



2017 CUNY Rooftop Access Training

March 3, 2017
John Ingenito

Overview



- Firematics & Operations
- Code Analysis: 2014 NYC Fire Code Sections FC504.4 & FC512
- Common Non-Compliant Installations and Solutions



PLEASE HOLD ALL QUESTIONS
UNTIL THE END

THANK YOU



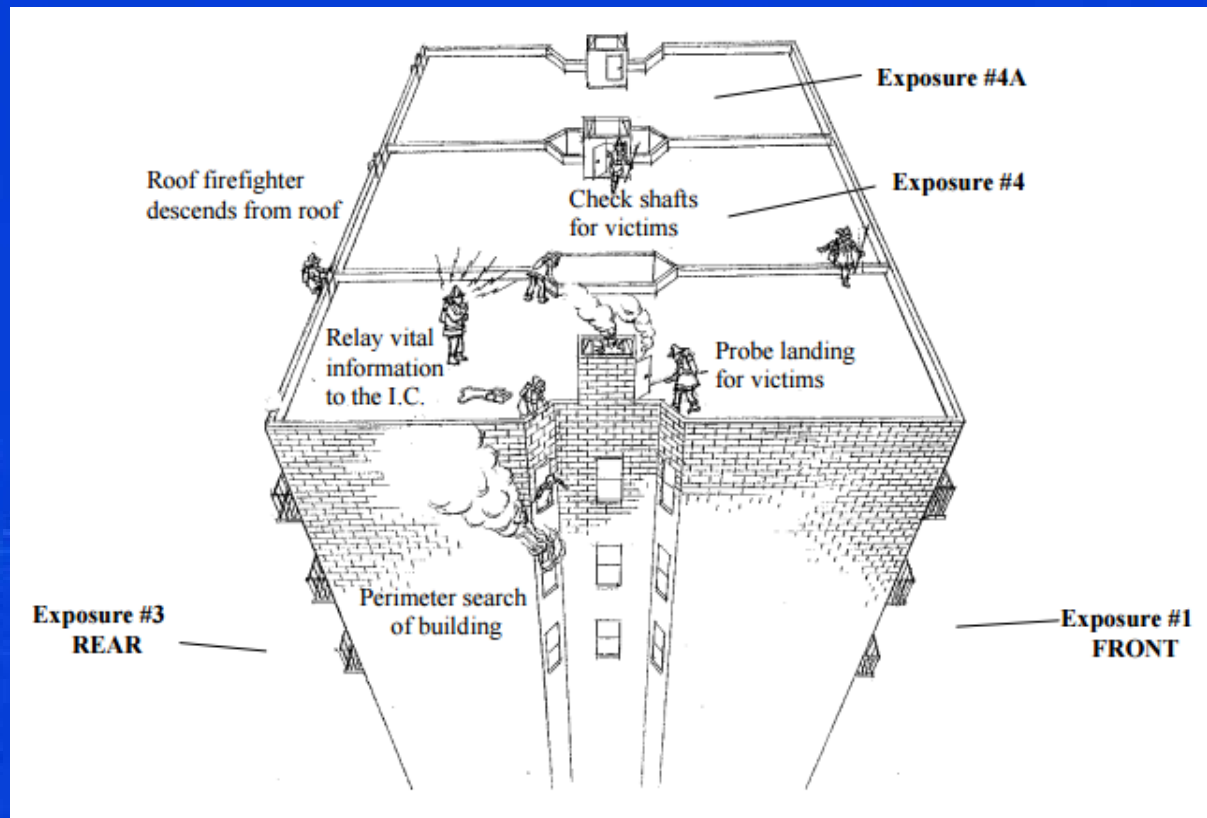
Roof of the Fire Building

Nothing shall deter the member assigned the roof position from carrying out the assigned duties.





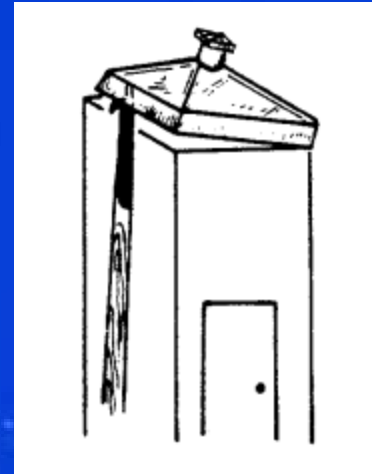
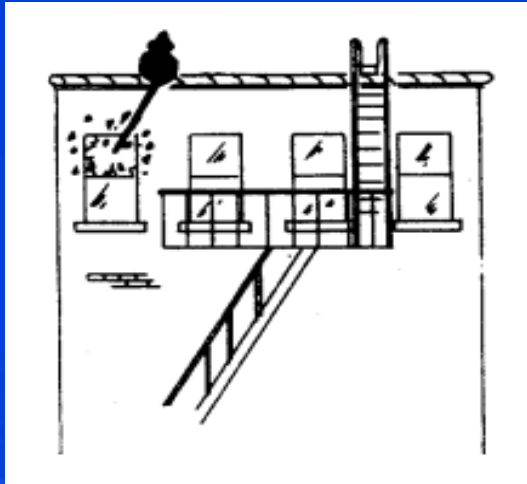
Roof Position Requirements



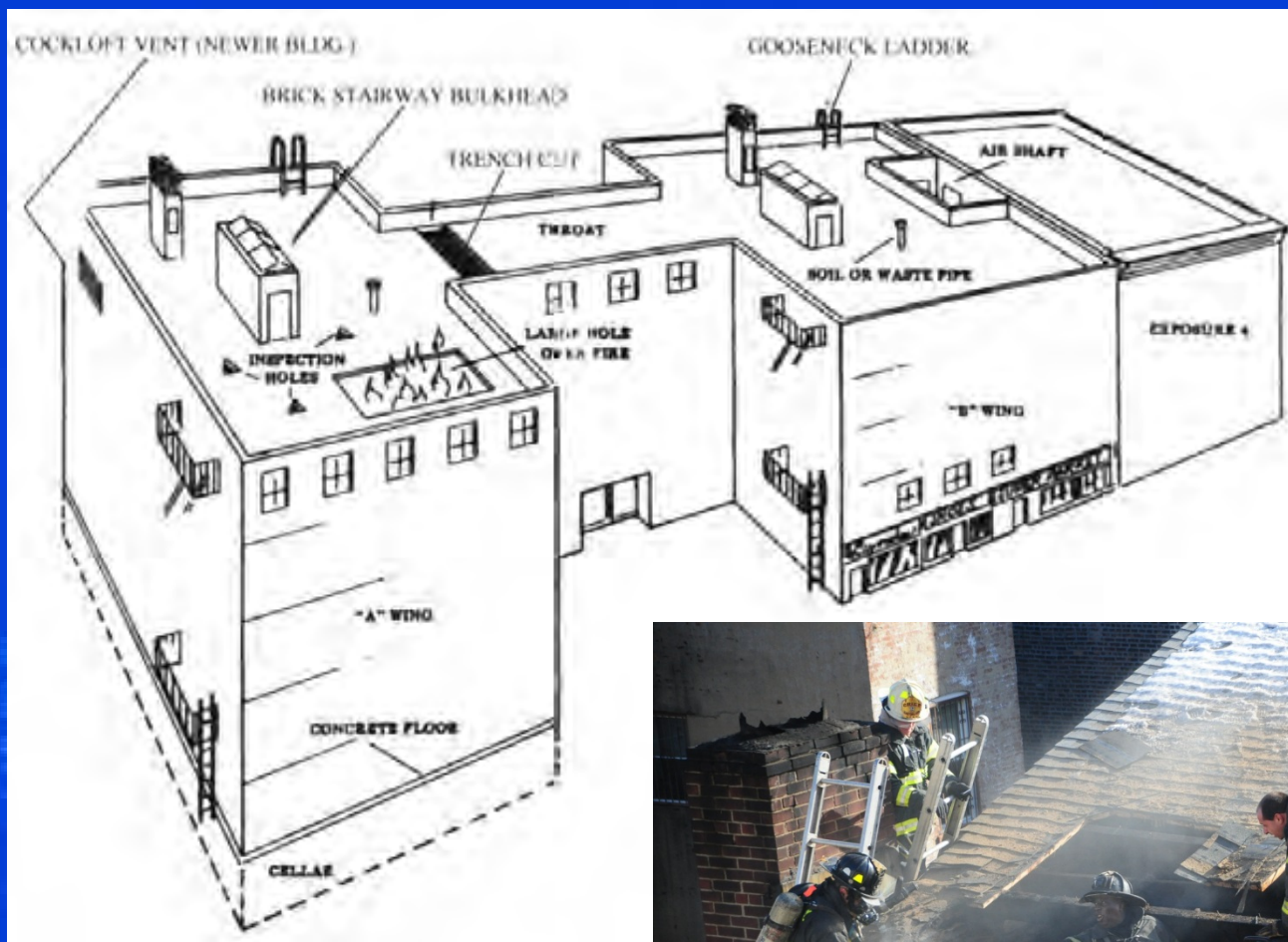
- A **perimeter search** shall include the sides, rear and shafts of the building.
- Transmitting **vital information** to the Incident Commander.



Roof Position Requirements



- Roof **ventilation** is critical for search, rescue and extinguishment of the fire. Relieves the upper portions of the building of heat, smoke and gases, limiting horizontal spread.

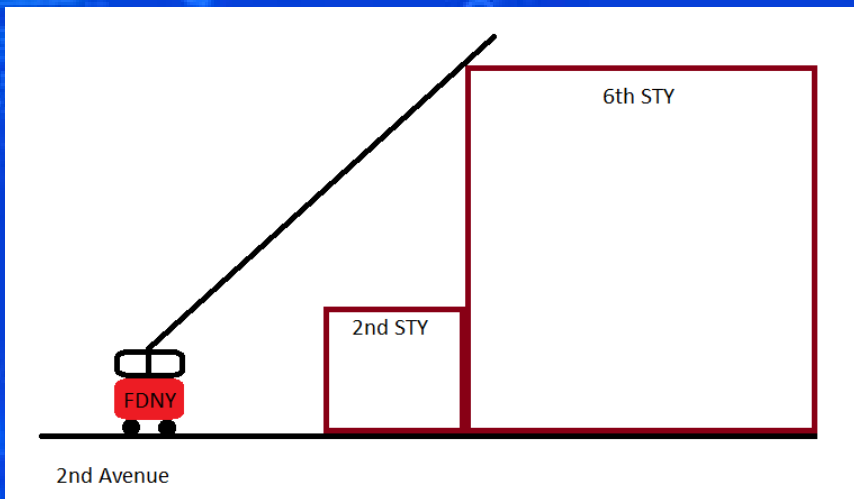


Overview of FC504.4

Rooftop Access and Obstructions



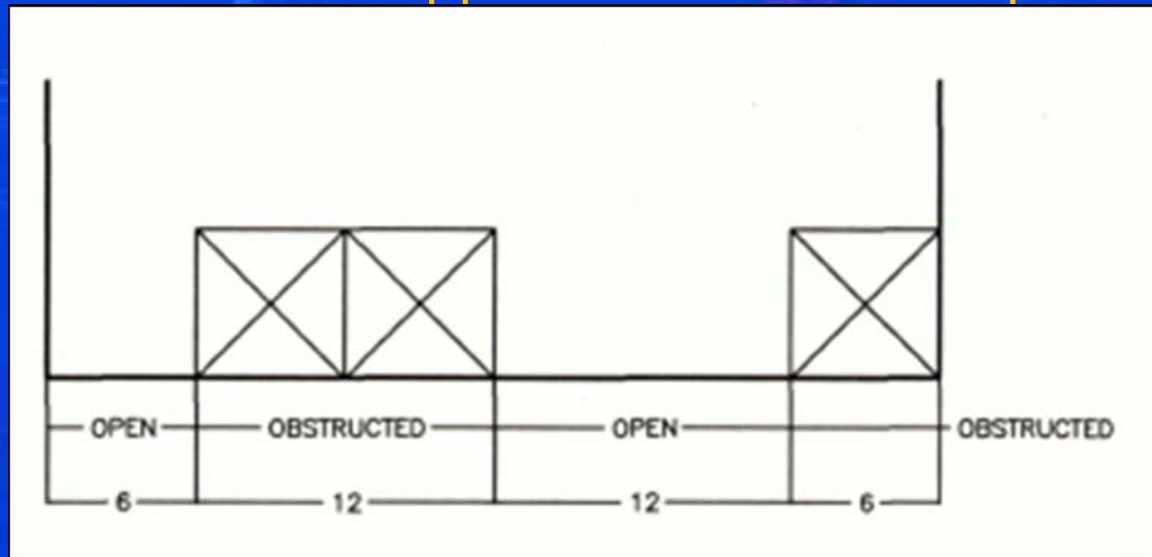
- 2014 Fire Code effective as of March 30th, 2014
- Buildings that are 100 feet or less in height and have a slope of 20 degrees or less
- Includes the rooftops of building setbacks





FC504.4.1 Access Openings

- Every 12 FEET of frontage width requires 6 FEET open
- There can be NO MORE than 12 FEET of obstructed rooftop area between distinct openings
- Pattern depends on building size
- Only calculated for an apparatus accessible exposure





FC504.4.3

- Perimeter access location shall be a min. of 6' in each direction & connect to clear path
- Fence shall not obstruct access landing and shall provide access to clear path via gate.
- Gates
 - 3' wide, inward swinging
 - May be secured by padlock or chain
 - Able to be cut by standard bolt cutter

Non-Compliant Fence



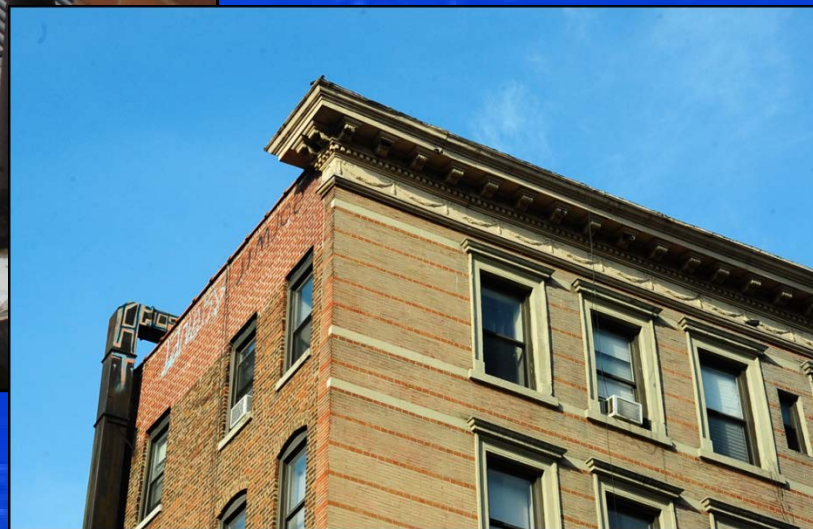


Measurements

- Measurements from inside face of parapet wall
- Raised/Decorative Parapets: Indicate height of all segments



Sloped Parapets: “usable” rooftop space begins where slope meets flat portion of roof





FC504.4.1[5]



Structures affixed to an exterior building wall below the roof line shall not obstruct fire apparatus aerial ladder access to the rooftop perimeter access locations. Including but not limited to:

- Awnings
- Sun Control Devices
- Solar Panels
- Fire Escapes





Scaffolding & Signage

- FC504.4.1[6]
 - Existing scaffolding modified to provide access onto rooftop
 - New scaffolding be designed to provide secure landings onto rooftop
- FC504.4.2
 - Rooftop access signs and markings
TBD by Fire Department when required



Clear Path Summary

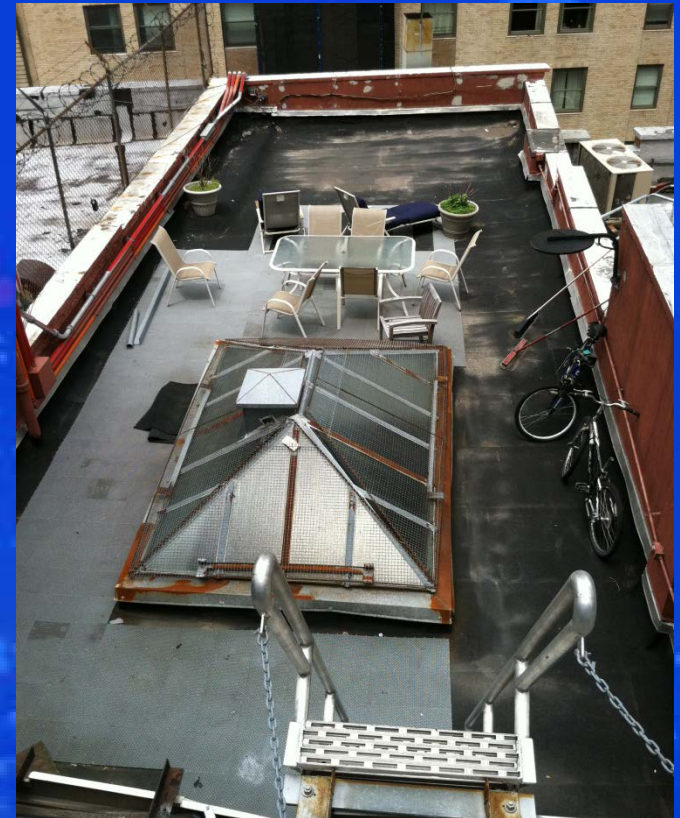
- FC504.4.4
 - Clear path is 6' wide & 9' tall
 - Traverses front to rear & side to side
 - Distinct clear path every 100 linear feet.
- FC504.4.4[1]
 - Clear path connects to access landings
- FC504.4.4[2]
 - Fire escape, bulkhead door, scuttles, skylights shall be accessible from clear path
 - 3' wide access around scuttles & skylights on 3 sides
- FC504.4.4[3] see FC504.4.7
- FC504.4.4[4]
 - Fences crossing clear path shall provide gate(s)

FC504.4.6

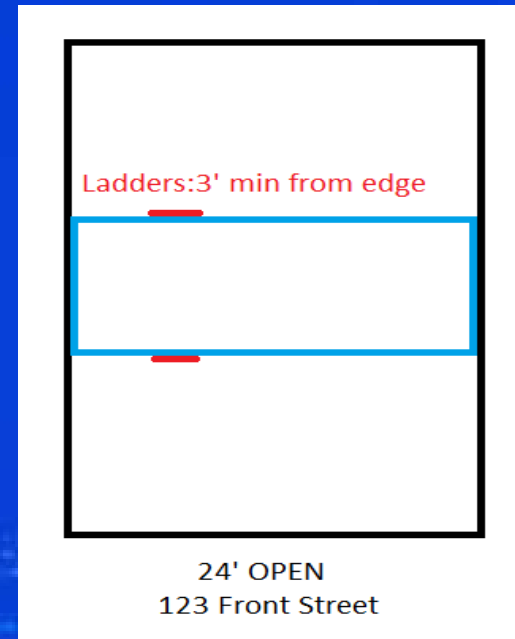


- Required rooftop clearances
 - Roof door: 6' clear radius from hinge
 - Fire Escape & Roof Ladders: 3' clear radius from each side of the ladder or landing

Clearances



Clear Path Summary Continued



- FC504.4.4[5], Multiple Roof Levels
 - 1 story difference and less than 16' difference (Ladders)
 - Exception: setback is less than 6' (No ladders)

FC504.4.4[6]



- Irregular shaped buildings:
 - “H” shaped buildings (additional paths)

FC504.4.5



Rooftop clear path protection

Consists of 42" height
(from roof surface)
railing, parapet or barrier
Provide for open shafts,
building perimeter or
unprotected elevation
above rooftop

Exception:

Height differentials of 6
feet or less



Lack of Clear Path Protection



Obstructions



FC504.4.7 & FC504.4.8



- Conduits and Piping FC504.4.7
 - Labeled as required
 - Greater than 12" ht or 24" width, non-combustible crossover
- Telecommunications Installations FC504.4.8
 - Transmitter labeling
 - Signage as required for antennas, powered equipment, and related equipment





Rooftop Gardens

- FC504.4.9

- Shall not cause obstruction to required rooftop access, clear path, or rooftop door/fire escape clearances
- Vegetation shall not exceed 12" in height

- FC318.5 & Plumbing Code 429.1

- Hose connection to an approved water supply required for square footage exceeding 250 sq ft

Green Roof



FC504.4.10



- Rooftop solar installations shall be designed, installed, operated and maintained in accordance with FC512



Overview of FC512 Rooftop Solar Panel Installations





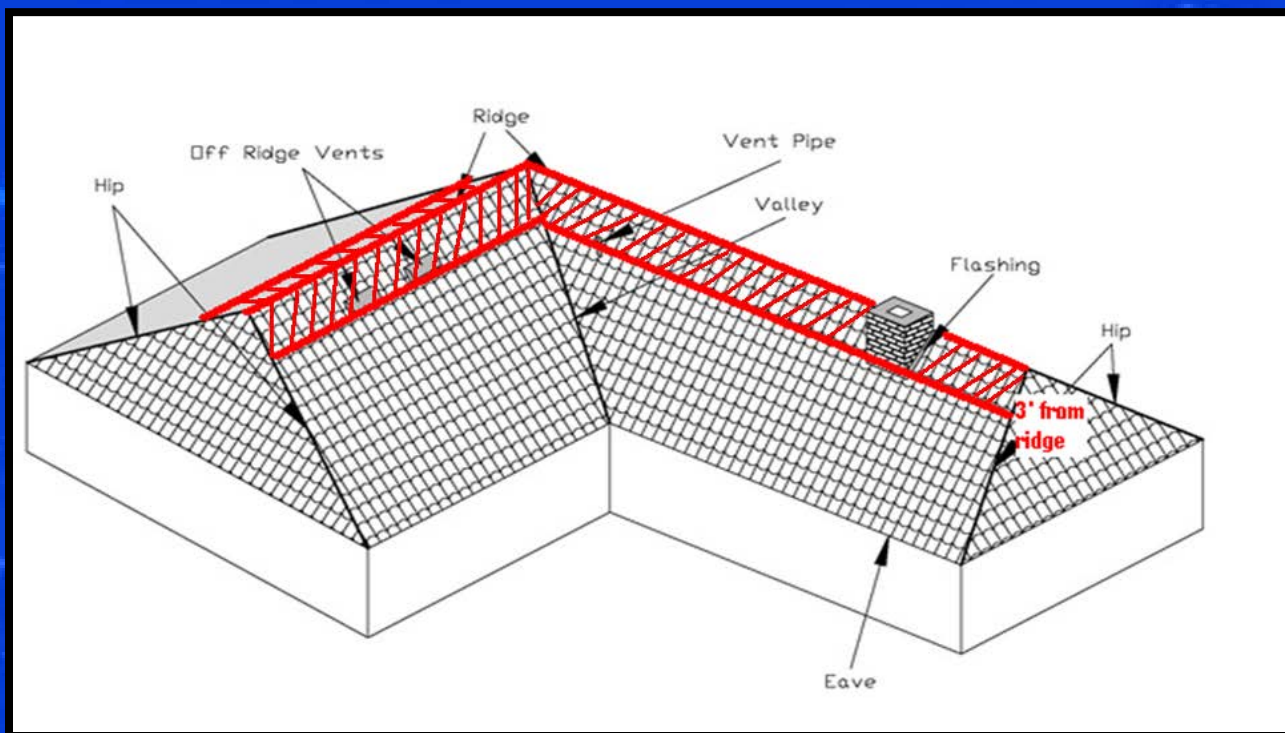
Summary of FC512

- Solar Panel on Flat Roofs shall comply with all requirements of FC504.4
 - **Exception to the clear path requirement:**
 - Approved** hinged mechanism for **clear path** obstructed by solar panels, NEEDS FD Certificate of Approval, TM-2 App. (FC 512.2[1])
 - Acceptable encroachments on the **clear path** for narrow buildings, 25 feet or less (FC 512.2[2])
 - Ex. Scuttles, skylights, vent pipes, and existing building features.
 - Solar panels can not be the cause of the encroachment.



FC512 Continued

- Solar Panels on Pitched Roofs, greater than 20°
 - Provide 3 feet of clearance along BOTH sides of the ridgeline of each roof (FC 512.3.1 & FC 512.3.2)





FC512 Continued

- Location of Panels & Markings (FC 512.4)
 - Locate conduits along dips and valleys away from ridge line (peaked roofs)
 - Solar panel equipment shall be labeled:
“WARNING: PHOTOVOLTAIC POWER SOURCE”
in white capital letters no less than 3/8” in height
on a red background

Accordingly, pending code revision or promulgation of a rule, the Fire Department will interpret FC504.4 and FC512.3 in accordance with the following interim guidelines:



- 1. A one or two-family home with a shallow-pitched roof (a roof slope of not less than 2/12, or 9.5%) shall comply with FC512.3, not FC504.4.
- 2. A one or two family dwelling that is primarily a flat-roof building shall comply with FC504.4, even if a portion of the roof is shallow-pitched or has a pitch exceeding 20%. For example, a brownstone-type building shall comply with FC504.4, not FC512.3, notwithstanding it having a pitched roof element (such as a mansard) or a penthouse or bulkhead with a pitched roof.
- A shallow-pitched or pitched portion of the building rooftop must be kept free of obstructions if it can be traversed to gain access onto, or across, the otherwise flat roof. Owners may request guidance from the Bureau of Fire Prevention as to the appropriate treatment of shallow-pitched or pitched portions of flat-roofed buildings.
- 3. This interim guideline shall not apply to shallow-pitched roofs on buildings other than one or two family dwellings (Occupancy Group R-3).



In summary, one or two family dwelling whose slope is 9.5 degrees or greater do not have to comply with the requirements FC504.4; these rooftops instead must comply with FC512.3. Specifically solar panels shall not be installed within 3 feet of both sides of any ridgeline.

Non-Compliant Solar Roof



What requires an application?



Non-compliance, whether existing or proposed

- New equipment on a rooftop including: Cell Sites, Solar/PV Arrays, HVAC, Fencing
- Vertical Enlargements (penthouses, bulkheads, new floors)
- Accessory/Incidental use of roof: deck, bar, greenhouse
- Green Roofs, Blue Roofs

To File An Application



- TM-5 Application
- \$420 plan examination fee
- 11"x17" plans original seal & signature (3 sets)
- Narrative for scope of work
- Photographs of current conditions on rooftop

Submit at Window #8, 9 Metrotech Center, Brooklyn, NY 11201

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



NEW YORK CITY FIRE DEPARTMENT
BUREAU OF FIRE PREVENTION

TM-5, rev 07/15

9 METROTECH CENTER, BROOKLYN, NY 11201-3857

TM-5: APPLICATION FOR ROOFTOP ACCESS VARIANCE/PLAN REVIEW

- FDNY TM-5 must be typewritten, submitted with supporting documentation including a narrative (see Item 8 below), signed and sealed 11"X17" plan set for review, and photographs of the existing/proposed conditions on the rooftop.
- Section 11 must be signed by the owner.
- Fee for Plan Examination: \$420 made in money order or check, payable to NYC Fire Department.
- Submit completed application in person at Window #8 on the first floor of FDNY Headquarters, 9 METROTECH CENTER, BROOKLYN, NY 11201-3857.
- Consult the [FDNY Technology Management Bulletin #2/2011](#) for specific plan preparation instructions.

1	Filing Status (required for all applications):			
Variance Sought for: <input type="checkbox"/> Proposed and/or <input type="checkbox"/> Existing Condition(s)				
<input type="checkbox"/> Initial Filing		<input type="checkbox"/> Resubmission (provide previously assigned FPIMS number, and attach copy of objection letter): FPIMS No(s):		

2	Premises Information (required for all applications):			
House No(s):		Street Name:		
Borough:	ZIP:	Block:	Lot:	
BIN:		Affected Floors:		

3	Applicant Information (required for all applications):			
Last Name:		First Name:		Middle Initial:
Business Name:			Business Tel:	
Business Address:		City:	State:	ZIP:
E-Mail:			License No:	
Choose One: <input type="checkbox"/> P.E <input type="checkbox"/> R.A				

4	Owner Information (required for all applications):			
Last Name:		First Name:		Middle Initial:
Business Name:			Business Tel:	
Business Address:		City:	State:	ZIP:
E-Mail:			Mobile Tel:	

5	Filing Representative (if applicable):			
Last Name:		First Name:		Middle Initial:
Business Name:			Business Tel:	
Business Address:		City:	State:	ZIP:
E-Mail:			Expeditor Registration No:	





6 Job Type (required for all applications, choose all that apply):	
<input type="checkbox"/> Telecommunications Antennas and/or Equipment Company Name: _____	<input type="checkbox"/> Penthouse/New Floor(s) Number of Floors(if applicable): _____
<input type="checkbox"/> Solar Array and/or Equipment Size of Array (No. of Panels): _____	<input type="checkbox"/> Occupiable Rooftop <input type="checkbox"/> Rooftop Deck
<input type="checkbox"/> HVAC/MEP Equipment	<input type="checkbox"/> Rooftop Restaurant/Bar
<input type="checkbox"/> Green Roof/ Blue Roof	<input type="checkbox"/> Other (if needed): _____

7 DOB Filing Status (required for all applications):
Filed with DOB? <input type="checkbox"/> NO <input type="checkbox"/> YES ▶ <input type="checkbox"/> Copy of PW-1, Schedule A and Certificate of Occupancy attached?
(If yes above): DOB Application No(s): _____

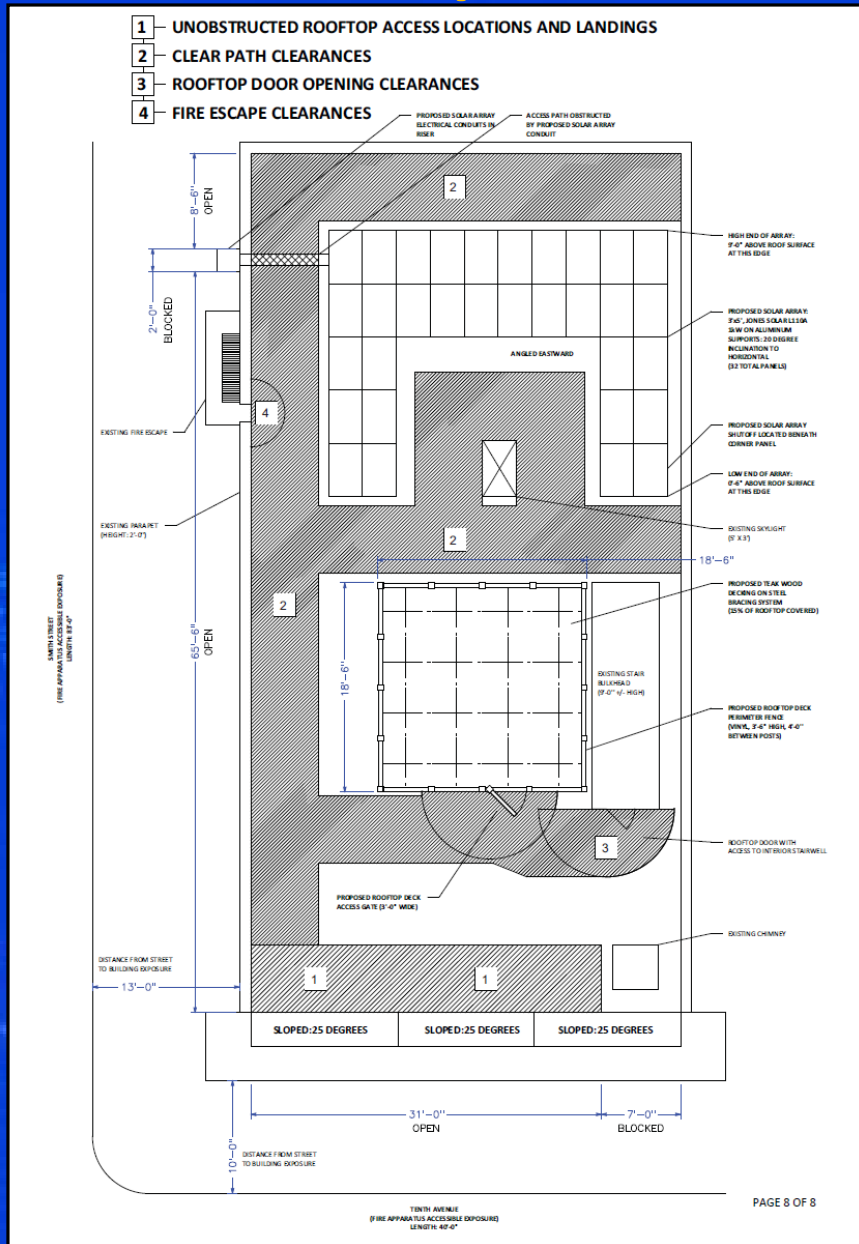
8 Nature of Modification (required for all applications):								
Compose a narrative description that addresses items 8a and 8b. Append the separate narrative to your submission packet.								
8a Explain, in detail, the specific nature of the modification sought, and describe the difficulty in complying with the requirements of the Fire Code or Fire Department Rule(s).								
8b Explain, in detail, how you propose to mitigate the effect of modifying the code or rule requirement. Include all measures intended to ensure public safety.								
8c Previously filed FDNY Variance Application(s) for the aforementioned prop erty. Indicate either FPIMS No(s) or FPIN(s), and status of filing (granted/objections/denied):								
8d Application submitted in response to an FDNY-issued violation, specifically for Rooftop Access/Obstructions? <input type="checkbox"/> NO <input type="checkbox"/> YES: (if yes, complete below the fields below) ▼								
<table border="1"><thead><tr><th>NOV/VO/Summons</th><th>Number</th><th>Description</th><th>Disposition</th></tr></thead><tbody><tr><td> </td><td> </td><td> </td><td> </td></tr></tbody></table>	NOV/VO/Summons	Number	Description	Disposition				
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9 Building Characteristics and Fire Protection Features (required for all applications):			
Occupancy Classification: _____	Building Height (ft): _____	<input type="checkbox"/> Fully Sprinklered	
Construction Classification: _____	Building Stories (No): _____	<input type="checkbox"/> Partially Sprinklered	
Construction Date: _____	Stairs Leading to Roof (No): _____	<input type="checkbox"/> Non-Sprinklered	
	Fire Escape(s) to Roof? <input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> Standpipe	
	Interior/Exterior Stair to Roof? <input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> Fire Alarm	

10 Applicant Certification (required for all applications):	
Under penalty of perjury, I certify that the information contained in this application is true, to the best of my knowledge.	
Applicant Name (please print): _____	
Signature ▶ _____	Date: _____

11 Owner Statement (required for all applications, must be signed by owner):	
I have authorized the applicant to file this modification with respect to the premises.	
Owner Name (please print): _____	
Signature ▶ _____	Date: _____

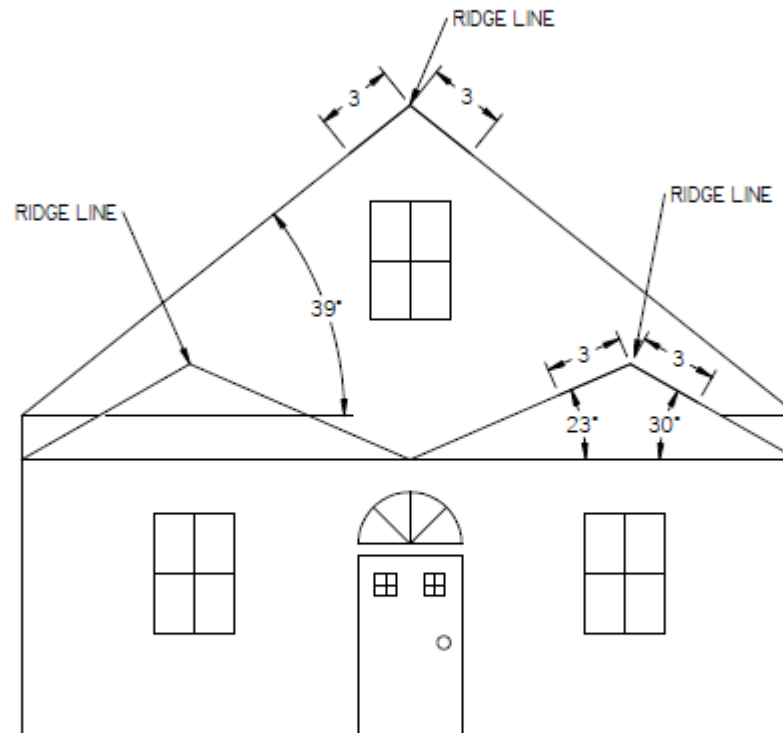
Sample Plan - Flat Roof



Include on plans

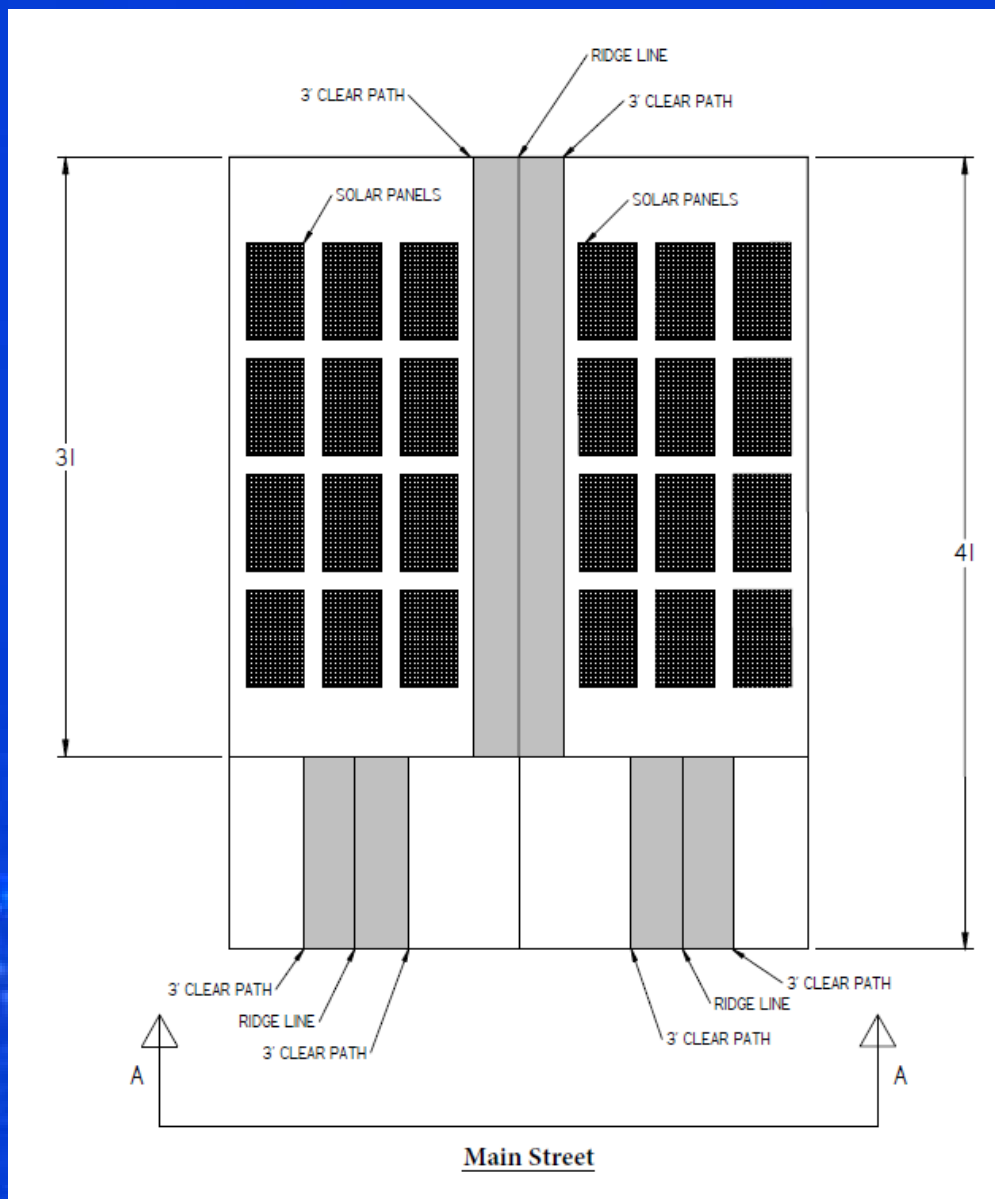
- Entire rooftop including setbacks, not only area of work proposed
- Label all existing/proposed building features
- Label all apparatus accessible exposures including parking lots
- Demonstrating compliance, showing required clearances
- State areas of non-compliance
- Proposed mitigation for non-compliance
- MUST have original PE/RA seal and signature

Sample Plan – Pitched Roof



VIEW A-A

Sample Plan – Pitched Roof





Reference material to determine Fire Code Compliance and prepare TM-5 Application:

- Fire Code – Section FC504 and Section FC512: in the NYC Fire Code, specifically regarding rooftop access and clear path.
- New York City Fire Code Guide (Formerly FAQs): posted on the Fire Department's web site in response to many of the industry's questions.
- Office of Technology Management Bulletin #2/2011 (Rev. 4/2016): This is a guidance document for the convenience of the public. It does not substitute for any applicable laws, rules or regulations.

Unit Contact Information



- Rooftop Access Unit Hotline: 718-999-1648
- Chief of Technology Management: Chief Thomas Pigott
- Supervisor of Rooftop Access Unit: Winnie Lei: 718-999-1970
- Plan Examiners: John Ingenito, Fares Rezk, Gennadiy Lak and Erik Perez.
- FDNY Website (for bulletin and application)
- Mailing Address: Rooftop Access Unit, Tech MGMT, Room 3W-2, 9 MetroTech Center, Brooklyn, NY 11201-3857