

SOLAR PANEL INSTALLATION

NYC Department of Buildings – April 26, 2018



Solar Permits Processing at the DOB

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- Solar Approval / Permit / Sign off
- Property Tax Abatement Program
- Zoning Requirements
- Specialized Applications
 - Cluster Projects
 - Flood Zone Projects
 - Ballast System Projects
- FDNY Code Guide
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Where we were:

- March 12, 2009 - 1 RCNY § 105-02 enacted on March 12, 2009 (amended over the years)
- April 30, 2012 - Zone Green amendment to NYC Zoning
- Solar systems installed primarily on 1- and 2- family residences
- Property Tax Abatement (PTA4) Applications required to be filed with HUB Full Service as D14/Self Certification of Objections, Non PTA4 Applications could be filed at any Borough.



Where we are:

- Total PTA4 and Non PTA4 applications filed (DOB records start from 2011)
 - 2011 – **165 Applications**
 - 2012 – **277 Applications**
 - 2013 – **761 Applications**
 - 2014 – **2016 Applications**
 - 2015 - **2399 Applications**
 - 2016 – **4084 Applications**
 - 2017 – **4631 Applications**
- PTA4/Non PTA 4 applications can be filed through **HUB Self-Service** (Professionally Certified) if they consists of 1- or 2-family residences, sloped roofs per FDNY definition and do not exceed 10 kW.
- Cluster projects are being filed and larger systems are being proposed
- Battery back-up system filing protocols have been put in place.
- FDNY has issued new guidelines for narrow buildings and required clearances.



Where we are going:

- Department of City Planning working on 'Zone Green 2' to reflect new technology and trends such as:
 - Solar Canopies
 - Battery back-up systems
- Community Solar Projects
- 1 RCNY § 105-02 is scheduled to expire on January 1, 2019. Typically it has been extended after prior expiration dates.



General Requirements

Construction Project Requirements by NYC Department of Buildings:

- **Construction Permit** – required before beginning of installation
- **Electrical Permit** – required before beginning of installation
- **Construction Sign-off** – required following the completion of installation
- **Electrical Sign-off** – required following the completion of installation
- **Licensing** – required to operate in New York City



Filing Requirements at the NYC Department of Buildings:

- **Projects filing for the Property Tax Abatement (PTA)** must be filed through the Hub Full Service Professional Certification of Objections process or, for 1- and 2 family homes with sloped roofs as defined by FDNY and a maximum of 10Kw, through a Professionally Certified Application at Hub Self Service as of January 1, 2016.
- **Projects NOT filing for the Property Tax Abatement (PTA)** can be filed in person at a DOB Borough Office, or online through the either Hub Full Service or Hub Self Service, Professional Certification



Licensing Requirements

- **New York State Registered Architect (RA) or Professional Engineer (PE)** – Required to submit drawings to obtain building permits and FDNY variances. Considered applicant of record . Anyone can prepare applications, but license numbers and seals are required on forms and officially submitted to DOB & FDNY.
- **NYC Certified Asbestos Investigator-** The NYC DEP requires a Certified Asbestos Investigator to verify if there is asbestos containing material (ACM) in the area construction is taking place unless the building was built per plans approved after April 1, 1987. The asbestos forms must be submitted through ARTS (Asbestos Reporting and Tracking System), and signed/sealed by the Certified Asbestos Investigator.
- **NYC Registered Special Inspector and Special Inspector Agency**– TR1 Special Inspection must be completed and signed by a registered Special Inspector
Note : Applicant of record may perform TR1 / TR8 progress inspections.

Electronically Filing Minor Alterations: Type 2

Step 1: File your application online

Fill out your forms online, upload all documents and drawings

Step 2: Pay online

Debit/Credit cards and E-checks are accepted online

Full payment at time of filing will expedite issue of Permit

Step 3: Submit

HFS: Submit job online for review as Professional Certification of Objections – no meetings required

HSS: Submit job online for instant approval – Professionally Certified

Step 4: Obtain Permit

Electrically submit PW2 Form and other documents

- Download the Permit



Solar Approval / Permit / Sign off

Required Forms for Construction Permit:

- **EF1** Cover Sheet for E-Filing Application
- **PW1** Plan Work Approval
 - Project zoning information, applicant and owner information
- **PW2** Work Permit Application
 - Can be submitted at the same time as PW1; usually signed by contractor, may be signed by PE or RA. Processed after plan approval
- **PW3** Cost Estimate
 - Application fees are based on construction cost
- **TR1** Technical Report, Statement of Responsibility
 - Special Inspections: Structural Stability, Fire-Resistant Penetrations and Joints,
 - Progress Inspections: Energy Code Compliance Inspections, Final
 - Other Special / Progress Inspections: As applicable



Required Forms for Construction Permit (cont'd):

- **TR8** Technical Report, Statement of Responsibility
 - Progress Inspections: Air Sealing and Insulation
- **TPP1** If Building is occupied during construction.
- **ACP7/ACP21 or ACP5** Asbestos documents submitted to DEP
 - ACP7/ ACP21 Asbestos containing material (ACP) present where construction will occur, where the work will disturb 25lf or 10sf of asbestos containing material
 - ACP5 – Minor project where less the above will occur
 - Exemption: buildings constructed per plans approved on or after April 1, 1987



Required Forms for Construction Permit (cont'd):

Items Required for specific job types only

- **PTA4** Property Tax Abatement
 - For projects requesting PTA. Preliminary form at filing for permit
- **FDNY Variance Approval Letter**
 - Required when variance to Fire Code requested and approved
- **POC1** Professional & Owner Certification
 - On-line form for Professionally Certified Applications filed at Hub Self Service (HFS)
- **AOS1** Professional/Owner Signature
 - On-line form for applications filed at Hub Full Service
- **PW1B/Plumbing Riser Diagram** Schedule B Plumbing
 - Required for Solar Thermal applications



Required Signatures:

- **Building Owner**
- **NYS Registered PE or RA**
- **General Contractor**
- **Certified Asbestos Investigator**
- **Notary**



Required Items On Architectural Drawings:

- **Plot plan** - location of the building on the site, pertinent trees, structures, city services, utilities, hazards, adjacent buildings, street
- **Site plan, roof plan(s), elevation(s)** - showing the solar modules in place, other equipment and structures, pertinent to or having impact on code compliance of the system, Fire Code compliance
- **System Components**
- **Location of Meter, AC Disconnect Switch, Inverter**
- **Zoning compliance** - including height and setback requirements for zoning district
- **Flood Hazard compliance** - if applicable, market value calculation, DFE and other flood lines



Required Items On Architectural Drawings (cont'd):

- **Energy Analysis** – NYCECC and Special Inspections Diagram
- **Anchorage & Racking System** - listed as an assembly, including structural criteria
- **Structural & Wind Analysis/statement**
- **Fire Department access** - for firefighting and maintenance (Fire Code § 512)

Note: No electrical drawings are required for architectural plan approval.



Required Items for Electrical Permit:

- **ED16A** – file electronically through the Hub online filing system. Must be filed by NYC Master Electrician
- **Manufacturer's Data Sheets** - Equipment specification sheets are required for all equipment including panels, inverters, and racking. Must be UL listed.
- **Three Line Electrical Diagram** – at sign off
- **Work Permit issued** – no plan review



Required Items For Construction Sign Off:

- **PW7** Letter of Completion, Folder review Request
- **PW3** Final Cost Affidavit
 - Re-submit PW3 with final cost even if costs did not change from original PW3 submission. Notary of owner signature is required
- **TR1** Final Technical Report
 - Special Inspections: Structural Stability, Fire-Resistant Penetrations
 - Progress Inspections: Energy Progress Inspection, Final
 - Other Special / Progress Inspections: As required
- **TR8** Technical Report,
 - Progress Inspections: Air Sealing and Insulation, Visual



Required Items For Construction Sign Off:

- **PTA4** Property Tax Abatement (PTA projects only)
- **Utility Interconnection Letter (PTA projects only)**
- **Construction and Electrical Inspection(Performed by DOB)**
- **EN2** Energy Analysis
 - Exemption can only be claimed on non-PTA projects and installs that do not drill holes in the roof or exterior enclosure
- **Notify Inspection Hub when work is ready for inspection and amendments filed (if necessary).**



Required Items After Construction Sign Off

- **After inspection, DOB will sign off and forward tax abatement application to DOF**
- **DOF will supply confirmation letter of Tax Abatement to owner including:**
 - Eligible expenditures % of property tax deduction;
 - Start and end dates of tax abatement.



To Obtain Property Tax Abatement:

- The PTA4 form must be received by March 15 in order for the abatement to commence on July 1 of that year.
- There will be a separate DOB final construction and electrical inspection by Solar team inspector for final signoff (placed in service date)
- An architect or engineer must certify
 - Compliance of the solar electric generating system with both Title 4-C and 1RCNY §105-02
 - The date the system was placed in service.
- The architect or engineer must complete the Application Form PTA4, sign and seal the form, and obtain the signature of the owner (Applicant for Property Tax Abatement).



Zone Green text amendment to the Zoning Resolution- effective on April 30, 2012

For buildings that are already at or above the maximum height solar panels allowed:

- On the roof of a building, **up to four feet in height**, as measured from the maximum height limit, or the finished level of the roof, whichever is higher;
- On the roof of a building, **greater than four feet in height**, as measured from the maximum height limit, or the finished level of the roof, whichever is higher, provided that all such portions above four feet are set back at least six feet from a street wall, limited to a lot coverage not greater than 25 percent of the lot coverage of the roof and do not exceed:
 - In R1 through R5 Districts, a height of six feet;
 - In R6 through R10 Districts, a height of 15 feet;
 - When located on a bulkhead or other obstruction, a height of six feet;
- On a roof with a slope greater than 20 degrees shall be limited to 18 inches in height, as measured perpendicular to the roof surface.



Zone Green text amendment to the Zoning Resolution- effective on April 30, 2012

- On walls existing on April 30, 2012, projecting not more than 10 inches and occupying no more than 20 percent of the surface area of the building wall (as viewed in elevation) from which it projects.
- Roof area coverage with solar PV (Local Law 20 of 2011) no longer counts as an additional story



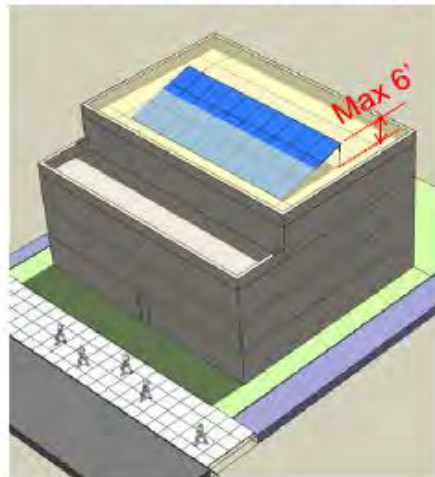
SOLAR (HIGHER THAN 4 FEET) New Regs



Allow elevated solar panels for fire access or other purposes, while limiting visibility

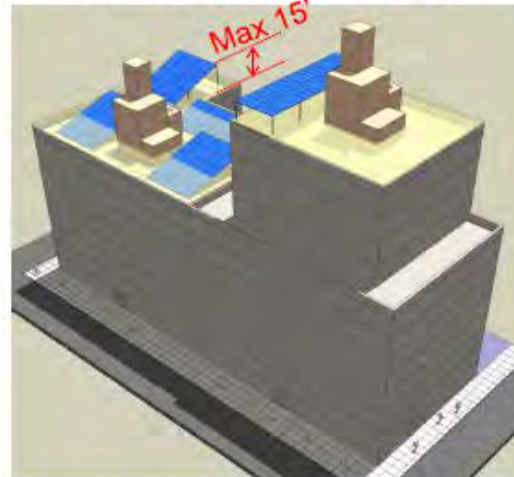
Solar more than 4 feet above height limit shall be set back 6 feet from roof edge and limited to 25 percent roof coverage

R1-R5 (including C overlays)



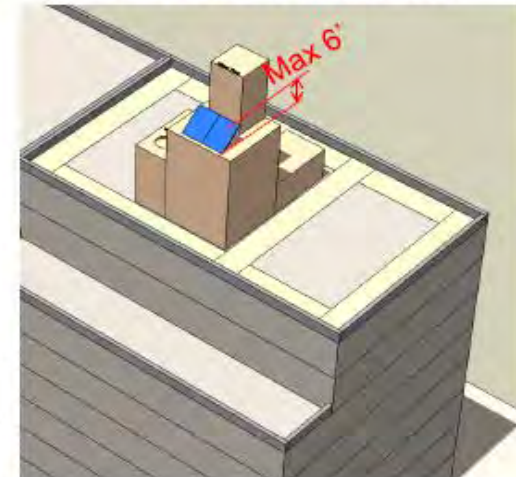
- 6 feet height above roof height

R6 – R10, C & M districts



- 15 feet height above the roof height

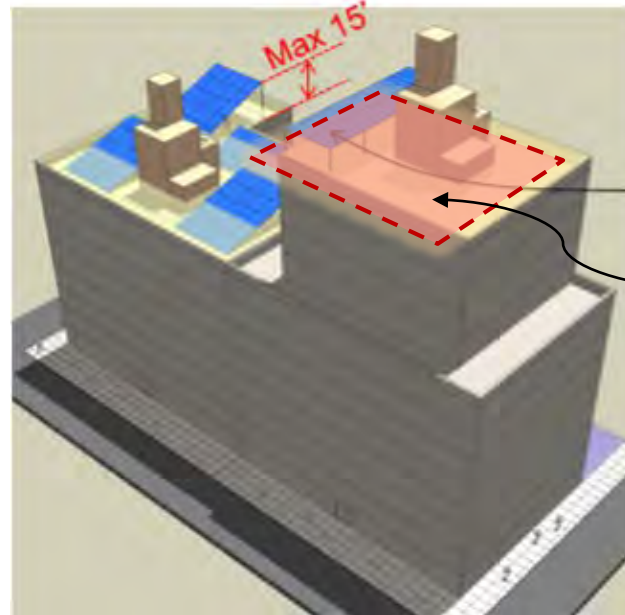
R5 – R10, C & M districts



- 6 feet above bulkhead

Zoning Requirements

As per 23-62 (m)(2), solar installations higher than 4 feet have **coverage limitations of 25%** that is calculated based on **the roof area on which solar are panels installed.**

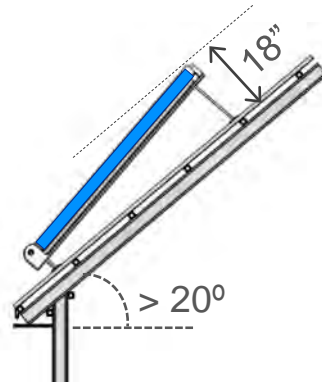


ZR 23-62 (m)(2)(ii)
25% coverage allowance is calculated based on the area of roof on which solar is installed

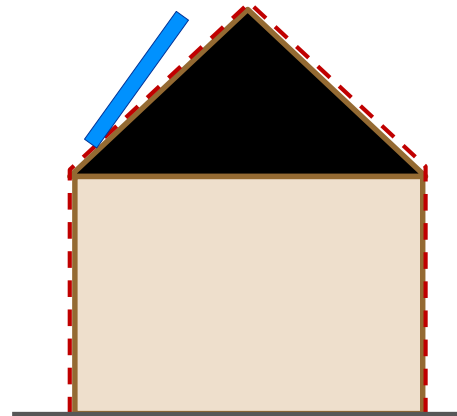


Zoning Requirements

Zone Green: Solar PV As A Permitted Obstruction On Pitched Roofs



On slopes greater than 20 degrees, solar panel height shall be limited to 18" measured perpendicular to roof surface



Permitted obstruction allowance for SOLAR ENERGY SYSTEMS ON FLAT ROOFS IN PITCHED ROOF DISTRICTS:

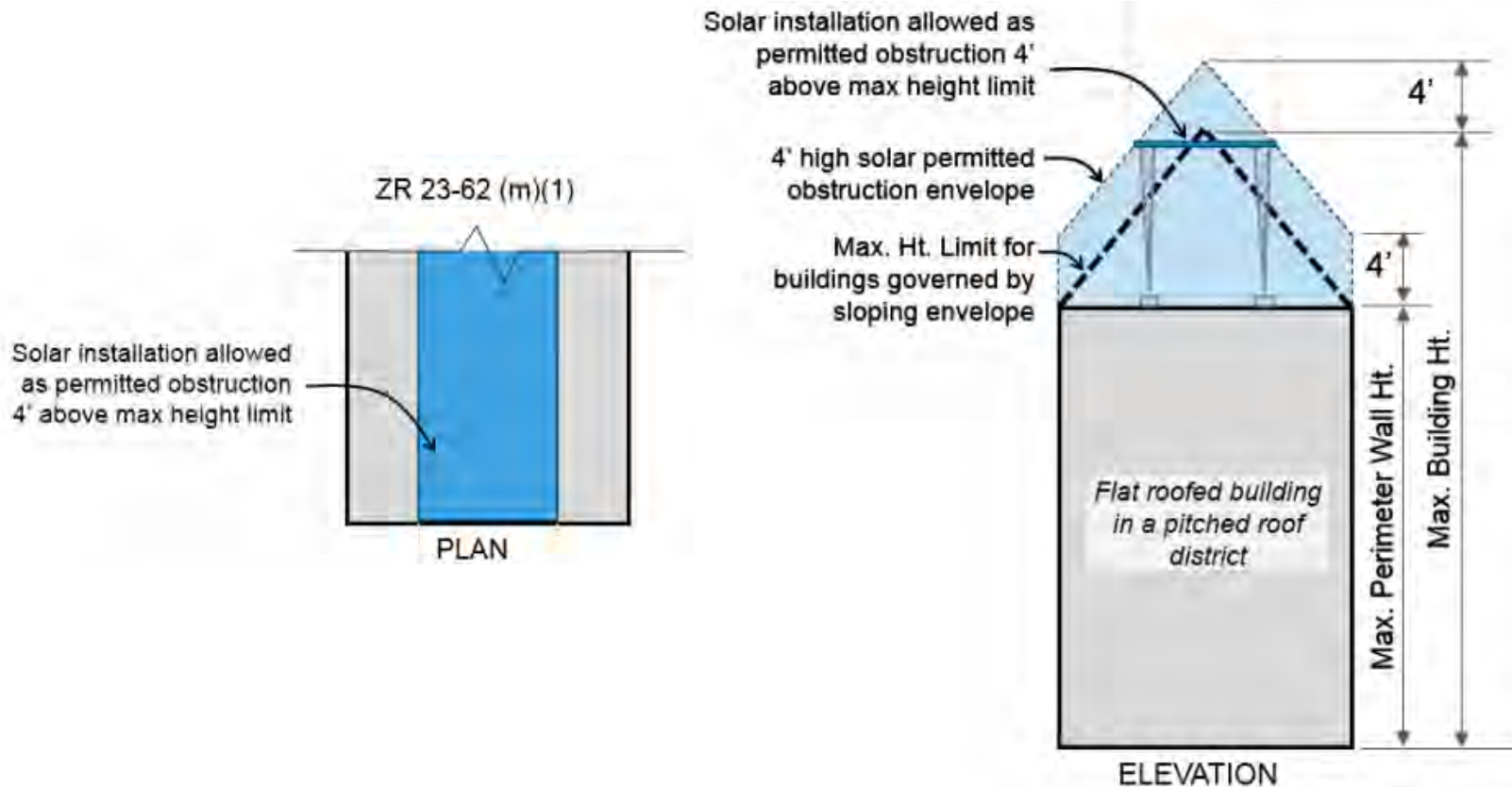
- **(APPLIES IN R1 THROUGH R5 DISTRICT)**

As per ZR 23-62 (m) (1):

- Solar installations are allowed on flat roofs, without square foot limitations, up to a height of 4 feet that is measured from the maximum building height or the height of the building, whichever is greater.
- However, in the case of flat roofs in districts with envelope determined by a sloping plane, the allowed envelope for the sloping roof is considered the maximum building height from which the permitted obstructions are to be measured. The four foot height is measured vertically (instead of perpendicular to the sloping envelope).

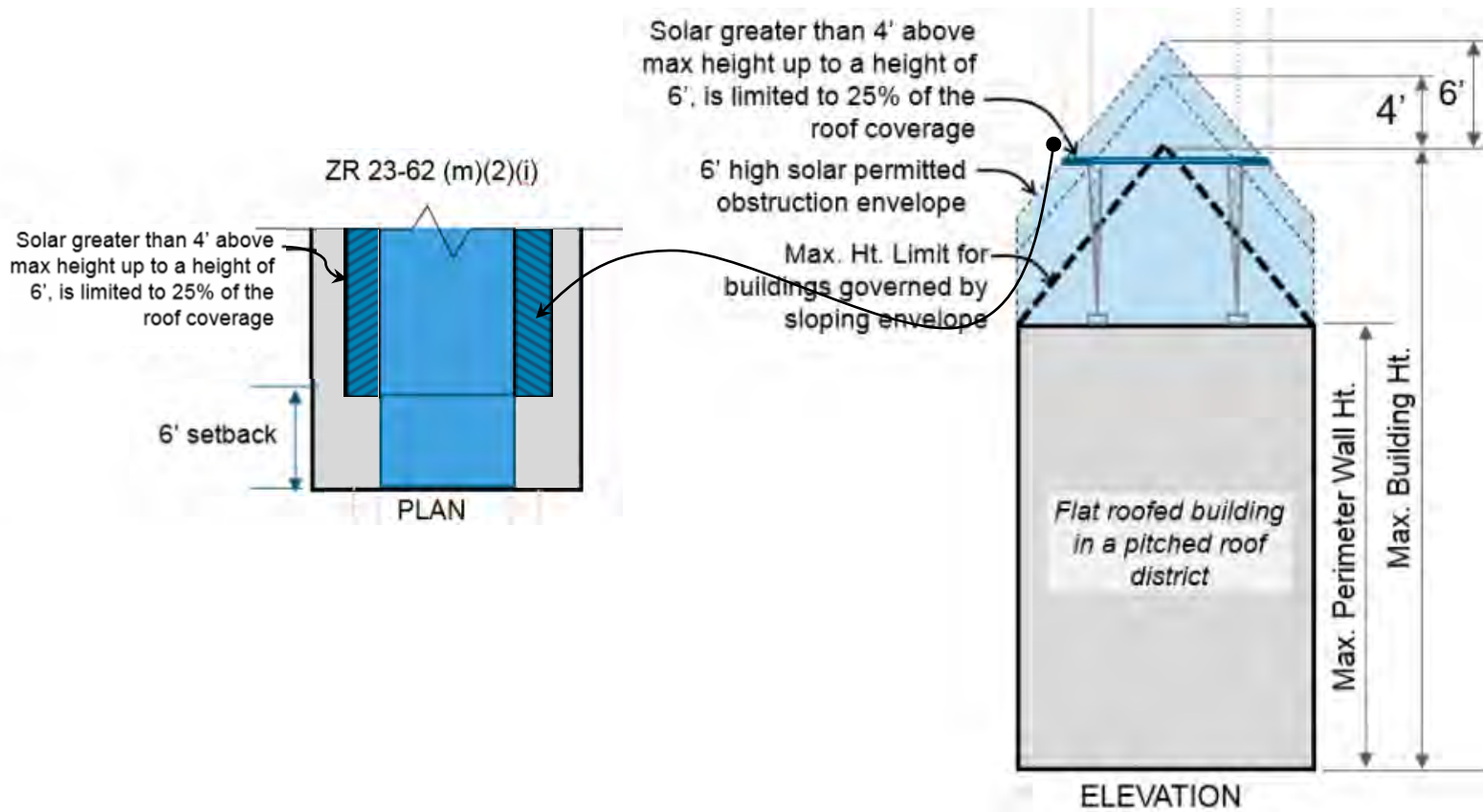
Zoning Requirements

Solar energy canopy up to 4 feet above envelope:



Zoning Requirements

Solar energy canopy higher than 4 feet above envelope:



Solar installations on non-complying buildings or non-conforming uses:

- Solar installations on buildings with **non-conforming** uses shall be considered “*incidental alterations*” per ZR 12-10. Such installations shall be subject to permitted obstruction regulations **measured from the existing height of the building rather than maximum height of the applicable district.**
- ZR 12-10 - “*incidental alterations*”: (a) Changes or replacements in the non-structural parts of a #building or other structure#.....



Cluster Projects

One tax lot with several buildings



one building/structure with multiple BIN'S on a single tax lot.

Cont. Cluster Projects

- Projects that consists of one building/structure with multiple BIN'S # on a single tax lot.
- Projects that consist of 'clusters' of buildings/structures that each contain multiple BIN's.
- Per DOF – Only one PTA can be issued for any one tax lot. However, If there is more than one building on the tax lot, each building/BIN is entitled to a tax abatement.
- Applicant to coordinate with Con Edison location of main meter and building interconnection..

Specialized Projects

How to File PW1 Form For Cluster Projects:

- Application must be filed under the Building/BIN where the main meter is located.
- Provide the following wording in section 11 of the PW1.

PW1

PAGE 3

11 Job Description	11A Related DOB Job Numbers
<p>See Section # 24 comments for full scope of addresses covered under this application</p>	
	11B Primary application job no.

- Provide the following wording in section 24 of the PW1.

24 Comments <i>Place additional comments on an AI-1 form. See Guide for proper incorporation of professional certification statements.</i>
<p>Comments for Doc.1-The scope of this solar application, job No. 123456789 applies to multiple attached building listed below represented by single a owner:</p> <p>123 Broadway, Queens -BIN 12345 124 Broadway, Queens -BIN 12356 125 Broadway, Queens -BIN 12367 126 Broadway, Queens -BIN 12379</p>

- Per the DEP, one (1) Asbestos Report is required under main BIN. Additional BIN's to be listed

Flood Zone Requirements:

- FIRM / PFIRM Maps.
- Substantial improvement calculations(if required)
- TR1 Form - Flood Zone Compliance - BC 1704.29 - BC G105
- Site Survey.

Option I: Site Survey or Elevation Certificate stamped by NYS licensed Surveyor within the last year.

Option II: Site Survey or Elevation Certificate older than 1year. This requires a professional statement and seal by applicant of record on an AI-1 Form stating: ***“The Site Survey is consistent with current site conditions”.***

Option III: Where all the equipment's (other than the AC disconnect switch) are located on the roof, Applicant shall include a utility certification on the plans stating: ***“I certify to the best of my knowledge, believe & professional judgment all work under this application is installed above the DFE in according with the appendix G of the NYC buildings= code except for the AC disconnect switch and conduit connection to the AC disconnect.***

Flood Zone Requirements:

2007 FIRM Map



2013 PFIRM Map



Equipment Locations in Flood Zone Projects:

- Con Edison utility meter can be located anywhere The utility company requests.
- Any new meter (from utility company and any other equipment must be located above the DFE (design flood elevation).
- AC disconnect switch may be located below the DFE and must be readily accessible per NEC article 100.Center line the operation handle, when it is in the highest position can not be more than 2.0 m(6feet 7In) above ground floor or working platform

Ballast Projects:

As per 1 RCNY 105-02 (e)(ii)(f):

- Ballast is prohibited for installations one hundred (100) feet or higher above grade.
- For rooftop installations less than one hundred (100) feet above grade and grade-level installations, ballast must be fully contained and must comply with requirements for aggregate in chapter 15 of the New York Building Code.



Recent updates to the FDNY Code Guide that affect roof obstructions and clear path requirements:

- FC Chapter 5- Fire Operation Feature # 37
 - Clarifies section FC 504.4.4(2) for required clearance around a skylight.
- FC Chapter 5- Fire Operation Feature # 39
 - Reduces 6'-0" clear path required by FC 504.4 at specific qualifying obstructions for buildings with a width or depth of not more than 25 feet.

Battery Back-up Projects

- For all Solar projects that incorporate battery back-up storage, Applicants will be required to obtain the following approvals for the battery:
 - **OTCR** (Office of Technical Certification and Research) Conditional Acceptance letter (prior to permit) and Final Acceptance letter (prior to sign-off)
 - **FDNY** Letter of No objection.

THANK-YOU!

Please email your questions to the Department at:

greenroofandsolar@buildings.nyc.gov

