements for rooftop access and obstructions. This bulletin, in combination with FC504 and the Fire Code Frequently Asked Questions should be utilized to better understand the code requirements (click for link to [FDNY FAQ](#)). FC504 was enacted on July 1, 2008. This section requires that rooftops of buildings **100 feet or less** in height be provided with six foot wide by six foot deep roof access points along sides of the building that are accessible to fire apparatus, and a six foot wide clear path that runs from the front of the building to the rear, and from side to side. Rooftop arrangements existing on July 1, 2008 that were not in compliance with these requirements were not required to be brought into compliance, unless altered as set forth below. Alteration of existing rooftops, and new rooftop installations trigger compliance obligations for the entire roof. Alterations include any addition to, or modification of the devices, equipment and systems installed, other than repairs or in-kind (like-for-like) replacements in the ordinary course of business. An example of an ordinary repair would be the servicing or replacement of components of an existing installation. Technology upgrades/changes must be filed for review.

Code Analysis: The four major components of the rooftop access provisions of FC504 are as follows:

1. UNOBSTRUCTED ROOFTOP ACCESS LOCATIONS AND LANDINGS

FC504.4.1.1 states: "For each 12 linear feet of building perimeter accessible from the frontage space of the building and from any other exposure accessible to fire apparatus, a minimum clearance of 6 feet in width and 6 feet in depth from any obstruction shall be provided at the parapet wall or other perimeter of the rooftop. Where such building perimeter is 24 linear feet or greater, but less than 36 linear feet, the required clearance

openings shall be separated by a distance of not less than 12 linear feet. Where such building perimeter is 36 linear feet or greater, the required clearance openings may be contiguous, provided, however, that such contiguous openings shall not exceed 12 linear feet and shall be separated from other required clearance openings by a distance of not less than 12 linear feet. Each exposure accessible by fire apparatus will be treated separately for purposes of locating clearance openings and otherwise complying with the requirements of this provision.”

The required number of unobstructed rooftop access locations along any wall fronting on a street or a parking lot is determined by dividing the perimeter wall length by 12, and rounding **down** to the nearest whole number. For example, a wall with a perimeter length of 30 feet would require 2 access locations: $30 \div 12 = 2.5$, which is rounded to 2. Similarly, a wall with a perimeter length of 36 feet would require 3 access locations. Between access openings, a separation distance of at least 12 feet is required. For purposes of this section, the Fire Department considers adjacent parking lots as an exposure accessible to fire apparatus. Examples of typical arrangements which would satisfy the code requirements for access locations are found on page 6 of this document.

There may be instances where a 12-foot separation distance between rooftop access landings is not attainable. These will require the filing of a TM-5 Application. All access landings are required to be a minimum of 6 feet wide by 6 feet deep. Access openings less than 6 feet in width are considered obstructed segments of perimeter access.

2. SIX (6) FEET WIDE CLEAR PATH

FC504.4.2.1 states: “A clear path of not less than 6 feet horizontal width and 9 feet in height shall be provided from the front of the building to the rear of the building and from one side of the building to the other, except that a conduit or pipe in compliance with the requirements of this section may cross such path. Such clear path shall be accessible from each point of the rooftop access from which clearance is required pursuant to Section 504.4.1.”As detailed below, these include roof access locations and landings, doors opening onto a rooftop, and fire escape or roof access ladders. Buildings constructed with separate wings would require a clear path for each wing. Also, every 100 feet of building width or depth requires a distinct clear path. Thus, for example, a building 220 feet in overall width would minimally require 2 distinct clear paths from front to rear. A 300 foot wide building would minimally require 3.

3. ROOFTOP DOOR OPENING CLEARANCE

FC504.4.1.2 states: “Minimum clearance of 6 feet in all directions shall be provided from each door opening onto a rooftop from a dwelling unit, stairway, bulkhead, or other occupied space or means of egress, as measured from the door hinge.”

4. FIRE ESCAPE CLEARANCE

FC504.4.1.3 states: “Minimum clearance of 3 feet in all directions shall be provided from any fire escape or rooftop access ladder, as measured from each side of the ladder or landing.”

The Fire Department will not approve plans, which reflect cable trays, conduits or other obstructions, which obstruct a rooftop fire escape landing/gooseneck landing. Existing

and/or proposed modifications to the rooftop fire escape landing or the threshold between the roof and the fire escape landing or gooseneck landing, which do not comply with the requirements of 1-RCNY, the NYS Multiple Dwelling Law, the NYC Building Code and/or the NYC Fire Code may not be completed. Seek explicit approval of the Department of Buildings and NYC Fire Department for any work which alters egress to/from a rooftop fire escape landing, gooseneck ladder or the threshold between any roof and a fire escape.

**Code
Compliance:**

Many rooftop arrangements existing on July 1, 2008 do not comply with the rooftop access and obstruction requirements. If an alteration is being proposed to an existing rooftop that has a preexisting feature that would not be compliant under FC504.4, or if the proposed alteration involves the installation of any device, equipment or system that would obstruct rooftop access, in violation of FC504.4, there are two options:

OPTION 1

The most desirable option from the Fire Department's perspective is to alter the existing arrangement of rooftop devices, equipment or systems, thus bringing the rooftop into compliance. The Fire Department recognizes that in many cases this may not be a practical alternative. In such circumstances, **prior** to any proposed work being performed, recourse shall also be made to the second option.

OPTION 2

An application for a variance must be submitted to the Fire Department for review and approval, including design and installation documents (rooftop plan), depicting the information required in the manner indicated in this guideline. Approval of variances may require alterations to existing or proposed layouts of a given rooftop. Completion of these will be a requirement for approval of the variance. In some cases, multiple providers, companies and/or owners are utilizing portions of the same rooftop. It is the responsibility of the applicant who is filing **this** Variance Application to seek cooperation and concurrence of the other parties, to ultimately either bring the entire roof into full code compliance, or establish a layout, which is holistically approved by the FDNY Rooftop Access Unit, and acceptable to the Fire Department.

MODIFICATION APPLICATIONS CAN BE OBTAINED ON THE FIRE DEPARTMENT'S WEB SITE AT:

http://www.nyc.gov/html/fdny/pdf/fire_prevention/TM5.pdf

**Common
Compliance
Issues:**

Indicated in this section are some of the most common reasons for non-compliance of rooftops. The list is not exhaustive. If any of the following apply to a given rooftop, a TM-5 Application shall be filed, to obtain a variance from the Fire Code requirements, with proposals to mitigate the issue of non-compliance.

1. Clear path width less than 6 feet (specify available width).
2. Clear path height less than 9 feet (specify available height).
3. An obstruction crosses the clear path, greater than 1 foot above the roof level.
4. Beam crosses the clear path (specify lower and upper beam elevation above roof).
5. Rooftop door opening clearance less than 6 feet from hinge (specify clearance).
6. Fire escape clearance less than 3 feet in all directions (specify available clearance).

7. Rooftop access landing area less than 6 feet by 6 feet (specify available dimensions).
8. Rooftop access landing area not connected to clear path.
9. Landing area connected to clear path by path less than 6 feet (specify available width)
10. Total number of rooftop access points (total feet) along building wall less than required (provide details).
11. Required arrangement of rooftop access landings not as per requirement (show actual arrangement of open and obstructed perimeter on plan set).
12. Inadequate clearance around rooftop scuttles/hatches or skylights.
13. The roof of a bulkhead or penthouse that is not accessible from the frontage space of the building or any other fire apparatus accessible exposure (i.e., where the roof is set well back from the perimeter of the building) generally need not comply with the requirements of §FC504.4. However, there may be instances where the location and/or size of the bulkhead or penthouse are such that it will be treated as a separate rooftop. For example, where the bulkhead/penthouse roof is located at the perimeter of an accessible building exposure and/or occupies a substantial portion of the building rooftop, compliance will be required. The Fire Department often vents stairways and buildings from bulkhead and penthouse roofs, using portable ladders to gain access, and building owners are encouraged to maintain reasonable access for such firefighting operations even if not required by FC504.4.
14. If a rooftop penthouse or additional stories are constructed on an existing building, a review by the Rooftop Access Unit is required.

Preparation of Rooftop Plans:

Two rooftop plans (one of existing conditions, and one of existing conditions and proposed alteration) showing all relevant features, dimensions and distances shall be submitted with the TM-5 Application. Plans must bear the signature and seal/stamp of the Engineer or Architect of Record, as indicated on the TM-5.

Plans shall be formatted (to scale) to the folio size of 11 inches by 17 inches in dimension. The rooftop plan should be drawn to scale and indicate actual dimensions, including a directional compass.

The rooftop plan shall be prepared subsequent to an engineering site survey. The plan shall provide an overhead view layout of all building design features, including the location and labeling of fire escapes, bulkheads and rooftop access points, and the location and labeling of all devices, equipment and systems installed on the roof, including antennas, cable trays, mechanical equipment, solar panels and roof gardens. The location and labeling of any structural supports and platforms for such devices, equipment and systems is also required. This layout shall clearly mark and label the rooftop access network, including rooftop access landings, clear paths and the path from each rooftop access landing to the clear path. Sample plans may be found on pages 7 and 8 of this document.

Indicate the type of device, equipment or system installed (proposed or existing) that is creating the non-compliant design feature. Assign an individual number designation to each non-compliant feature and identify on the plan, by such number. **All proposed work on rooftop shall be shown in bold typeface.** Presentation of information in tabular form, and the submission of photographs, sketches or elevations to assist in the identification and description of the non-compliant features are required to supplement the application.

Current photographs shall be included in the plan set, for each section of the roof. Each non-compliant feature must be clearly shown in a photograph. All photographs must be marked with the date the photograph was taken and plans should be marked to indicate the location and direction of the photograph.

Rooftop plans shall detail the relative location of the building in question, to adjacent buildings on the same side of the street and all streets and parking lots accessible to fire apparatus access. Accessible exposures shall be labeled as such. Indicate different roof levels for the same building and attached buildings, and any fixed ladders, or other means provided to gain access between such roofs.

Indicate the type and height of all obstructions in the clear path, which are greater than 1 foot and less than 9 feet above the roof. Indicate the location and width of all required step-overs in the clear path from the rooftop access area to the clear path. **Note: all proposed step-overs shall be of non-combustible construction, durable, and equipped with railings.**

Indicate cable tray heights and widths, including those that cross over the clear path and those that are located in the path from the rooftop access area to the clear path. If cable trays run adjacently, provide the total width of the adjacent cable trays.

The rooftop plan shall also contain a legend, as follows:

- UNOBSTRUCTED ROOFTOP ACCESS LOCATIONS AND LANDINGS

Rooftop access locations shall be indicated on plans using the symbol ①. The rooftop plan shall be marked to show the actual dimension of each landing. Label all segments along a building's accessible perimeter as "open or obstructed" on the actual plan.

- CLEAR PATH CLEARANCES

Clear paths, front to rear, and side to side shall be indicated using the symbol ②. All clear paths are required to have a minimum width of 6 feet. The rooftop plan shall be marked to show the actual width dimension of the clear path, and any restrictions to it.

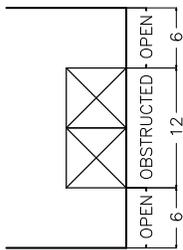
- ROOFTOP DOOR OPENING CLEARANCES

Door openings shall be indicated on plans using the symbol ③. All rooftop door openings are required to have a minimum clearance of 6 feet, measured as a semi-circle from the hinge side of the door (hinge as the center of the semi-circle). The rooftop plan shall be marked to show the actual dimension available for each door.

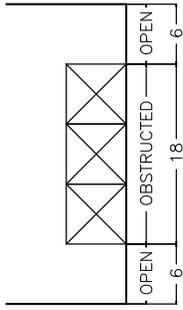
- FIRE ESCAPE CLEARANCES

Fire escape and rooftop ladders shall be indicated on plans using the symbol ④. All fire escape and rooftop ladders are required to have a minimum clearance of 3 feet. This is measured by indicating a 3-foot clearance around each stringer, and then extrapolating a line between the two, 3-foot semi-circular clearances. The rooftop plan shall be marked to show the actual dimension available for each fire escape and rooftop ladder.

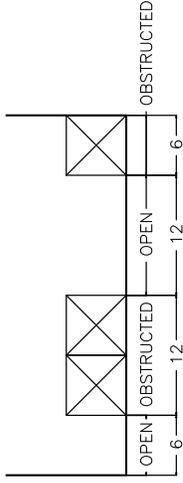
24' WIDE BUILDING



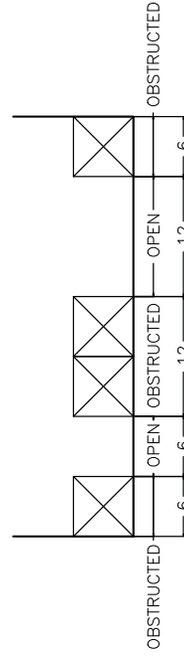
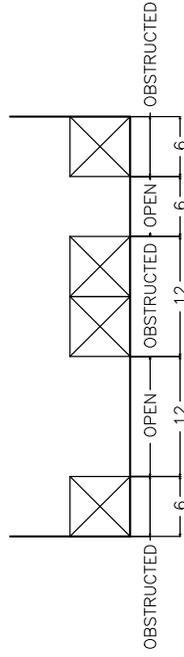
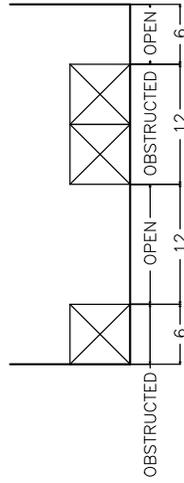
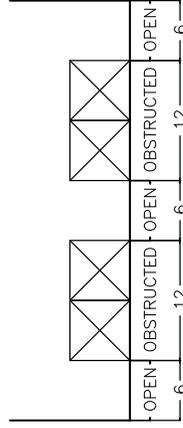
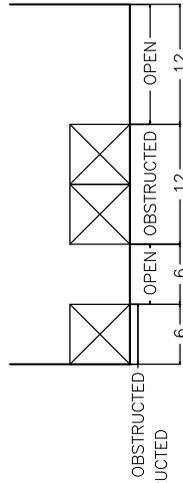
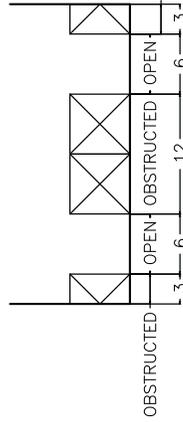
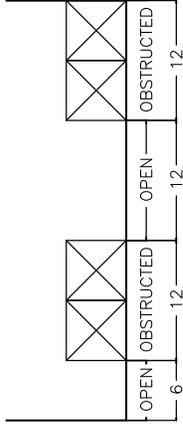
30' WIDE BUILDING



36' WIDE BUILDING



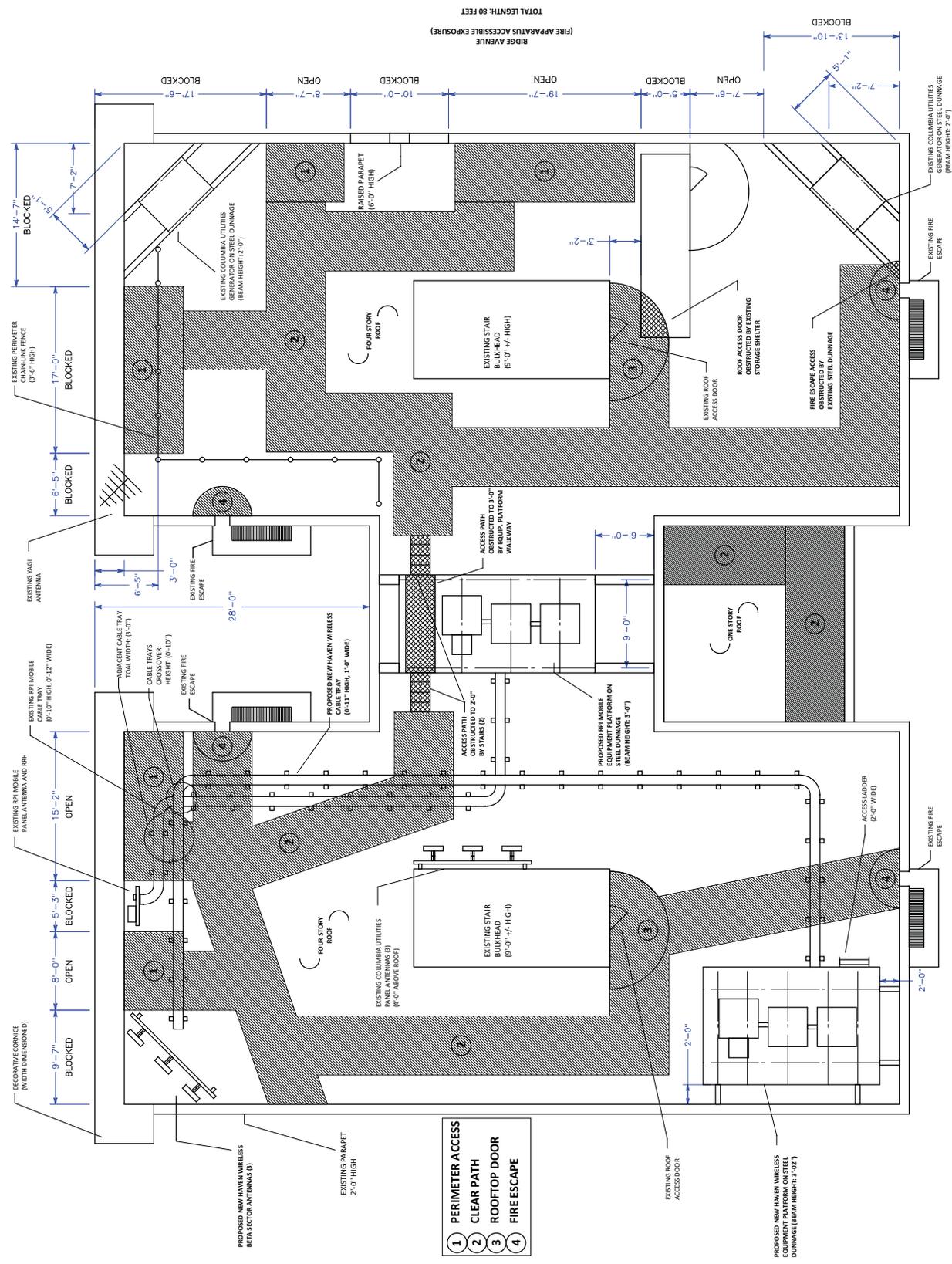
>36' WIDE BUILDING



OBSTRUCTED



MAIN CORRIDOR
(FIRE APPARATUS ACCESSIBLE EXPOSURE)
TOTAL LENGTH: 100 FEET



- 1 PERIMETER ACCESS
- 2 CLEAR PATH
- 3 ROOFTOP DOOR
- 4 FIRE ESCAPE

EDGE AVENUE
(FIRE APPARATUS ACCESSIBLE EXPOSURE)
TOTAL LENGTH: 80 FEET

- 1** UNOBSTRUCTED ROOFTOP ACCESS LOCATIONS AND LANDINGS
- 2** CLEAR PATH CLEARANCES
- 3** ROOFTOP DOOR OPENING CLEARANCES
- 4** FIRE ESCAPE CLEARANCES

