NYC Buildings

2020 DIGITAL: SAFETY, INNOVATION & SUSTAINABILITY CONFERENCE

DEMOLITION: PLAN REQUIREMENTS & COMMON ERRORS

PRESENTED BY

Erik Jostock, RA

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PRESENTATION DESCRIPTION

This course will provide an overview of the submittal document requirements of the NYC Building Code, discuss safety considerations pertaining to the development of plans for the full demolition of a building or structure, clarify the necessary details expected to be provided by design professionals on the plans, and highlight common errors and omissions noted by Department plan examiners during the review process.

INTRODUCTION

- Construction Safety Compliance – CSC (formerly BEST)
- Review plan submissions for all full demolition (DM) filings, site safety plans (SSP), cocoon/climbing formwork plans where these systems are proposed in lieu of code mandated safety netting, construction Code determinations (CCD1)
- Site Safety Plan Examination team responsible for prior-to-permit review/approval of full demolition means and methods plans. These plans are reviewed for compliance with Code and other requirements.
- What are these requirements?

Demolition

CODE REFERENCES & DEFINITIONS

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REFERENCES

NYC Administrative Code
28-104 Construction Documents

2014 Building Code
Chapter 33 – Safeguards During Construction or Demolition
BC 3306 Demolition

Industry Notices
Minimum Content of Demolition Plan Submissions
Waivers of Foundation/Slab Removal and/or Backfill

BC 3306.5 SUBMITTAL DOCUMENTS: EXCEPTIONS

1.0 Emergency work pursuant to 28-215.1;

2.0 Three stories or fewer in height and no mechanical demolition equipment
2.1 Detached 1-, 2-, or 3-family dwelling
2.2 Both halves of semi-detached 1-, 2-, or 3-family dwelling
2.3 A detached accessory use to a 1-, 2-, or 3-family dwelling

3.0 Removal of foundations and landscaping elements accessory to 1-, 2-, or 3-family dwelling

4. Full demo of a building:
a. Fully detached,
b. 3-stories or fewer
c. Floor area less than 5,000 square or less per story
d. No use of mechanical demolition equipment

BC 3302 DEFINITIONS

- DEMOLITION. Full or partial demolition.
- FULL DEMOLITION. The dismantling, razing, or removal of all of a building or structure, including all operations incidental thereto.
- EQUIPMENT. Implements used to facilitate construction or demolition work.
- HANDHELD DEVICE (DEMOLITION). Equipment, mechanical or nonmechanical, utilized to physically demolish a building or structure, or elements of a building or structure, that is held, lifted, moved, and operated by a single person. A handheld device shall also include any item accessory to such equipment, including but not limited to a compressor, regardless of if such accessory item is held, lifted, moved, and operated by a single person. A handheld device does not include remote controlled equipment.

BC 3302 DEFINITIONS

- MECHANICAL DEMOLITION EQUIPMENT. Mechanically driven or powered equipment that is utilized to physically demolish a building or structure, or elements of a building or structure, either within or exterior to the building or structure, or that is utilized to move debris or material within the building or structure. Mechanical demolition equipment shall not include mechanically driven or powered equipment that is utilized to move debris or material outside of the building or structure.

- MAJOR BUILDING. An existing or proposed building 10 or more stories or 125 feet (38 100 mm) or more in height, or an existing or proposed building with a building footprint of 100,000 square feet (30 480 m2) or more regardless of height, or an existing or proposed building so designated by the commissioner due to unique hazards associated with the construction or demolition of the structure.

BC 3302 DEFINITIONS

- DEBRIS. Rubbish, waste, discarded material, or the remains of something broken down, demolished, or destroyed.
- DEBRIS NET or NETTING. A netting of a fine mesh of a size and strength sufficient to catch debris, such as falling tools and materials.

BC 3302 DEFINITIONS

- SAFETY NETTING SYSTEM. Debris or structural nets, installed vertically or horizontally, along with all supports, components, and connections.
- HORIZONTAL SAFETY NETTING. A safety netting system, installed horizontally, consisting of structural netting lined with debris netting.
- VERTICAL SAFETY NETTING. A safety netting system, installed vertically, consisting of debris netting.
- STRUCTURAL NET (STRUCTURAL NETTING). A system of nets capable of complying with the prototype test described in ANSI A10.11.

BC 3302 DEFINITIONS

- SCAFFOLD. Any temporary elevated platform and its supporting structure (including points of anchorage) used for supporting workers or workers and material, including but not limited to supported scaffolds, suspended scaffolds, and mobile scaffolds.
- SUPPORTED SCAFFOLD. One or more platforms supported by outrigger beams, brackets, poles, legs, uprights, posts, frames, including prefabricated frames that are mechanized but not motorized, or any similar rigid support, including back structures connecting hoistways to buildings, and including structures where sidewalk protection is constructed as an integral part of the apparatus.
- TEMPORARY CONSTRUCTION. Bracing, shoring, or other elements not part of the permanent structure and which are installed to facilitate construction or demolition work.

BC 3302 DEFINITIONS

- UNENCLOSED PERIMETER. Any exterior portion of a building that is not solidly enclosed with the permanent façade, including the windows; or any exterior edge of a roof that is not enclosed with its permanent parapet or guardrail.
- WORKING DECK (DEMOLITION). The level where the floor is being broken up.

EQUIPMENT

BC 3302 Definitions

Mechanical Demolition Equipment

Mechanically driven or powered equipment that is utilized to physically demolish a building or structure, or elements of a building or structure, either within or exterior to the building or structure, or that is utilized to move debris or material within the building or structure. Mechanical demolition equipment shall not include mechanically driven or powered equipment that is utilized to move debris or material outside of the building or structure.

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EQUIPMENT

BC 3302 Definitions

Handheld Device (Demolition)

Equipment, mechanical or nonmechanical, utilized to physically demolish a building or structure, or elements of a building or structure, that is held, lifted, moved, and operated by a single person. A handheld device shall also include any item accessory to such equipment, including but not limited to a compressor, regardless of if such accessory item is held, lifted, moved, and operated by a single person. A handheld device does not include remote controlled equipment.

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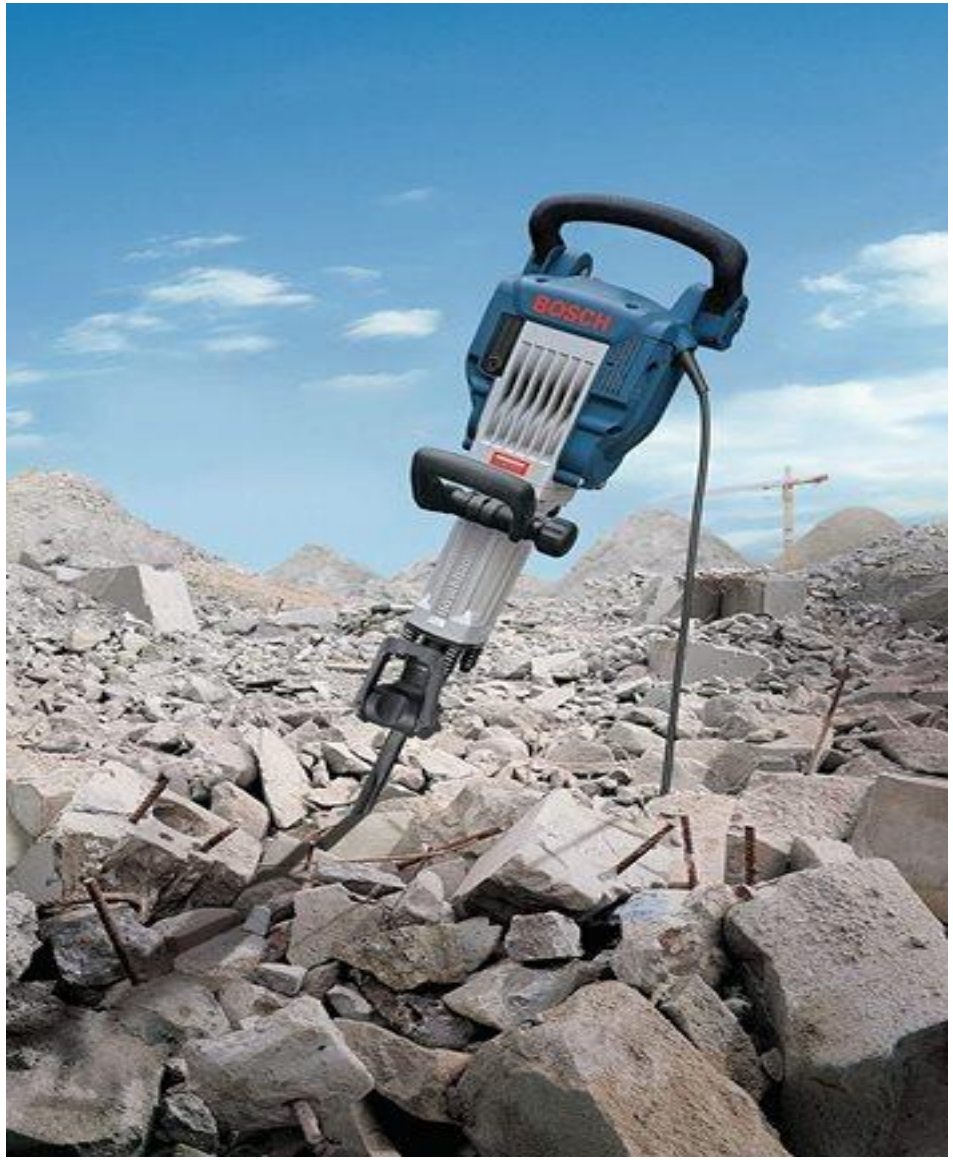

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Demolition

PLANNING

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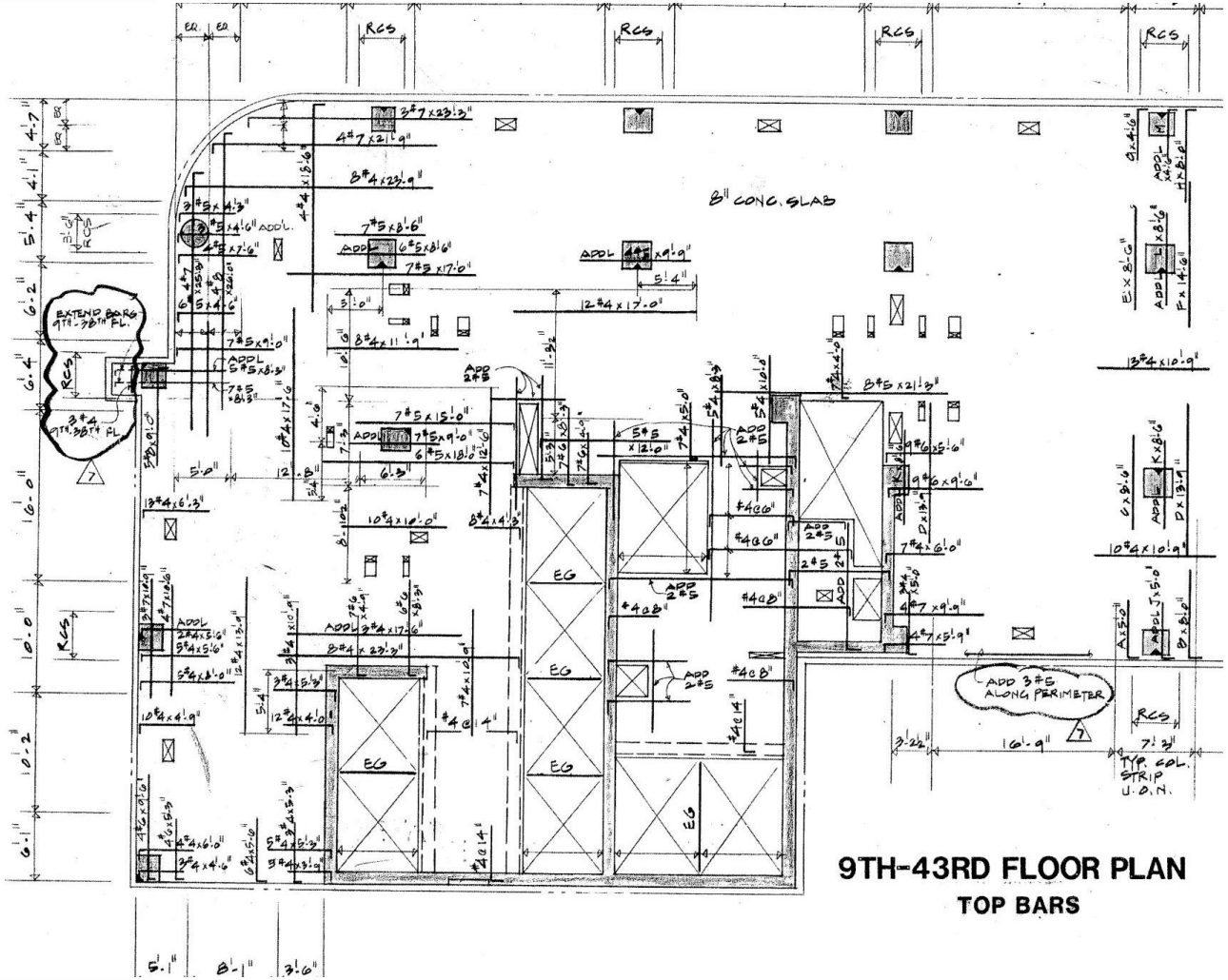
PREPARATION

Record Drawings

Assessment of Building

Assessment of Adjoining Structures

§28-104.7.11 Additional information. In addition to the data and information specified in this code and the rules of the department, the commissioner is authorized to require the submission of additional plans, surveys, computations, analyses, test reports, photographs, special inspection and such other data and information as may be necessary to determine compliance with this code and other applicable laws and rules.



ASSESSMENT OF BUILDING TO BE DEMOLISHED

- Information on any structures that require special attention, such as cantilevered structures, prestressed concrete, precast concrete, steel composite structures, cladding walls, stressed skin structures, hanging structures etc.
- An assessment shall be performed by or under the direction of the registered design professional who prepared the submittal documents. The assessment shall consist of an interior and exterior physical inspection of the structure, as well as a review of all pertinent plans and records of the structure.

WEAKENED STRUCTURES

3306.7 Demolition of weakened structures. Where a structure to be demolished has been partially wrecked or weakened by fire, flood, explosion, age, or other causes, it shall be shored or braced to the extent necessary to permit orderly full demolition or partial demolition without collapse. The necessary measures to ensure a safe demolition shall be determined by the owner's registered design professional and shall be approved by the commissioner.

Exception: Shoring or bracing are not required for the full demolition of a building, subject to the approval of the commissioner, provided:

1. The demolition is conducted with mechanical demolition equipment, other than handheld devices; and

2. No demolition operation occurs, or equipment is located, within the structure of the building.

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WEAKENED STRUCTURES

A statement must be provided on the cover page of the plans stating that the condition of the existing structure to be demolished has been assessed and whether it has been determined to be weakened or not (per BC 3306.7 demolition of weakened structures) AND whether it requires shoring/bracing or remedial work to be installed prior to demolition.

NOTE: This condition assessment should be documented by a signed and sealed report available upon DOB request.

DEMOLITION OF WEAKENED STRUCTURES:

THIS BUILDING IS NOT A WEAKENED STRUCTURE, THE STRUCTURAL STABILITY OF THIS BUILDING HAS BEEN EVALUATED, NECESSARY PROBING HAS BEEN PERFORMED AND IT'S SUITABLE FOR WORKERS TO SAFELY WORK INSIDE THE BUILDING.
REFER TO STRUCTURAL STABILITY REPORT ISSUED ON 02-18-2020.

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EMERGENCY DECLARATION

When signed by the Borough Commissioner, this document confirms the declaration of an Emergency condition pursuant to Section 28-215.1 of the NYC Administrative Code.

☐ Immediate Emergency Declaration ☒ Emergency Declaration

Premises Information

Bldg No.: [redacted] Street Name: [redacted] Borough: BX

BIN: [redacted] Block: [redacted] Lot: 26 C.B. No.: 206 Const. Class: III, NFP No. Stories: 4 + C

Occupancy Class: Residential ☐ Occupied ☒ Unoccupied ☒ Vacated: 12/11/2019

Owner Information

Name: [redacted]

Bldg. No.: [redacted] Street Name: [redacted] City: Bronx State: NY Zip: 10460

Condition of Structure and Recommended Remedy

Fully detached, 4 story plus cellar, wood framed with masonry walls, vacant multiple dwelling, approximately 15 feet wide by x 85 feet deep on an interior lot approximately 22 feet wide by 97 feet deep. Exposure 1 facade at roof level has partially collapsed and is at risk of further collapse. Parapet walls near Exp 1/2 and 1/4 corners severely deteriorated and inadequately braced. Chimneys at Exp 2 and 4 are cracked, leaning, have loose cap stones, and are at risk of collapse into the adjacent properties. 1st floor inadequately supported by non-engineered shoring. Partial floor collapse approx 8 feet by 8 ft along Exp 4 wall at 1st, 2nd, and 3rd floors. Various holes in 1st floor with severely deteriorated flooring. Sloping and deteriorated first floor joists at various areas throughout. Interior wood stair along Exp 4 from 1st floor to 4th floor structurally compromised with partially detached wood framing and partially collapsed masonry bearing wall. Wood stair at risk of collapse. Bldg is an an advance state of disrepair and considered unsafe for anyone to enter. Bldg poses a danger to the public and adjoining properties.

REMEDY: Fully demolish entire 4 story plus cellar building, and grade site.

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ASSESSMENT OF ADJOINING STRUCTURES

- Structural evaluation of adjacent/adjoining buildings and shared features such as party walls, staircases and common supporting structures.
- Information on any structures that require special attention, such as cantilevered structures, prestressed concrete, precast concrete, steel composite structures, cladding walls, stressed skin structures, hanging structures etc.
- An assessment shall be performed by or under the direction of the registered design professional who prepared the submittal documents. The assessment shall consist of an interior and exterior physical inspection of the attached or abutting structure, as well as a review of all pertinent plans and records of the structure.

COMMON ERRORS & OMISSIONS

- Structure not accurately represented in the plans
- Items such as chimneys and other appurtenances shown in photos not depicted in the plans
- Subgrade spaces not identified
- Party walls not correctly documented
- Damaged or collapsed areas not described
- Noggin Walls

NOGGIN WALLS

Wood ‘noggin’ party wall buildings.

1. Load capacity of walls
2. Fire separation
3. Temporary weather protection

Demolition
PLAN DEVELOPMENT

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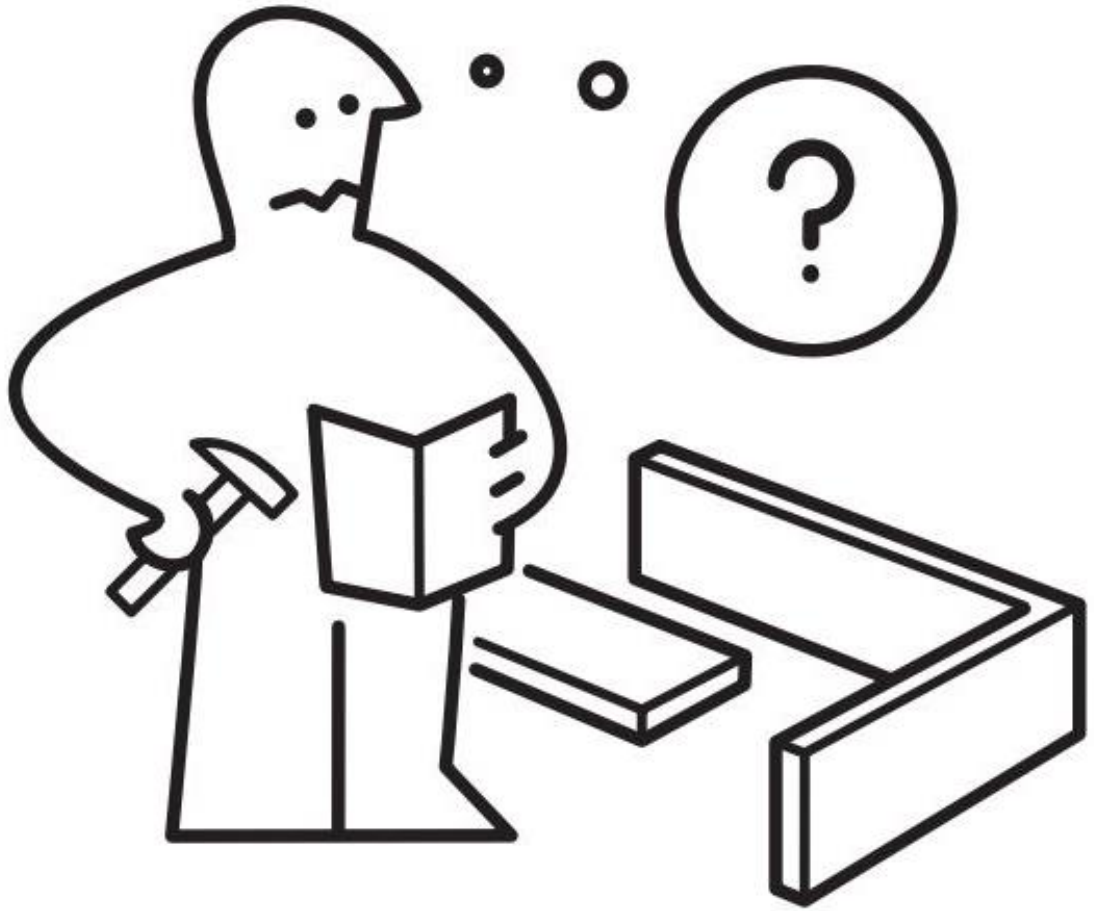
PLAN DEVELOPMENT

Plans must be clear and easily understood by personnel at various levels of education.



PLAN SUBMITTAL REQUIREMENTS

BC 3306.5.1 Required documents. Submittal documents shall be approved by the department before demolition work begins. Such submittal documents shall be signed, sealed, and submitted by a registered design professional and shall contain, at a minimum, the following:

1. Plans, sections, and details of the building or portion thereof, to be demolished clearly showing the extent and sequence of the demolition;
2. Bracing and shoring necessary to support all demolition operations, and adjoining ground or structures as needed, through all sequences of the demolition;
3. Where mechanical demolition equipment, other than handheld devices, is to be used, a listing and description of all such proposed equipment to be used in the demolition, including the scope of equipment work and positioning of equipment on the existing structure. The description of the equipment shall include calculations showing the adequacy of the existing structure to support loads imposed by such equipment. If more than one piece of demolition equipment is proposed to be used at the same time, the effect of the simultaneous loads imposed on the existing structure shall be described and investigated; and
4. A description of compliance with the applicable provisions of Section 3306.9 of this code.

MINIMUM CONTENT

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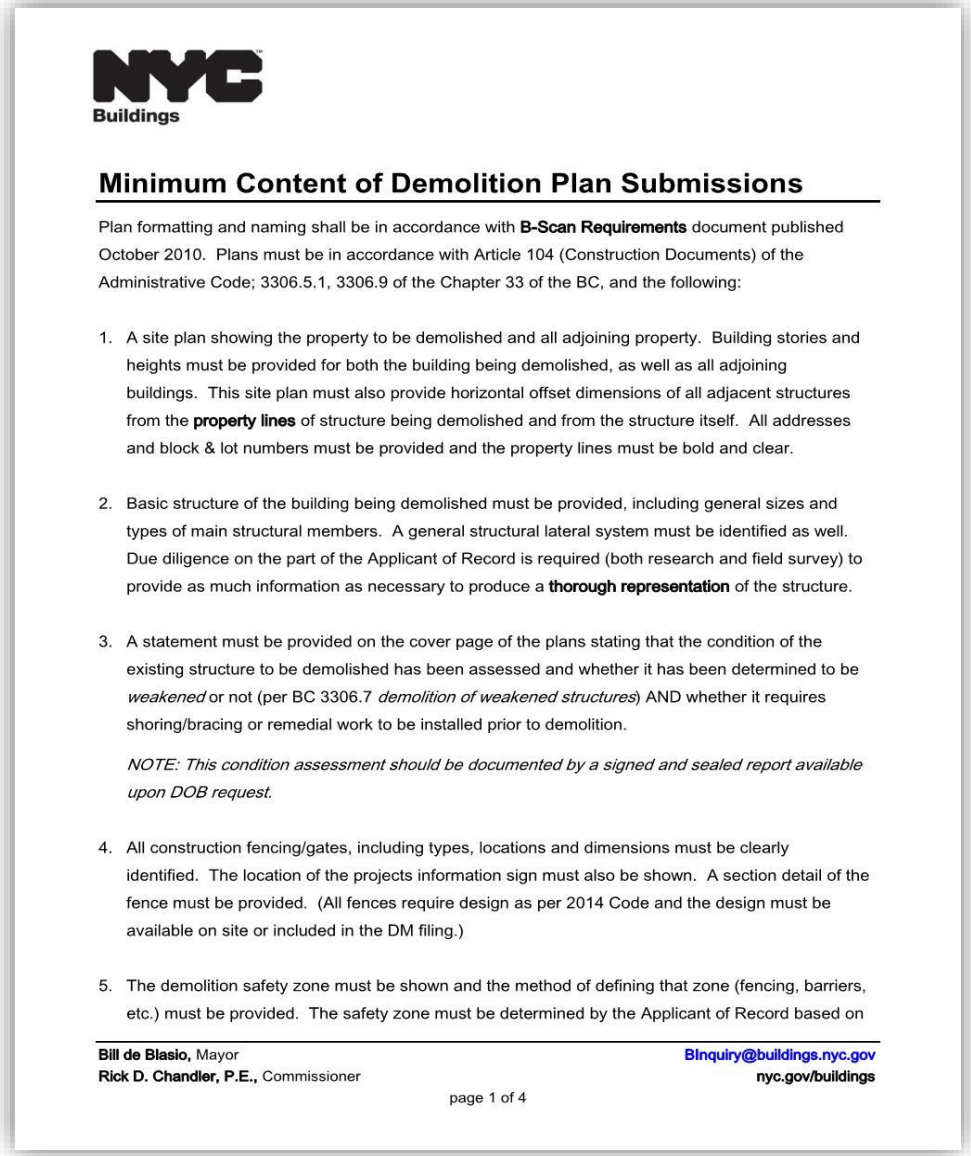

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Minimum Content of Demolition Plan Submissions

Plan formatting and naming shall be in accordance with **B-Scan Requirements** document published October 2010. Plans must be in accordance with Article 104 (Construction Documents) of the Administrative Code; 3306.5.1, 3306.9 of the Chapter 33 of the BC, and the following:

1. A site plan showing the property to be demolished and all adjoining property. Building stories and heights must be provided for both the building being demolished, as well as all adjoining buildings. This site plan must also provide horizontal offset dimensions of all adjacent structures from the **property lines** of structure being demolished and from the structure itself. All addresses and block & lot numbers must be provided and the property lines must be bold and clear.

2. Basic structure of the building being demolished must be provided, including general sizes and types of main structural members. A general structural lateral system must be identified as well. Due diligence on the part of the Applicant of Record is required (both research and field survey) to provide as much information as necessary to produce a **thorough representation** of the structure.

3. A statement must be provided on the cover page of the plans stating that the condition of the existing structure to be demolished has been assessed and whether it has been determined to be *weakened* or not (per BC 3306.7 *demolition of weakened structures*) AND whether it requires shoring/bracing or remedial work to be installed prior to demolition.

   NOTE: This condition assessment should be documented by a signed and sealed report available upon DOB request.

4. All construction fencing/gates, including types, locations and dimensions must be clearly identified. The location of the projects information sign must also be shown. A section detail of the fence must be provided. (All fences require design as per 2014 Code and the design must be available on site or included in the DM filing.)

5. The demolition safety zone must be shown and the method of defining that zone (fencing, barriers, etc.) must be provided. The safety zone must be determined by the Applicant of Record based on

Bill de Blasio, Mayor
Rick D. Chandler, P.E., Commissioner

BInquiry@buildings.nyc.gov
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MINIMUM CONTENT

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the height of the building being demolished, the means/methods of demolition (mechanical, hand, etc.), and the type of protection. Safety zones for full mechanical demolition from outside the structure must be a minimum of half the height of the building.

6. All adjoining roof, yard, walkway and sidewalk protection must be clearly illustrated (with dimensions), including any sidewalk sheds. The design of these temporary installations may be provided on the DM plans or under a separate application (ALT 2, 3). Horizontal netting/catch-alls must be illustrated, if used.

7. Supported scaffolding and netting must be shown, including heights above the building being demolished (minimum of 42 inches), details of anchorage to building and netting type. Design for these may be provided on the DM plans or under a separate application (ALT 2, 3).

8. Any encroachments on adjoining property (fencing, barriers, safety zone, etc.) must be clearly shown and a note provided stating that permission shall be obtained from the adjoining property owner.

9. A clear and detailed demolition sequence must be provided in narrative and illustrated in the plans. All phases should be designated by a number or letter designation to clearly depict the required sequence of the work. Structural stability must be demonstrated through all phases of demolition. A "preparation phase" must be included indicating but not limited to the following: glass removal, sealing of windows, removal of equipment/fixtures, cutting of services, etc. A note must indicate that any required permits for termination of services will be obtained, including FDNY variances for SP and SD removal (DOB variance also required)

10. If shoring, bracing, or other stabilization measures must be taken prior to demolition, a clear and detailed sequence of this work must be provided in the plans. The work required to be performed prior to the start of any demolition work must be clearly identified.

11. All means and methods of debris removal from the point of demolition to the public roadway (carting) must be clearly defined including openings in floors, chutes, etc. Any debris sorting operation must be indicated and enclosed by barriers and kept separate from all other demolition activity.

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MINIMUM CONTENT

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All structures must be lowered in a controlled manner and means, methods and measures to ensure their safe removal shall be provided. The method of removal of any structural member shall not destabilize any remaining members and shall not allow unaccounted impact loads on the structure. Uncontrolled dropping of material is forbidden.

12. Plans must show mechanical equipment (non-handheld) to be used and the gross weight of the equipment. The Applicant of Record may designate use of a specific piece of equipment but allow for alternates within the same weight range and type. Alternatives must be listed on plans. A list of cranes must also be provided, including their location and a note that any permits required from the DOB Cranes and Derricks Unit will be obtained. Calculations must be provided demonstrating safe support of mechanical equipment and any conditions imposed on its use or position on the floor.

13. All means of egress must be indicated for all phases of the demolition.

14. Elevator in readiness, if required, must be shown.

15. Water supply for suppressing dust must be indicated and the source for the water must be provided. (Use of a hydrant requires a DEP permit. This permit shall be kept on site at all times.) The location of hydrants must be shown.

16. All means of fire detection and suppression must be shown (i.e. fire extinguishers, fire watch, hot works program, etc.). A note must indicate all will be in accordance with FDNY rules and regulations.

17. The methods of remediating adjoining lot line walls must be shown, including weatherproofing, repair, floor-to-wall anchorage, etc.

18. The end-of-demolition conditions must be clearly illustrated in plan and section, including any remaining foundation elements and means of stabilizing those elements and the adjoining property (via complete backfill, berms, shoring/bracing, etc.).

    A detailed section must show the elevation of the footing of the building being demolished as it relates to the adjoining property footing. This detail is required to determine if the foundation of the

NYC Buildings

MINIMUM CONTENT

2016 Industry Notice 2016

building being demolished is providing support (vertical or lateral) for the adjoining property that may require shoring. If so, shoring/underpinning/berming/backfill/etc. must be provided on the DM application (or related ALT 2 referenced on the DM application).

If all foundation elements are NOT being removed and/or site is NOT being completely backfilled, follow the requirements of the notice from July 2014 titled "Demolition Filings + 2014 Construction Codes: Waiver of Backfill and/or Foundation Removal."

19. All required special inspections must be listed.

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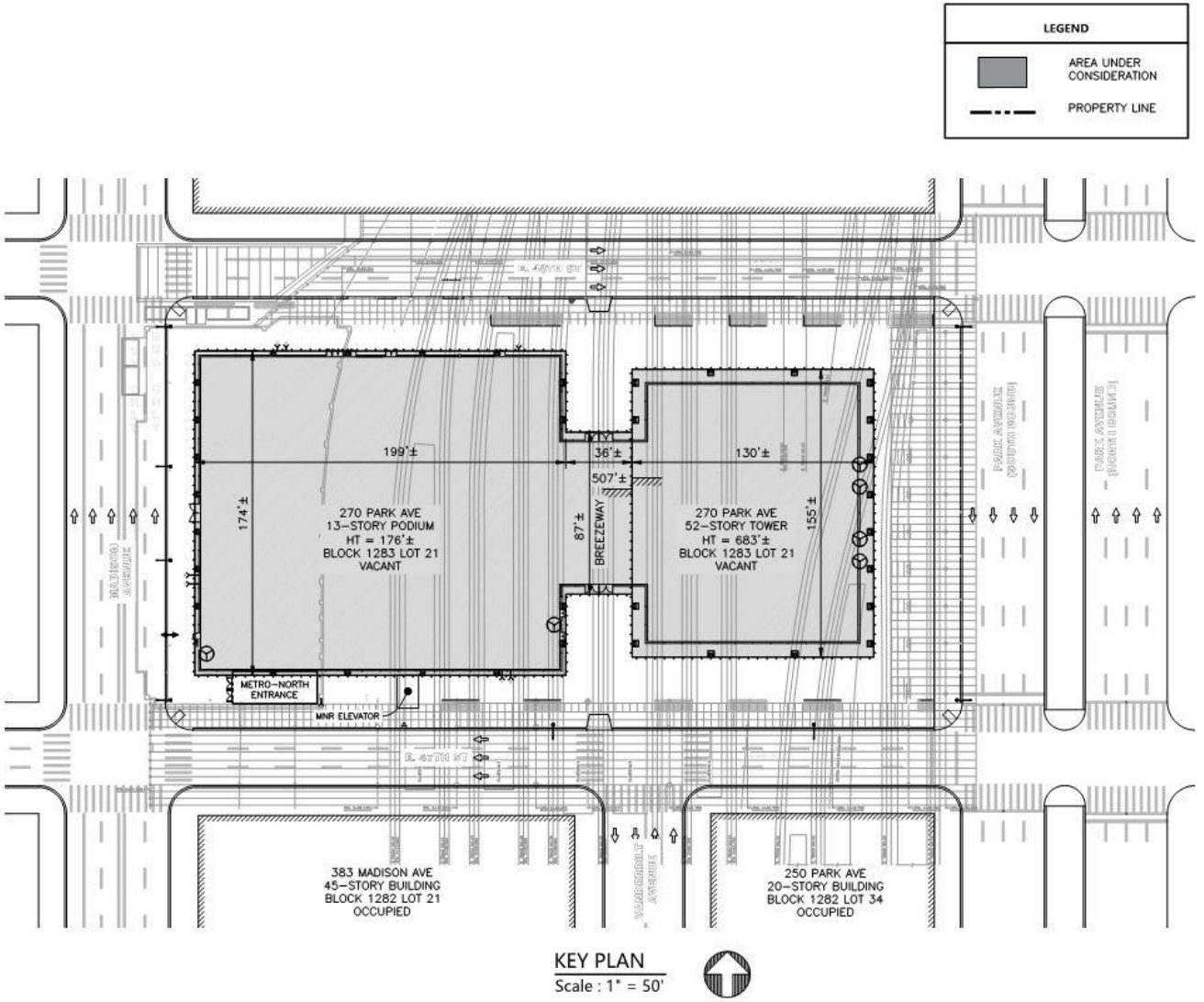
01. SITE PLAN

A site plan showing the property to be demolished and all adjoining property. Building stories and heights must be provided for both the building being demolished, as well as all adjoining buildings. This site plan must also provide horizontal offset dimensions of all adjacent structures from the property lines of structure being demolished and from the structure itself. All addresses and block and lot numbers must be provided and the property lines must be bold and clear.

SITE PLAN

- Property to be demolished
- Adjoining property
- Building height in stories AND feet
- Location relative to property lines
- Address /Block/Lot

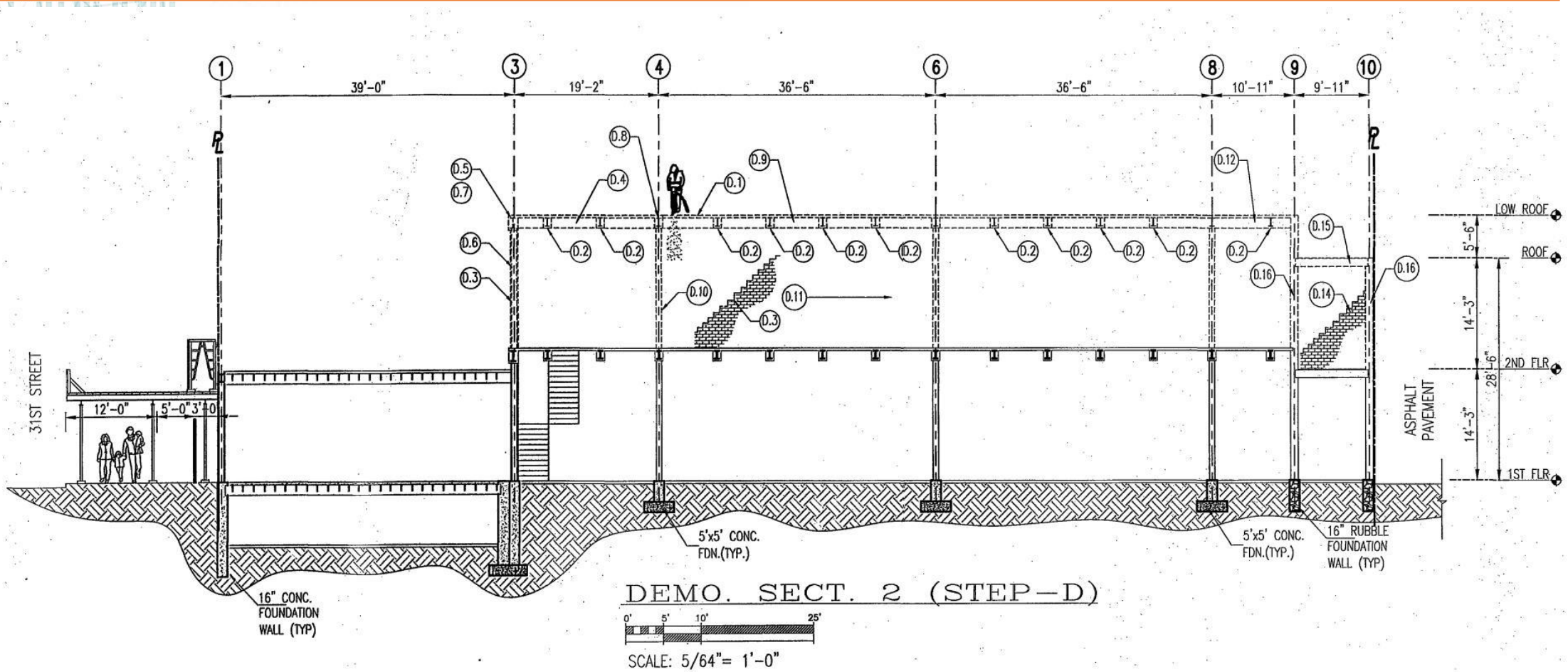


02. BUILDING STRUCTURE

- Basic structure of the building being demolished must be provided, including general sizes and types of main structural members. A general structural lateral system must be identified as well.

- Due diligence on the part of the Applicant of Record is required (both research and field survey) to provide as much information as necessary to produce a thorough representation of the structure.

02. BUILDING STRUCTURE



03. WEAKENED STRUCTURE STATEMENT

A statement must be provided on the cover page of the plans stating that the condition of the existing structure to be demolished has been assessed and whether it has been determined to be weakened or not (per BC 3306.7 demolition of weakened structures) AND whether it requires shoring/bracing or remedial work to be installed prior to demolition.

NOTE: This condition assessment should be documented by a signed and sealed report available upon DOB request.

WEAKENED STRUCTURES

DEMOLITION OF WEAKENED STRUCTURES:

THIS BUILDING IS A WEAKENED STRUCTURE ACCORDING TO THE REPORT, THE STRUCTURE HAS TO BE SHORED INSIDE FROM BASEMENT TO ROOF ACCORDING TO THE PLANS TO ALLOW FOR HAND TOOL DEMOLITION OF PORTION OF THE BUILDING. ONCE HAND TOOL PORTION IS REMOVED A FULL MECHANICAL DEMOLITION WILL BE PERFORMED FOR THE REMAINING PORTION.

DEMOLITION OF WEAKENED STRUCTURES:

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REFER TO STRUCTURAL STABILITY REPORT ISSUED ON 02-18-2020.

04. FENCES AND GATES

All construction fencing/gates, including types, locations and dimensions must be clearly identified. The location of the projects information sign must also be shown. A section detail of the fence must be provided.

FENCES

Protection of Pedestrians

BC 3307.7

All sites where a new building is being constructed, or a building is being demolished to grade, shall be enclosed with a fence. Fences shall also be installed to fully or partially enclosed sites, as necessary, where there exists an open excavation, an unenclosed portion of a building accessible at grade, or other hazard to the public. Such fences shall be at least 8 feet high, built solid for their entire length, out of wood or other suitable material, and shall be returned at the ends to the extent necessary to effectively close off the site.

FENCES

Protection of Pedestrians

BC 3307.7.2 Gates

Gates shall be sliding or shall swing into areas not accessible to the public, and shall be provided only where required for access to the site or to facilitate the work. Gates shall consist of the same material and construction as the rest of the fence. Gates shall be kept closed at all times except during actual loading and unloading operations, when individuals or vehicles are actively entering or leaving the site, or as needed to facilitate active work around the gate.

05. DEMOLITION SAFETY ZONE

The demolition safety zone must be shown and the method of defining that zone (fencing, barriers, etc.) must be provided. The safety zone must be determined by the Applicant of Record based on the height of the building being demolished, the means/methods of demolition (mechanical, hand, etc.), and the type of protection. Safety zones for full mechanical demolition from outside the structure must be a minimum of half the height of the building.

05. DEMOLITION SAFETY ZONE

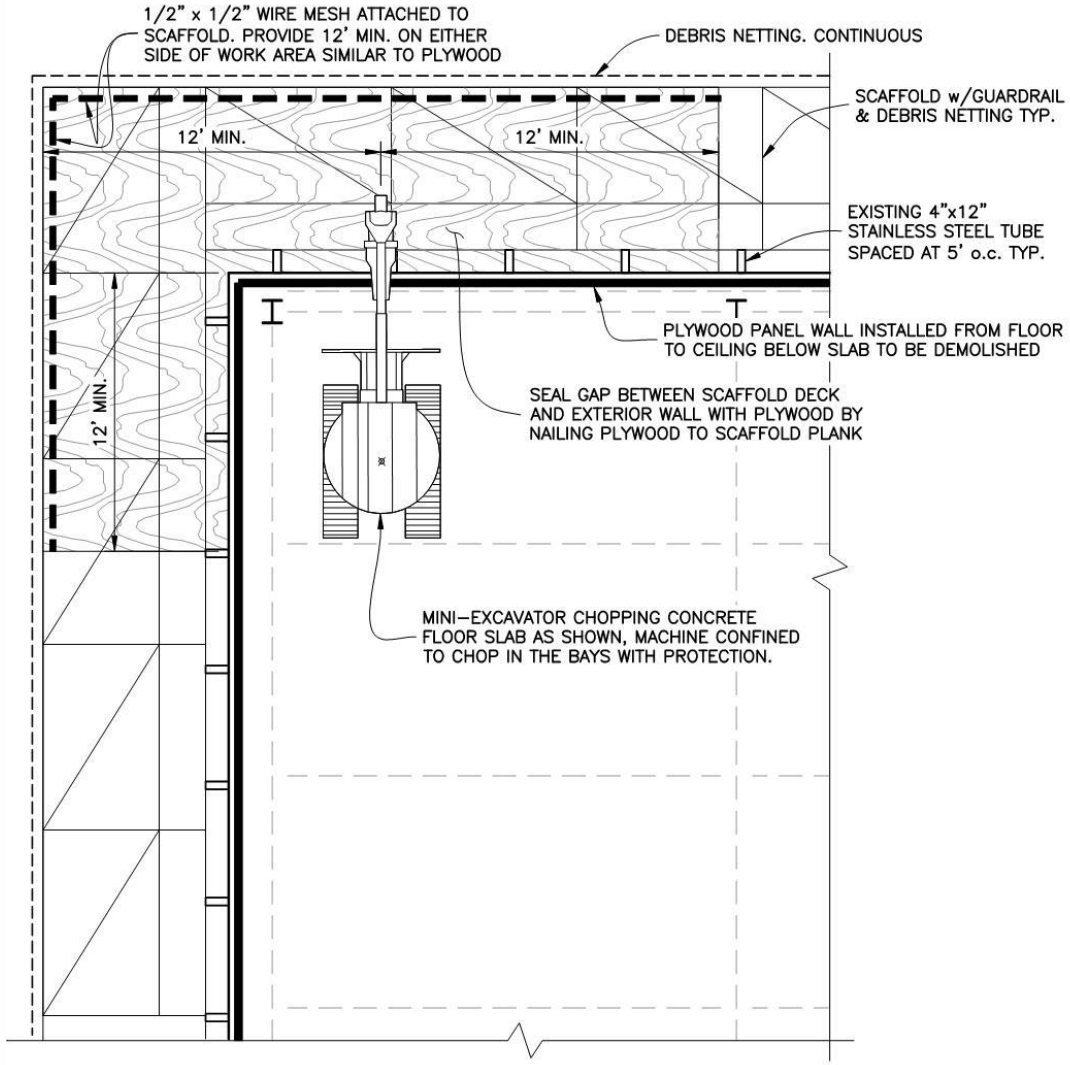
BC 3306.2.1

A safety zone shall be provided around all demolition areas to prevent persons other than workers from entering such zone. Where demolition occurs on the exterior of a building, such zone shall be approved by the commissioner prior to the commencement of demolition. Where mechanical demolition equipment, other than handheld devices, is to be used for the full demolition of a building, the safety zone shall be equal to or greater than half the height of the building to be demolished; such safety zone may be reduced by the same ratio as the building is being demolished.

SAFETY ZONE

BC 3306.2.1

A safety zone shall be provided around all demolition areas to prevent persons other than workers from entering such zone. Where demolition occurs on the exterior of a building, such zone shall be approved by the commissioner prior to the commencement of demolition. Where mechanical demolition equipment, other than handheld devices, is to be used for the full demolition of a building, the safety zone shall be equal to or greater than half the height of the building to be demolished; such safety zone may be reduced by the same ratio as the building is being demolished.



CORNER DETAIL – PARTIAL PLAN
Scale : 3/16" = 1'-0"

SAFETY ZONE

BC 3306.2.1

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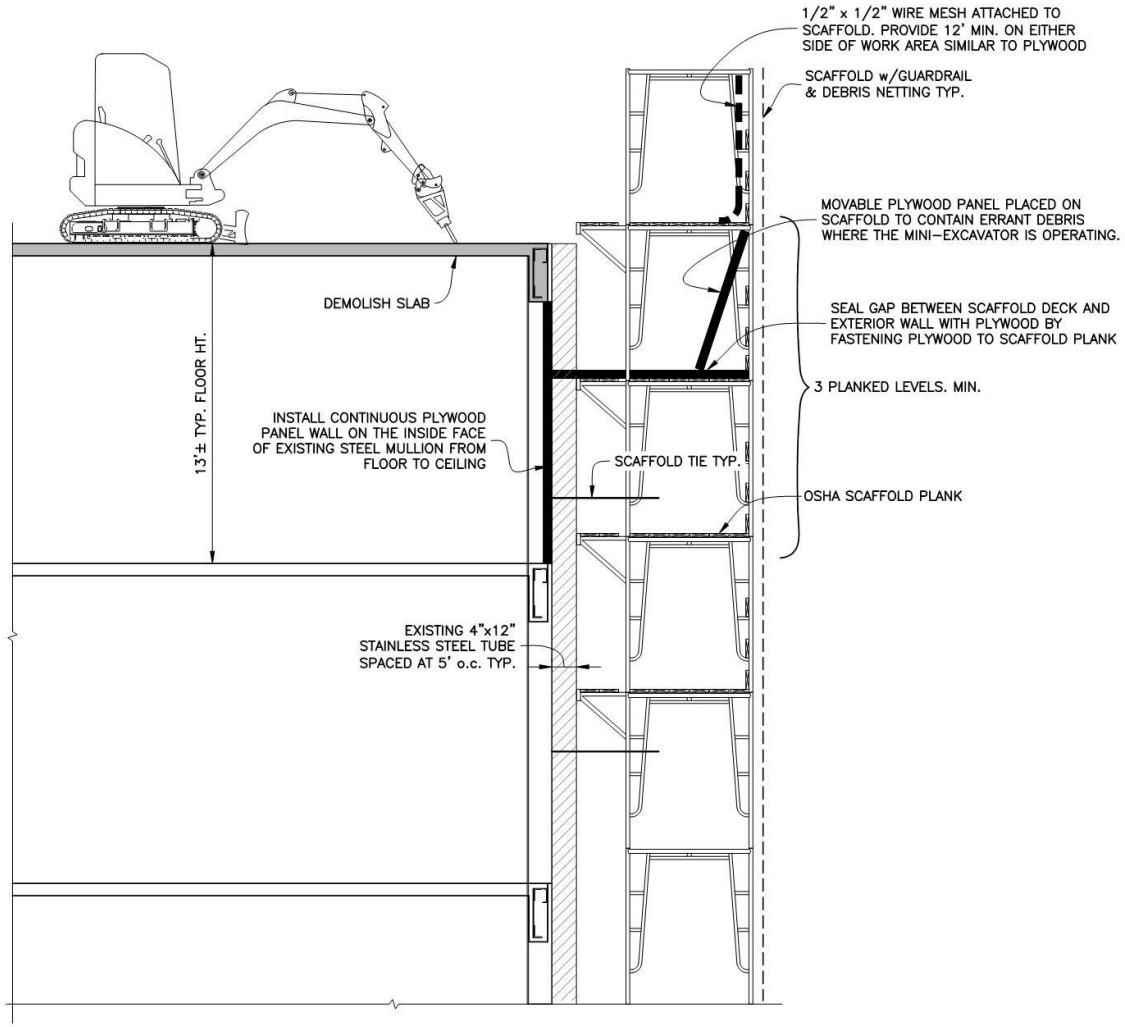

SLAB DEMOLITION AT EDGE OF BUILDING DETAIL
Scale : 1/4" = 1'-0"

06. REQUIRED PROTECTIONS

All adjoining roof, yard, walkway and sidewalk protection must be clearly illustrated (with dimensions), including any sidewalk sheds. The design of these temporary installations may be provided on the DM plans or under a separate application (ALT 2, 3). Horizontal netting/catch-alls must be illustrated, if used.

SIDEWALK SHEDS

Protection of Pedestrians

BC 3307.6.2 Where required

A sidewalk shed shall be installed and maintained to protect all sidewalks, walkways, and pathways within the property line of a site, and all public sidewalks that abut the property,

SIDEWALK SHEDS

Protection of Pedestrians

BC 3307.6.2(1) Where required

When such sidewalk, walkway, or pathway is to be located immediately below a scaffold, mast climber, or chute. The sidewalk shed shall be installed prior to the installation of such equipment and shall not be removed until such equipment has been dismantled and/or removed from the area being protected;

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SIDEWALK SHEDS

Protection of Pedestrians

BC 3307.6.2(4) Where required

When a structure higher than 25 feet is to undergo a full demolition, or when exterior partial demolition, other than that performed in conjunction with the construction, alteration, maintenance, or repair of a façade, is to occur at a height greater than 25 feet above curb level. The sidewalk shed shall be installed prior to the commencement of demolition work. Such shed shall remain in place until the building has been razed to the height of the shed, or where the building is not being fully demolished, until all demolition work has been completed and all exterior chutes, scaffolds, mast climbers, and hoisting equipment have been dismantled and removed from the site.

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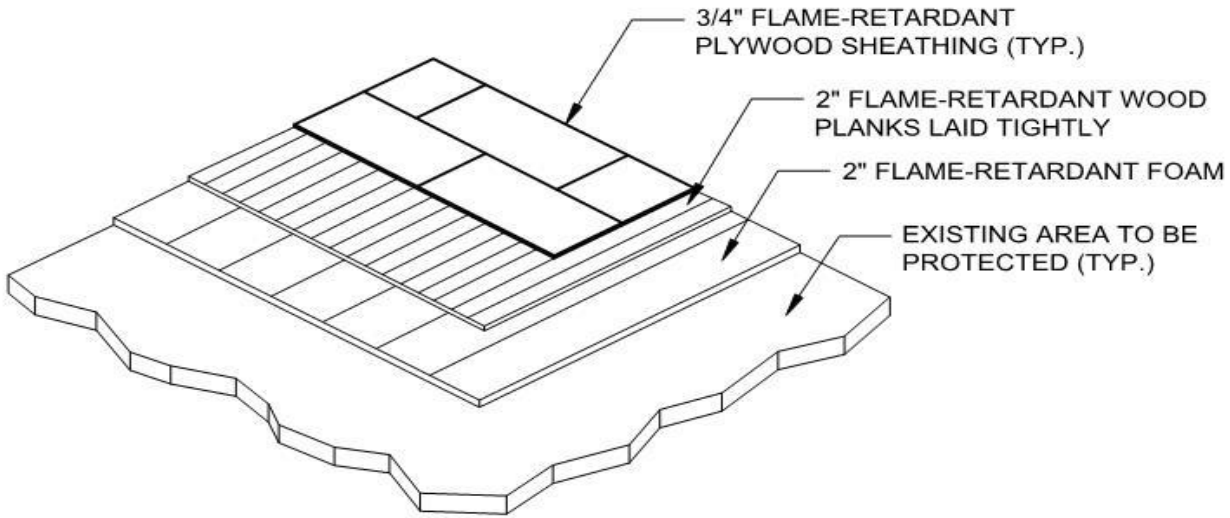
PROTECTION OF ROOFS

BC 3309.10



NYC BUILDING CODE 2014

3309.10 PROTECTION OF ROOFS ADJOINING ROOF PROTECTION SHALL BE SECURED TO PREVENT DISLODGEMENT BY WIND. WHERE CONSTRUCTION OR DEMOLITION WORK OCCURS AT A HEIGHT OF AT LEAST 48 INCHES (1219 MM) ABOVE THE LEVEL OF THE ADJOINING ROOF, ADJOINING ROOF PROTECTION SHALL CONSIST OF 2 INCHES (51 MM) OF FLAME-RETARDANT FOAM UNDER 2 INCHES (51 MM) OF FLAME-RETARDANT WOOD PLANK LAID TIGHT AND COVERED BY FLAME-RETARDANT PLYWOOD, OR SHALL CONSIST OF EQUIVALENT PROTECTION ACCEPTABLE TO THE COMMISSIONER, AND SHALL EXTEND TO A DISTANCE OF AT LEAST 20 FEET (508 MM) FROM THE EDGE OF THE BUILDING BEING CONSTRUCTED OR DEMOLISHED.

2 ROOF PROTECTION
Scale: N.T.S.

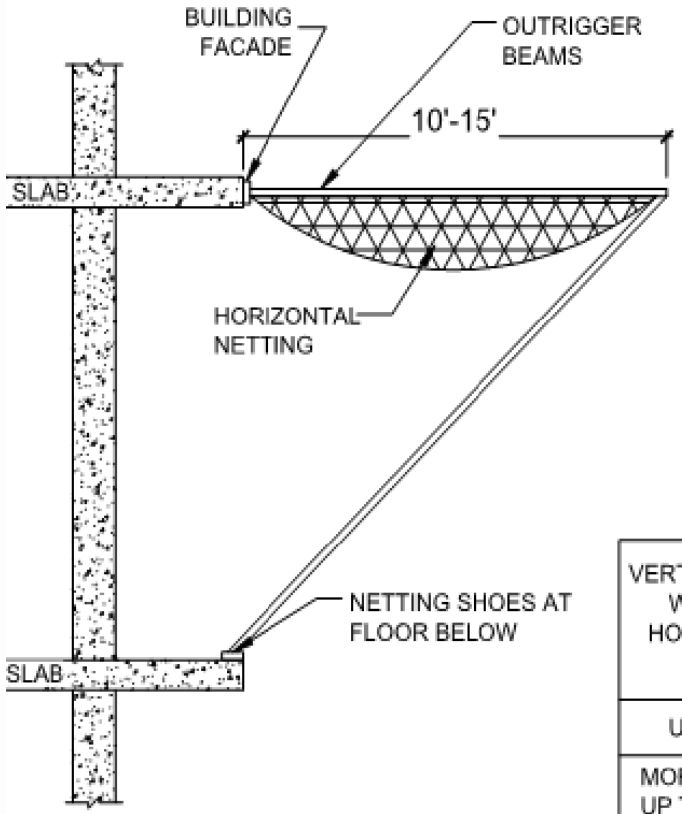
HORIZONTAL SAFETY NETTING

Protection of Unenclosed Perimeters

BC 3308.6.1.2 During demolition

When the demolition of the exterior walls or the roof of a building occurs at a height greater than 6 stories or 75 feet horizontal safety netting shall be provided at a level not more than two stories or 30 feet below the story from which the exterior walls and roof are being removed.

Exception: Demolition of exterior walls only for the purposes of the alteration, maintenance, or repair of a façade shall be in accordance with Section 3308.6.1.3.



HORIZONTAL NETTING TO COMPLY WITH SECTION BC 3308 PROTECTION OF UNENCLOSED PERIMETERS.
3308.6.2.6 PROJECTION OF NETS/ HORIZONTAL DISTANCE OF OUTER EDGE OF NETS FROM EDGE OF WORKING SURFACE IN COMPLIANCE WITH ANSI/ ASSE 10.6 REQUIREMENTS.

10.6 FOR THE APPLICABLE FALL DISTANCE, PERIMETER NET SYSTEMS SHALL EXTEND OUTWARD HORIZONTALLY FROM THE OUTERMOST WORKING SURFACE OF THE STRUCTURE A DISTANCE EQUAL TO OR GREATER THAN THE DISTANCE LISTED IN THE FOLLOWING TABLE:

VERTICAL DISTANCE FROM WORKING LEVEL TO HORIZONTAL PLANE OF PERSONNEL NET	MINIMUM REQUIRED HORIZONTAL DISTANCE OF OUTER EDGE OF NET FROM EDGE OF WORKING SURFACE
UP TO 5 FEET (1.5M)	8 FEET (2.4M)
MORE THAN 5 FEET (1.5M) UP TO 10 FEET (3.0M)	10 FEET (3.0M)
MORE THAN 10 FEET (3.0M)	13 FEET (3.9M)

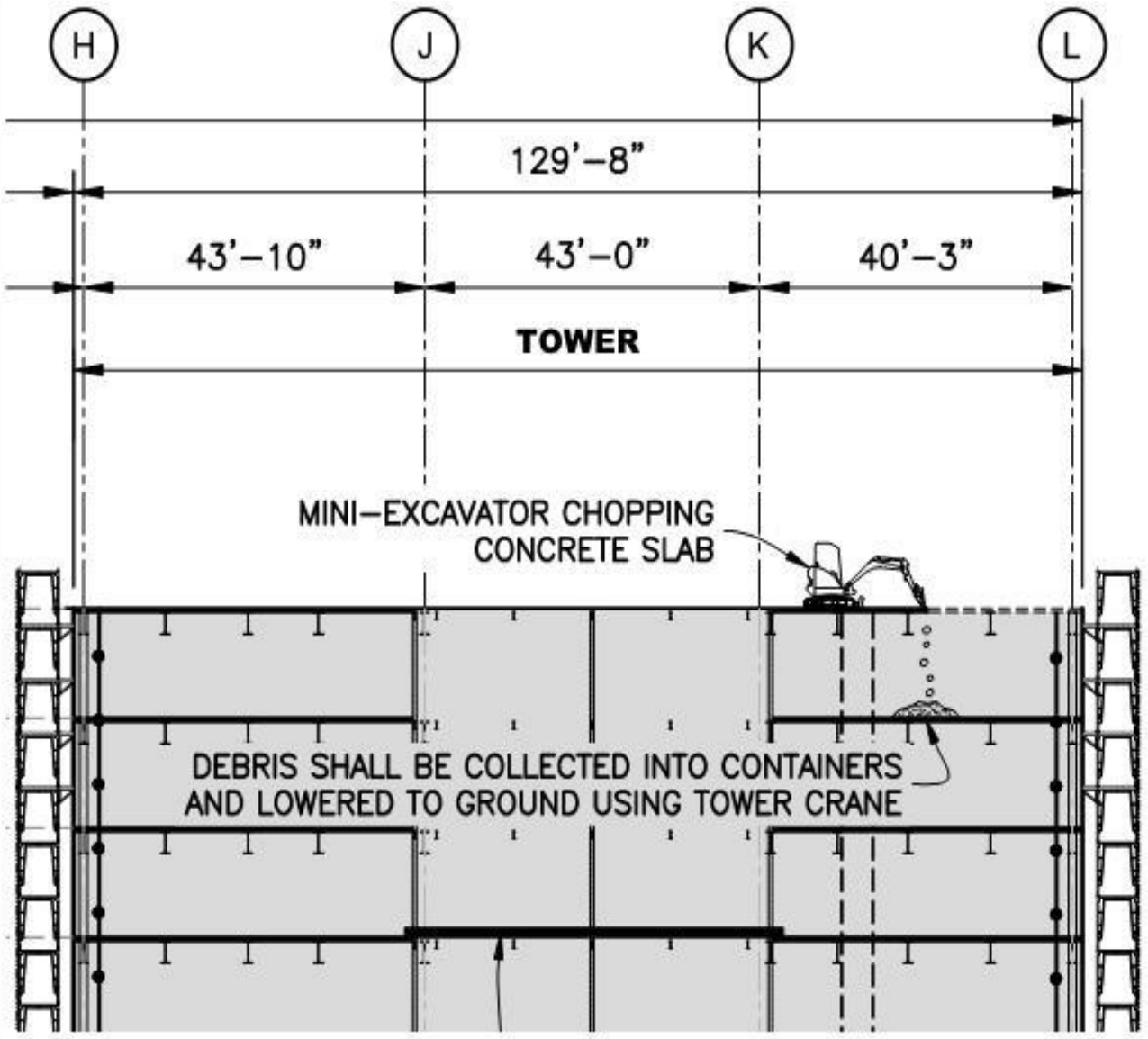
THE NETS SHALL BE INSTALLED WITH SUFFICIENT SAG AND IN SUCH A WAY AS TO CAPTURE FALLING PERSONNEL OR DEBRIS AND MINIMIZE BOUNCE.

HORIZONTAL SAFETY NETTING

Protection of Unenclosed Perimeters

BC 3308.6.1.4 Supported Scaffold Alternative

In lieu of horizontal safety netting in accordance with Sections 3308.6.1.1 through 3308.6.1.3, a supported scaffold may be utilized provided such supported scaffold covers the full width of the unenclosed perimeter, the scaffold is decked and flush against the building at the level where work is occurring, with no gap between the scaffold and the building greater than 3 inches (76 mm), and also provided that the scaffold is provided with netting and guardrails in accordance with Section 3314.8.



06. REQUIRED PROTECTIONS

3309.13 Protection of adjoining equipment and spaces. Whenever a major building is constructed or demolished, and provided such work requires a site safety plan in accordance with Section 3310, it shall be the duty of the person causing such work to protect from damage, at all times during the course of such work and at his or her own expense, all mechanical, electrical, and similar equipment on the adjoining property that are within 20 feet (508 mm) from an unenclosed perimeter of the major building, and to protect all publicly accessible spaces on the adjoining property that are within 20 feet (508 mm) from an unenclosed perimeter of the major building, and also to use every reasonable means to avoid interference with the use of such equipment and spaces during the course of such construction or demolition work, provided such person causing such work is afforded a license in accordance with the requirements of Section 3309.2 to enter and inspect the adjoining property and perform such work thereon as may be necessary for such purpose; otherwise, the duty of protecting such adjoining equipment and spaces shall devolve upon the owner of such adjoining property.

Exception: Equipment on an adjoining roof shall be protected in accordance with Section 3309.10.

06. REQUIRED PROTECTIONS

BC 3309.14 Protection of windows. Whenever exterior construction or demolition work occurs, and such work results in an unenclosed perimeter, it shall be the duty of the person causing such work to protect from damage, at all times during the course of such work and at his or her own expense, all windows on adjoining private property that face such work and are 20 feet (508 mm) or less from an unenclosed perimeter, provided such person causing such work is afforded a license in accordance with the requirements of Section 3309.2 to enter and inspect the adjoining property and perform such work thereon as may be necessary for such purpose; otherwise, the duty of protecting the adjoining windows shall devolve upon the owner of such adjoining building. Where the window provides required means of lighting, ventilation, or egress, such protection shall not be allowed to interfere with such required means.

06. REQUIRED PROTECTIONS

Exceptions: Window protection is not required for:

1. Minor alterations and ordinary repairs.
2. Work performed on a one-, two- or three-family detached house or accessory use to such.
3. Where all unenclosed perimeters are protected by vertical netting that meets the requirements of Section 3308.5, or an approved alternate system, that extends to cover the full height and width of the unenclosed perimeter; or a supported scaffold covers the full width of the unenclosed perimeter, provided the scaffold is decked and flush against the building at such level where the unenclosed perimeter exists, with no gap between the scaffold and the building greater than 3 inches (76 mm), and also provided that the scaffold is provided with netting and guardrails in accordance with Section 3314.8.

06. REQUIRED PROTECTIONS

BC 3309.15 Modifications and alternate methods. The commissioner may, based upon a written request from a registered design professional, modify the requirements for adjoining property protection required by this section, including the installation or use of alternative methods, provided such modification or alternative method meets or exceeds the level of surveying, monitoring, inspection, or protection, as applicable, afforded to the public and property by this section, and also provided the insurance requirements of Sections 103 and 105 of Title 28 of the Administrative Code are satisfied

06. REQUIRED PROTECTIONS

BC 3309.15.1 Request content. A request submitted under Section 3309.15 shall include:

1. Details of the modification or alternative methods to be utilized;
2. Any stipulations;
3. Demonstration that the request meets or exceeds the level of surveying, monitoring, inspection, or protection, as
4. applicable, afforded to the public and property by this section;
5. Where applicable, a description of the practical difficulty of complying with code requirements;
6. Where applicable, a reference to the site safety monitoring program; and
7. Where such request is made because an adjoining property owner has not afforded a license in accordance with the requirements of Section 3309.2, the request shall contain a notarized letter from the owner of the property where the project is to commence, or a duly authorized representative, certifying notification has been made to seek a license in accordance with the requirements of Section 3309.1.1.

06. REQUIRED PROTECTIONS

Under BC 3309.15, the Department may consider site specific engineered enclosure systems that meet the following requirements:

1. The engineered enclosure system shall be designed by a registered design professional. The design shall be specific to the site and shall meet all temporary loads, including but not limited to wind, as prescribed in Chapter 16;
2. The engineered enclosure system shall be acceptable to the commissioner;
3. The engineered enclosure system shall be positioned exterior of the building under construction or demolition and shall cover all areas along the exposure where exterior work is occurring or openings in the exterior are present;
4. The lowest horizontal level of the system shall be designed to meet the design loads required for a sidewalk shed in accordance with Section 3307.6.4.2, shall be positioned such that it is located at or below the lowest level of exterior work and openings in the exterior of the building along the exposure, and shall be brought tight to the face of the building, except that a gap, not to exceed 1 inch (25 mm), along the face of the building is permissible, provided the resulting gap is sealed or covered by material of sufficient manner and strength capable of trapping falling objects;

06. REQUIRED PROTECTIONS

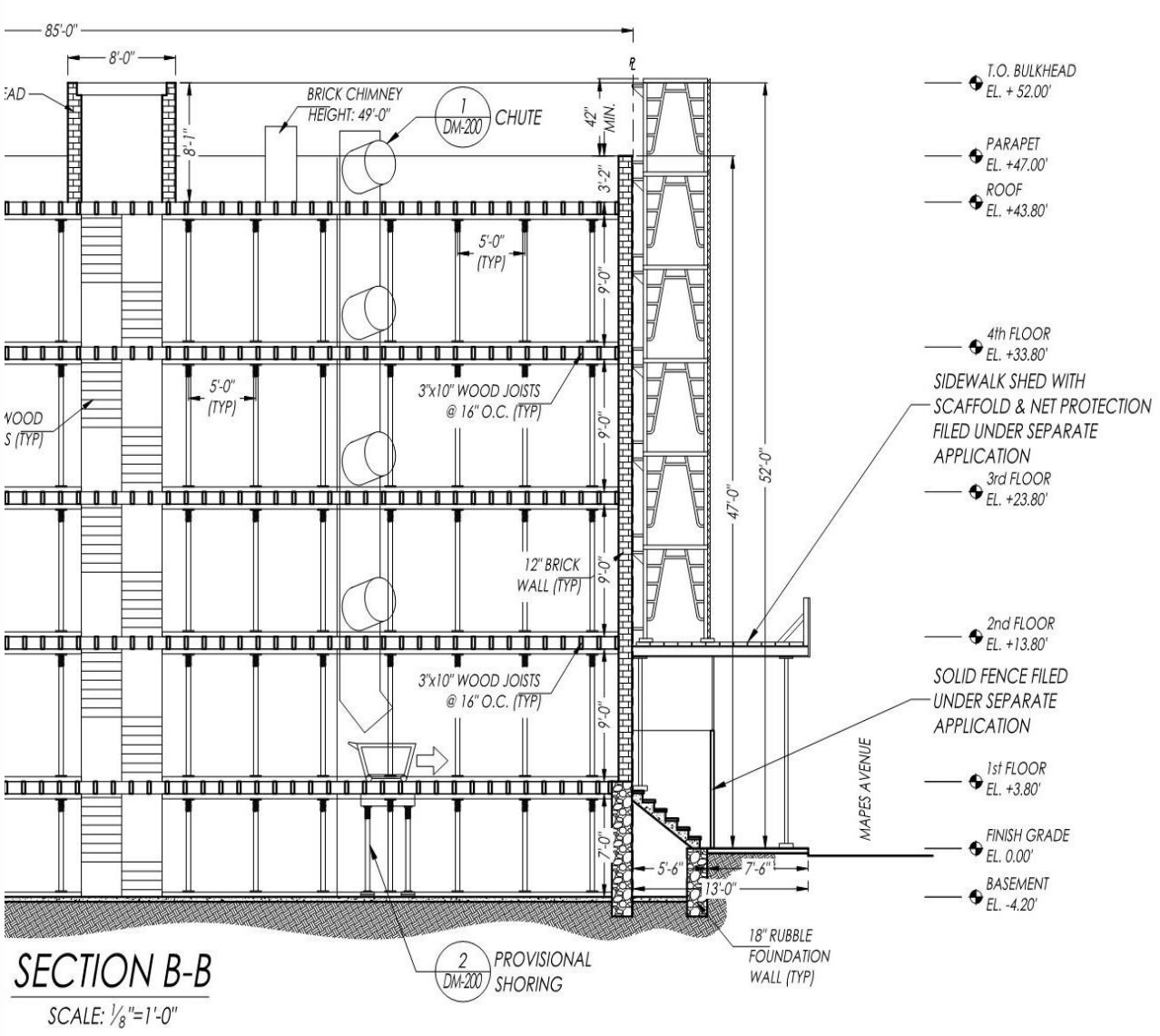
5. The vertical surfaces of the system shall be covered fully by material capable of stopping material or debris generated by the work. Such vertical covering shall be brought tight to the face of the engineered enclosure system. Where necessary to control material or debris, the material shall be rigid and solid, or shall, at a minimum, be a rigid galvanized wire screen of not less than No. 16 steel wire gauge, with no opening larger than ½ inch in the vertical or horizontal dimensions and ¾ inch in any other dimension, backed by fine debris netting located interior of the steel wire screen;

6. The system shall be installed, inspected, repaired, maintained, adjusted, used, and removed as indicated on plans acceptable to the commissioner. Inspections shall be performed, at a minimum, following each installation or reinstallation, each day while in use, periodically while not in use, and prior and subsequent to inclement weather events; and

7. A controlled access zone, or other measures, as indicated on plans acceptable to the commissioner, shall be provided to protect the adjoining property whenever the engineered enclosure system is installed or removed, and when otherwise warranted during repairs, maintenance, or adjustments.

07. SUPPORTED SCAFFOLDS

Supported scaffolding and netting must be shown, including heights above the building being demolished (minimum of 42 inches), details of anchorage to building and netting type. Design for these may be provided on the DM plans or under a separate application (ALT 2, 3).



08. ENCROACHMENTS

Any encroachments on adjoining property (fencing, barriers, safety zone, etc.) must be clearly shown and a note provided stating that permission shall be obtained from the adjoining property owner.

BC 3309.2 License to enter adjoining property. The responsibility of affording any license to enter adjoining property shall rest upon the owner of the adjoining property involved; and in case any tenant of such owner fails or refuses to permit the owner to afford such license, such failure or refusal shall be a cause for the owner to dispossess such tenant through appropriate legal proceedings for recovering possession of real property. Nothing in this chapter shall be construed to prohibit the owner of the property undertaking construction or demolition work from petitioning for a special proceeding pursuant to Section 881 of the Real Property Actions and Proceedings Law.

09. DEMOLITION SEQUENCE

A clear and detailed demolition sequence must be provided in narrative and illustrated in the plans. All phases should be designated by a number or letter designation to clearly depict the required sequence of the work. Structural stability must be demonstrated through all phases of demolition. A “preparation phase” must be included indicating but not limited to the following: glass removal, sealing of windows, removal of equipment/fixtures, cutting of services, etc. A note must indicate that any required permits for termination of services will be obtained, including FDNY variances for SP and SD removal (DOB variance also required).

09. DEMOLITION SEQUENCE

09. DEMOLITION SEQUENCE

BC 3306.8 Demolition sequence. Any structural member that is being dismembered shall not support any load other than its own weight. No wall, chimney, or other structural part shall be left in such condition that it may collapse or be toppled by wind, vibration or any other cause. The method of removal of any structural member shall not destabilize remaining members. All handling and movement of material or debris shall be controlled such that it will not develop unaccounted impact loads on the structure.

NYC Buildings

09. DEMOLITION SEQUENCE

BC 3306.8.1 Structural steel, reinforced concrete, and heavy timber buildings. Structural steel, reinforced concrete, and heavy timber buildings, or portions thereof, shall be demolished column length-by-column length and tier-by-tier. Structural members shall be chained or lashed in place to prevent any uncontrolled swing or drop.

Exception: Where the design applicant has demonstrated the adequacy of alternate means of demolition through plans, calculations, or the establishment of safety zones, as appropriate, the commissioner may accept such alternative means of demolition.

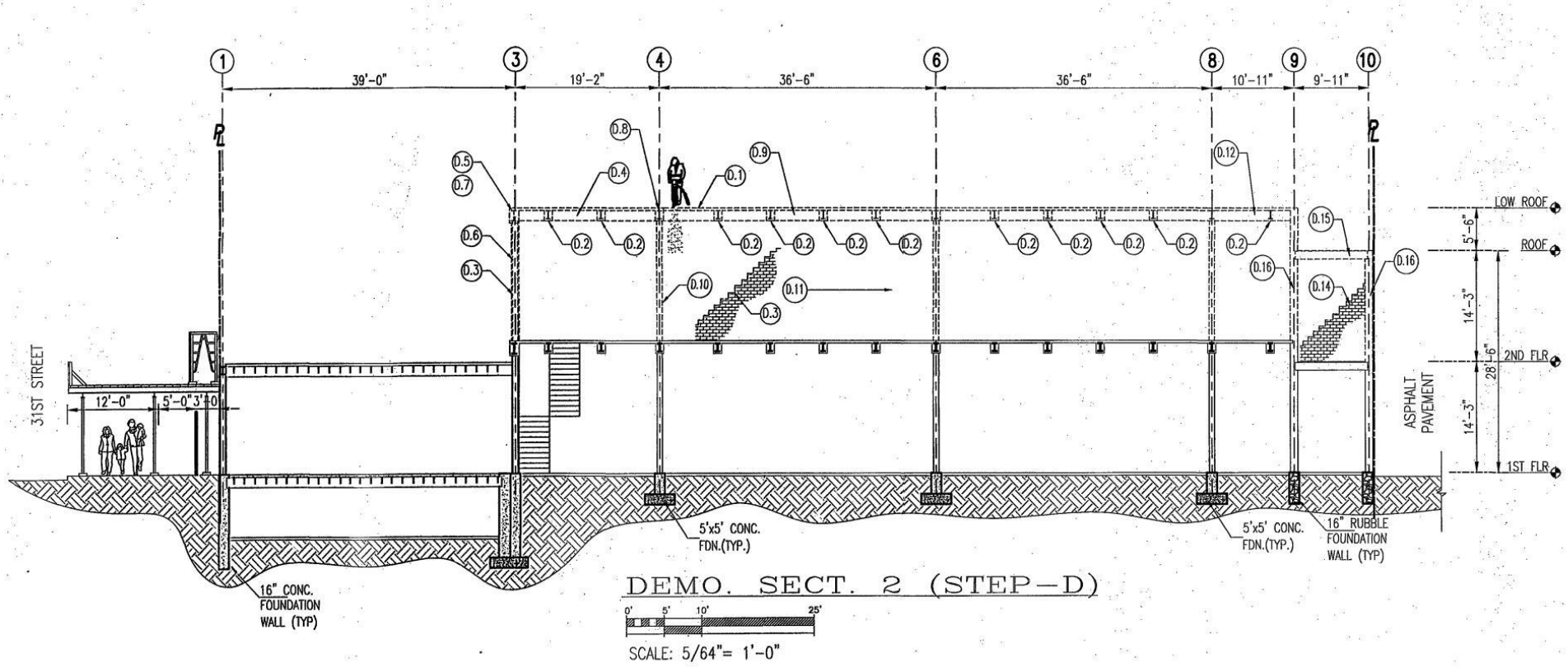
NYC Buildings

09. DEMOLITION SEQUENCE

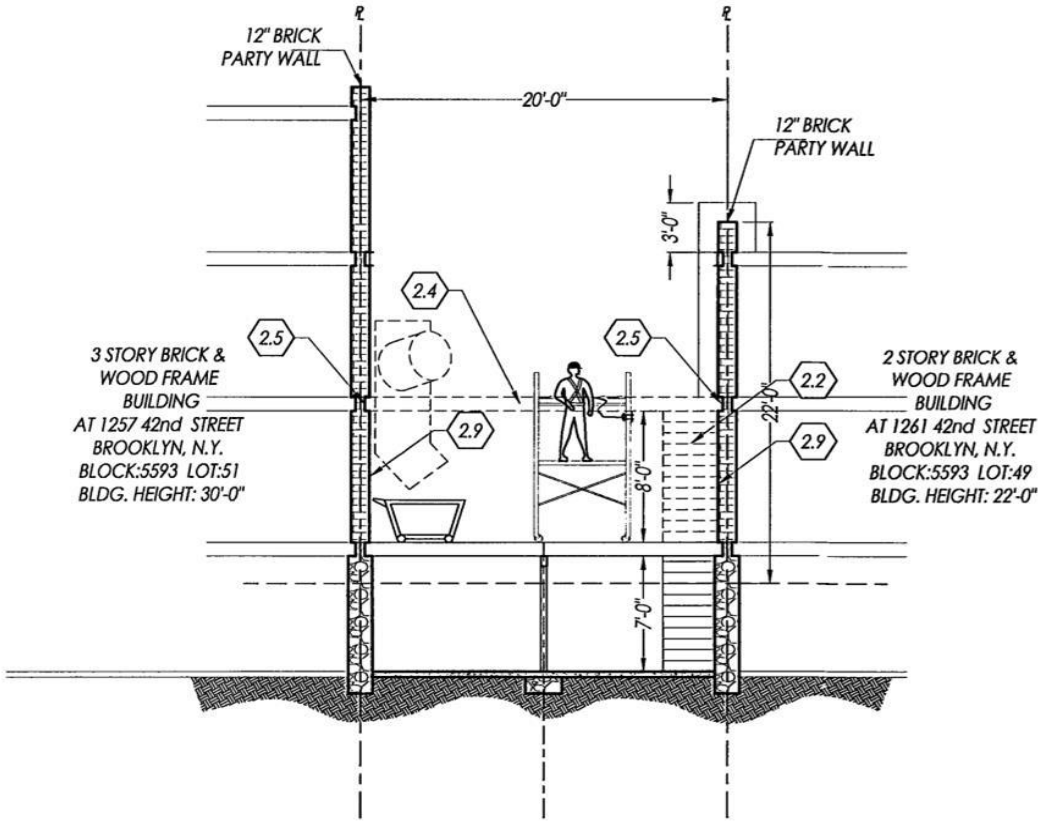
BC 3306.8.2 Masonry buildings with wooden floors. Demolition of masonry buildings with wooden floors shall comply with the following requirements:

1. Demolition of walls and partitions shall proceed in a systematic manner, and all work above each tier of floor beams shall be completed before any of the supporting structural members are disturbed.
2. Sections of masonry walls shall not be loosened or permitted to fall in such masses as to affect the carrying capacity of floors or the stability of structural supports.
3. No section of wall with a height more than 22 times its thickness shall be permitted to stand without bracing designed by a registered design professional.

09. DEMOLITION SEQUENCE



09. DEMOLITION SEQUENCE



SECTION A-A (STEP 2)

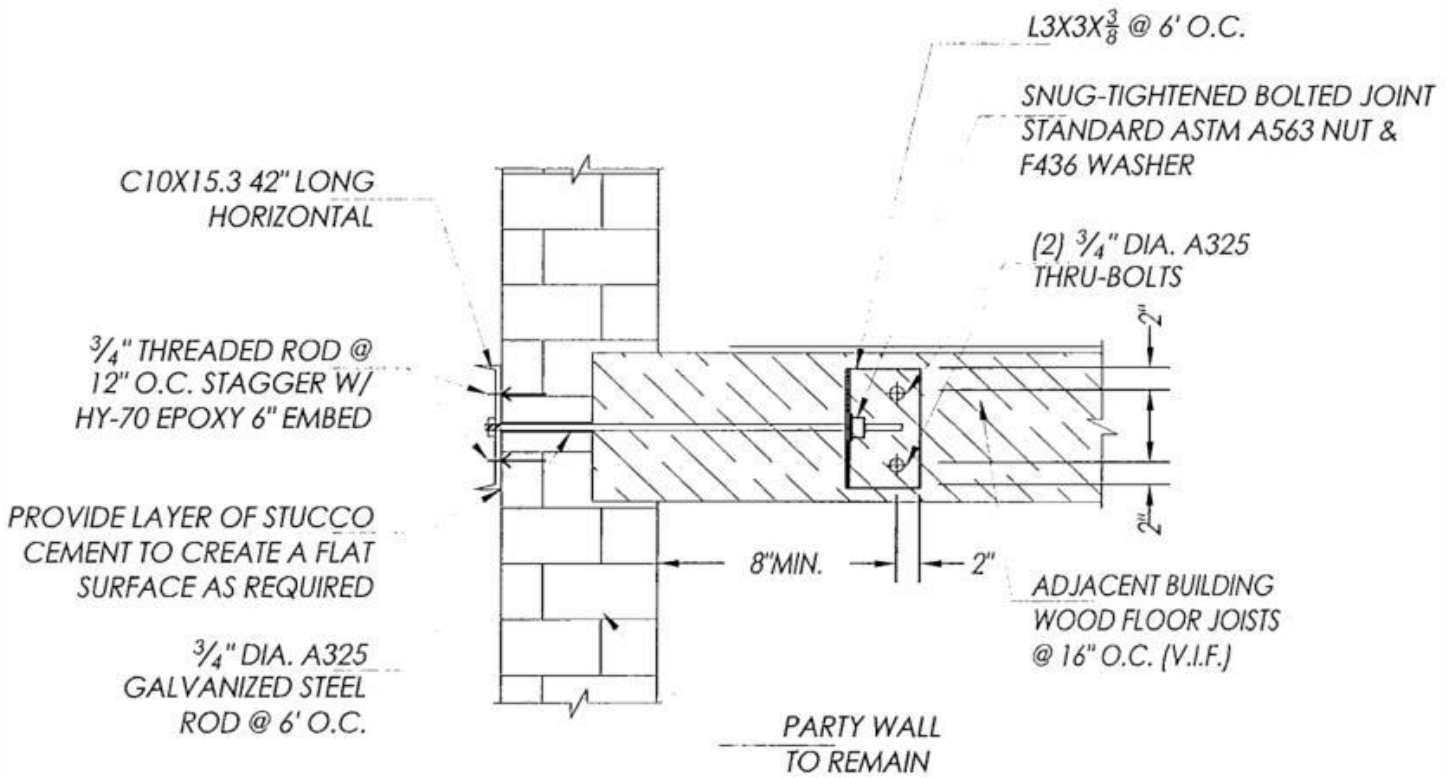
SCALE: 1/8"=1'-0"

DEMOLITION SEQUENCE:

2. HAND TOOL REMOVAL OF 2nd FLOOR

- 2.1 REMOVE WOOD DECK
- 2.2 REMOVE WOOD STAIRS.
- 2.3 REMOVE FRONT NON BEARING FACADE WALL.
- 2.4 FROM FRONT (42nd STREET) TO BACK REMOVE WOOD JOISTS IN 10'-0" INTERVALS ASSISTED WITH MOVABLE SCAFFOLD
  - 2.4.1 JOISTS MUST BE SAW CUT 12" AWAY FROM WALL AND LOWERED TO FLOOR BELOW.
- 2.5 FOR THE PARTY WALL AT THE BUILDING 1257 42nd STREET & 1261 42nd STREET:
  - 2.5.1. REMOVE STUB ENDS WITHOUT WEAKENING EXISTING MASONRY,
  - 2.5.2. CLEAN BEAM POCKETS OF LOOSE MORTAR,
  - 2.5.3. BEND OVER ALL WALL ANCHORS AT THE BEAM ENDS IN THE STANDING WALL, AND BRICK-UP ALL OPEN BEAM HOLES WITH SOUND BRICK AND CEMENT MORTAR
  - 2.5.4. INSTALL THE TIE-BACK AS SHOWN ON DETAIL #4 ON DM-200.
- 2.6 REPEAT STEPS 2.4 TO 2.5 IN NUMERICAL SEQUENCE UNTIL REMOVAL OF JOISTS AND WALLS ARE COMPLETE WITH THE EXCEPTION OF THE LAST 10'-0" INTERVAL.
- 2.7 REMOVE REAR NON BEARING MASONRY WALL.
- 2.7 REMOVE REMAINING WOOD JOISTS INTERVALS & CORRESPONDING REMAINING MASONRY WALLS.
- 2.8 PARGE AND WEATHERPROOF ALL EXPOSED WALLS (SEE DETAIL #3 ON DM-200).

09. DEMOLITION SEQUENCE



4 ANCHORAGE DETAIL (CLIP ANGLE)

09. DEMOLITION SEQUENCE

- BC 3306.9.8 Hazards to be removed. Prior to the commencement of demolition operations, hazards shall be removed in accordance with Sections 3306.9.8.1 through 3306.9.8.4.
- BC 3306.9.8.1 Combustible content. Prior to the commencement of demolition operations, the area authorized to be demolished by the work permit shall be thoroughly cleaned of combustible content and debris, including but not limited to building contents and exterior finishes, down to the structural elements.
- BC 3306.9.8.2 Asbestos. Prior to the commencement of demolition operations, all asbestos shall be removed from the area authorized to be demolished by the department work permit, and certification to that effect shall be filed with the department and the Department of Environmental Protection. Such asbestos removal shall be in accordance with Section 28-106 of the Administrative Code and rules promulgated by the commissioner of the Department of Environmental Protection.

09. DEMOLITION SEQUENCE

- BC 3306.9.8.3 Glass. Prior to the commencement of demolition operations, all glass located in the area authorized to be demolished by the work permit, including but not limited to glass in windows, doors, skylights, and fixtures, shall be removed.

  Exception: Demolition operations relating to the alteration, maintenance, or repair of a façade.

- BC 3306.9.8.4 Steam and fuel. Prior to the commencement of demolition operations, all pipes, tanks, boilers, or similar devices containing steam or fuel and located in the area authorized to be demolished by the work permit shall be purged of such steam or fuel.

  Exception: Pipes, tanks, boilers, or similar devices containing steam or fuel located in the area authorized to be demolished by the work permit and which will not be disturbed during the course of the demolition operation may, in lieu of being purged, be safeguarded so as to prevent their being damaged during the course of demolition operations.

DEMOLITION SEQUENCE

PREPARATION WORK NOTES:

A. INSTALL SOLID FENCE 8' HIGH AROUND THE PERIMETER OF THE JOB SITE, INSTALL OVERHEAD PROTECTION WITH SCAFFOLD & NET PROTECTION AS SHOWN AND ON THE SAFETY ZONE PLAN DM-100.

B. THE EXITS AND ANY OTHER MEAN OF EGRESS SHOWN ON SAFETY ZONE PLAN SHOULD BE CLEARED OF ANY OBSTRUCTION OR DEBRIS AT ALL TIMES.

C. REMOVE ALL FIXTURES, CABINETS, CLOSETS, DOORS, WINDOWS ETC.ALL OPENINGS SHELL BE BOARDER-UP

D. ASBESTOS ABATEMENT IF REQUIRED MUST BE PERFORMED PRIOR TO COMMENCEMENT OF DEMOLITION OPERATIONS.

E. REMOVE ALL HAZARDS, SUCH AS DOORS, WINDOWS, ETC.

F. NEIGHBOR'S BUILDINGS CONSENT AND D.O.T APPROVAL SHALL BE OBTAINED PRIOR TO INSTALL PROTECTIONS.

G. EXTERIOR FIRE STAIRS ON FRONT FACADE TO BE REPLACED BY SCAFFOLD STAIRS BEFORE COMMENCEMENT OF DEMOLITION OPERATIONS.

H. INSTALL PROVISIONAL SHORING FROM BASEMENT TO THE ROOF, IN ORDER TO PROVIDE A SOLID WORK SURFACE BEFORE DEMOLITION CAN BEGIN.

DEMOLITION SEQUENCE:

1. HAND TOOL REMOVAL OF ROOF:

1.1. REMOVE BULKHEAD DOWN TO ROOF LEVEL AS FOLLOW:
1.1.1. FROM NORTH TO SOUTH REMOVE WOOD JOISTS ASSISTED WITH MOVABLE SCAFFOLD.
1.1.2. REMOVE MASONRY WALLS DOWN TO ROOF LEVEL ASSISTED WITH MOVABLE SCAFFOLD

1.2. REMOVE BRICK CHIMNEY DOWN TO ROOF LEVEL AS FOLLOW:
1.2.1. REMOVE THE BRICK CHIMNEY BY HAND, DROPPING DOWN SMALL PORTION OF BRICK THRU THE CHIMNEY DOWN TO GROUND.
1.2.2. NO PORTION OF BRICK WALL BIGGER THAN 12"x12"x12 SHALL BE DROPPED ON FLOOR AT ANY TIME.

1.3. REMOVE PARAPET.

1.4. REMOVE WEATHERPROOFING & SHEATHING MATERIAL.

1.5. REMOVE WOOD STAIRS.

1.6. REMOVE FRONT NON BEARING FACADE WALL.

1.7. FROM FRONT (MAPES AVENUE) TO BACK REMOVE WOOD JOISTS IN 10'-0" INTERVALS ASSISTED WITH MOVABLE SCAFFOLD
1.7.1. JOISTS MUST BE SAW CUT 12" AWAY FROM WALL AND LOWERED TO FLOOR BELOW.

1.8. REMOVE 10'-0" INTERVAL OF SIDE MASONRY BEARING WALLS DOWN TO FLOOR BELOW ASSISTED WITH MOVABLE SCAFFOLD.
1.8.1. 45° DIAG. SLOPE MUST BE LEFT IN PLACE TO ASSURE THE STABILITY OF THE REMAINING PORTION OF WALL AS WALL DEMOLITION PROGRESSES.
1.8.2. NO PORTION OF BRICK WALL BIGGER THAN 12"x12"x12 SHALL BE DROPPED ON FLOOR AT ANY TIME.

1.9. REPEAT STEPS 1.7 & 1.8 IN NUMERICAL SEQUENCE UNTIL REMOVAL OF JOISTS AND MASONRY SIDE WALLS ARE COMPLETE WITH THE EXCEPTION OF THE LAST 10'-0" INTERVAL.

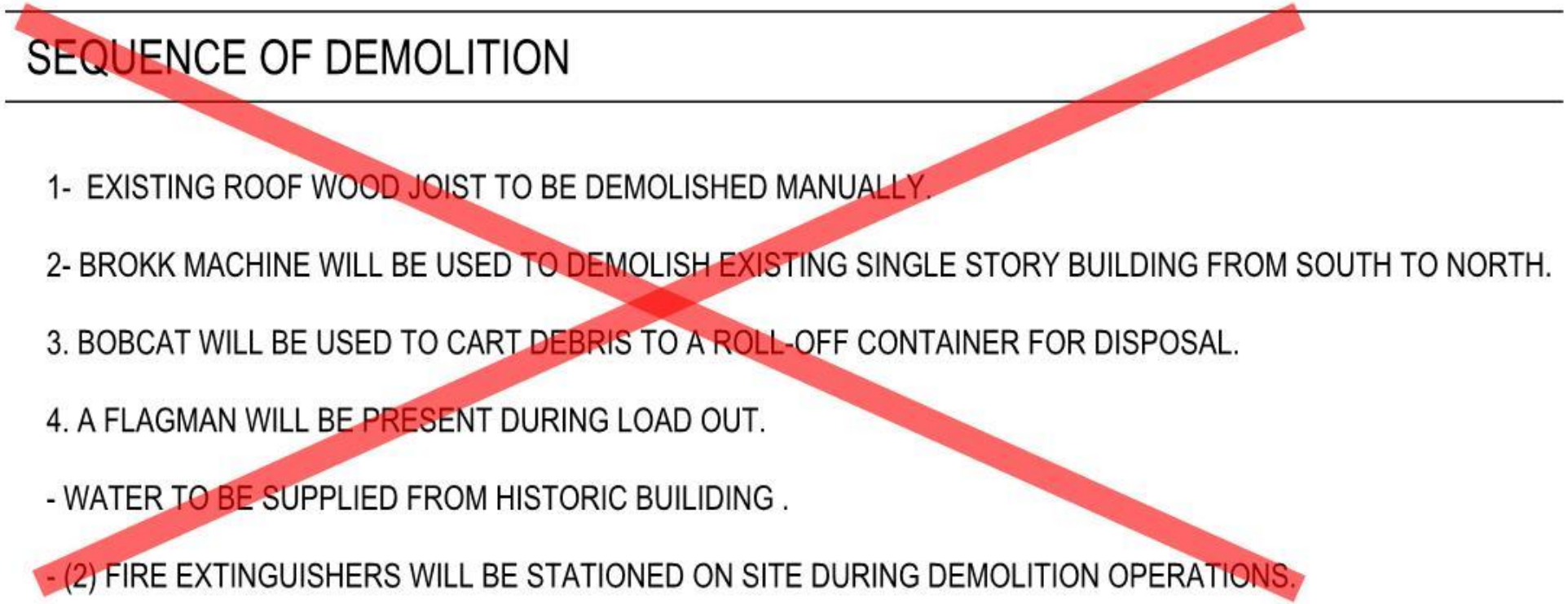
1.10. REMOVE FIRE ESCAPE AT REAR OF BUILDING

1.11. REMOVE REAR NON BEARING WALL.

1.12. REMOVE REMAINING WOOD JOISTS INTERVALS & CORRESPONDING REMAINING MASONRY WALLS.

COMMON ERRORS AND OMISSIONS

Deficient Demolition Sequence



SEQUENCE OF DEMOLITION

1- EXISTING ROOF WOOD JOIST TO BE DEMOLISHED MANUALLY.

2- BROKK MACHINE WILL BE USED TO DEMOLISH EXISTING SINGLE STORY BUILDING FROM SOUTH TO NORTH.

3. BOBCAT WILL BE USED TO CART DEBRIS TO A ROLL-OFF CONTAINER FOR DISPOSAL.

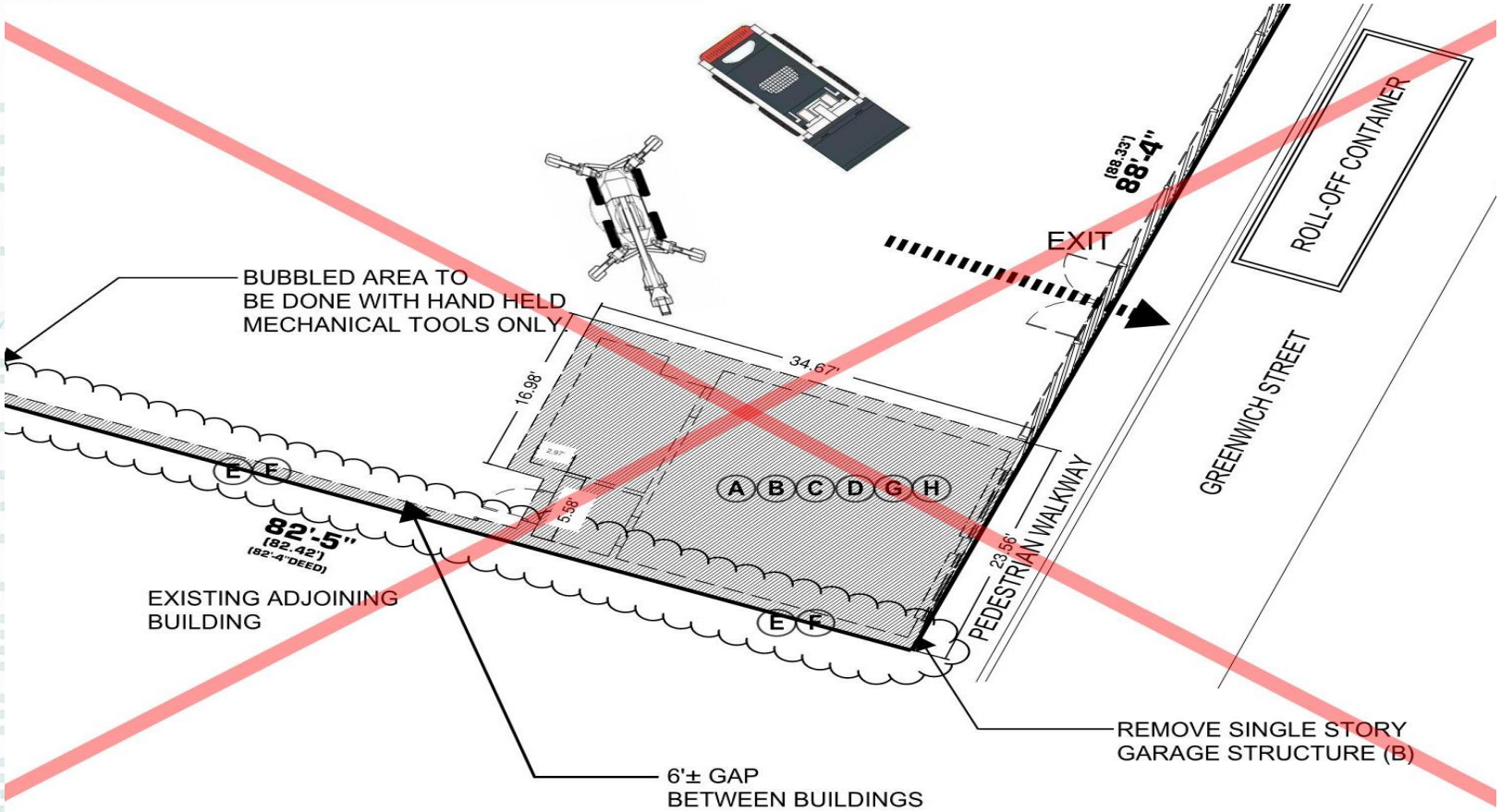
4. A FLAGMAN WILL BE PRESENT DURING LOAD OUT.

- WATER TO BE SUPPLIED FROM HISTORIC BUILIDING .

- (2) FIRE EXTINGUISHERS WILL BE STATIONED ON SITE DURING DEMOLITION OPERATIONS.

COMMON ERRORS AND OMISSIONS

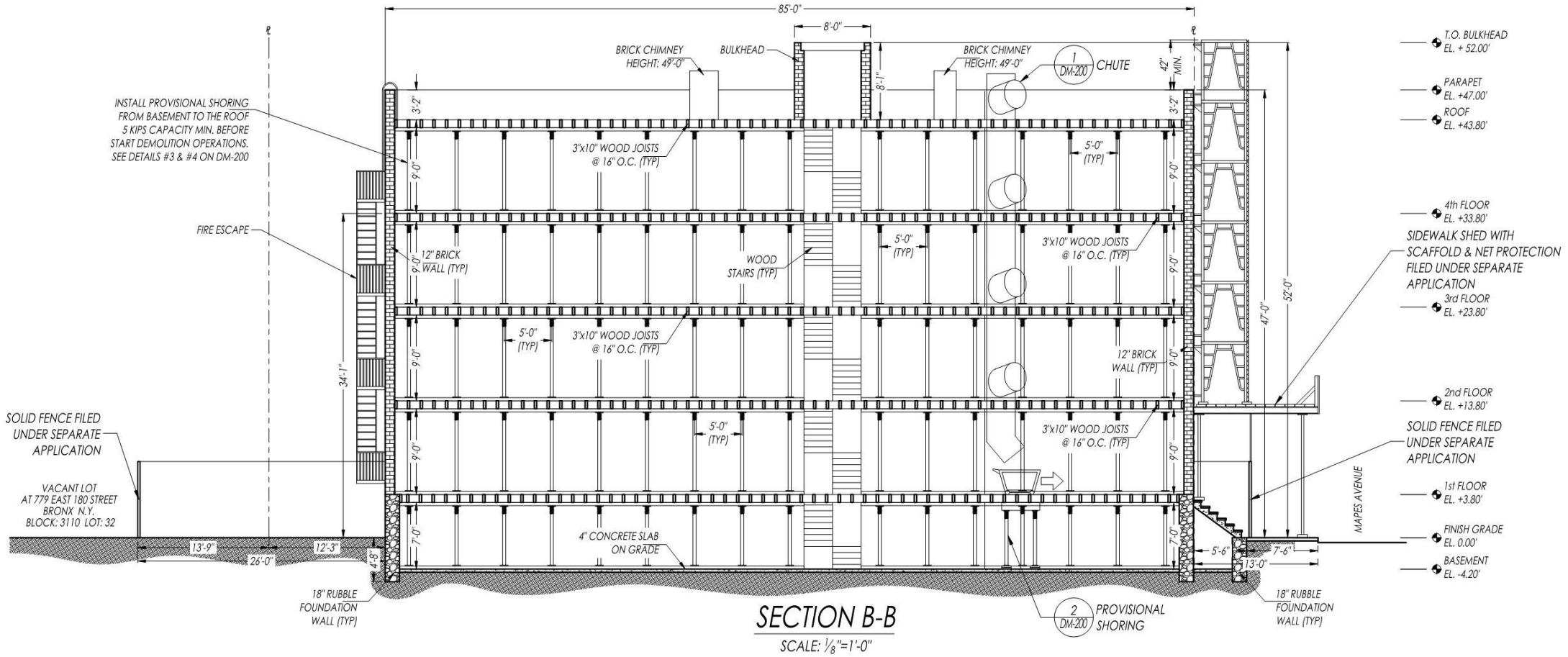
Deficient Demolition Sequence



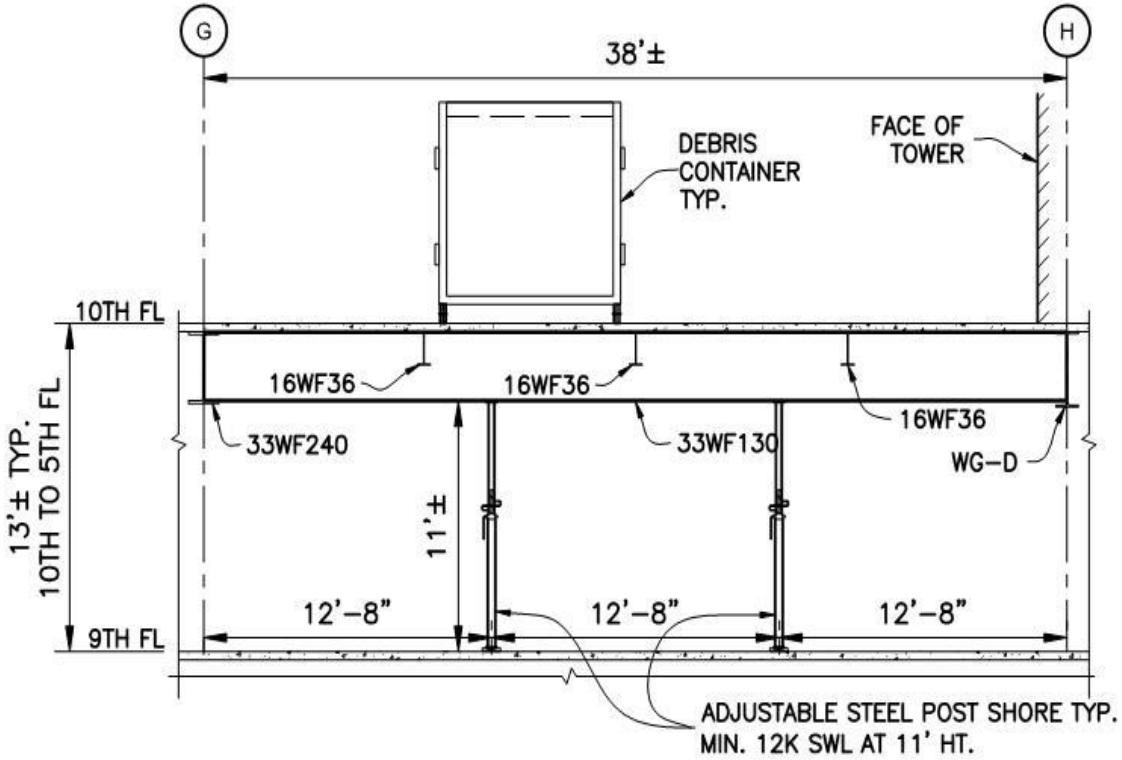
10. SHORING AND BRACING

If shoring, bracing, or other stabilization measures must be taken prior to demolition, a clear and detailed sequence of this work must be provided in the plans. The work required to be performed prior to the start of any demolition work must be clearly identified.

10. SHORING AND BRACING



10. SHORING AND BRACING



SECTION B-B

Scale : 1/8" = 1'-0"

SHORING NOTES :

1. SHORING TOWERS SHALL BE 14 KIP PER LEG HEAVY-DUTY SHORING WITH A MINIMUM FACTOR OF SAFETY = 2.5.
2. HEADER BEAMS SHALL LOAD THE U-HEAD CONCENTRICALLY.
3. THE MAXIMUM SCREW-JACK EXTENSION SHALL NOT EXCEED 12" FOR ANY JACK.
4. SHORING TOWERS SHALL BE INSTALLED PLUMB AND SNUG-TIGHT. THE SHORING EQUIPMENT SHALL NOT BE BENT OR DAMAGED.
5. SHORING TOWERS SHALL BE CHECKED PERIODICALLY FOR TIGHTNESS. TIGHTEN JACKS AS NEEDED.

11. DEBRIS REMOVAL

All means and methods of debris removal from the point of demolition to the public roadway (carting) must be clearly defined including openings in floors, chutes, etc. Any debris sorting operation must be indicated and enclosed by barriers and kept separate from all other demolition activity.

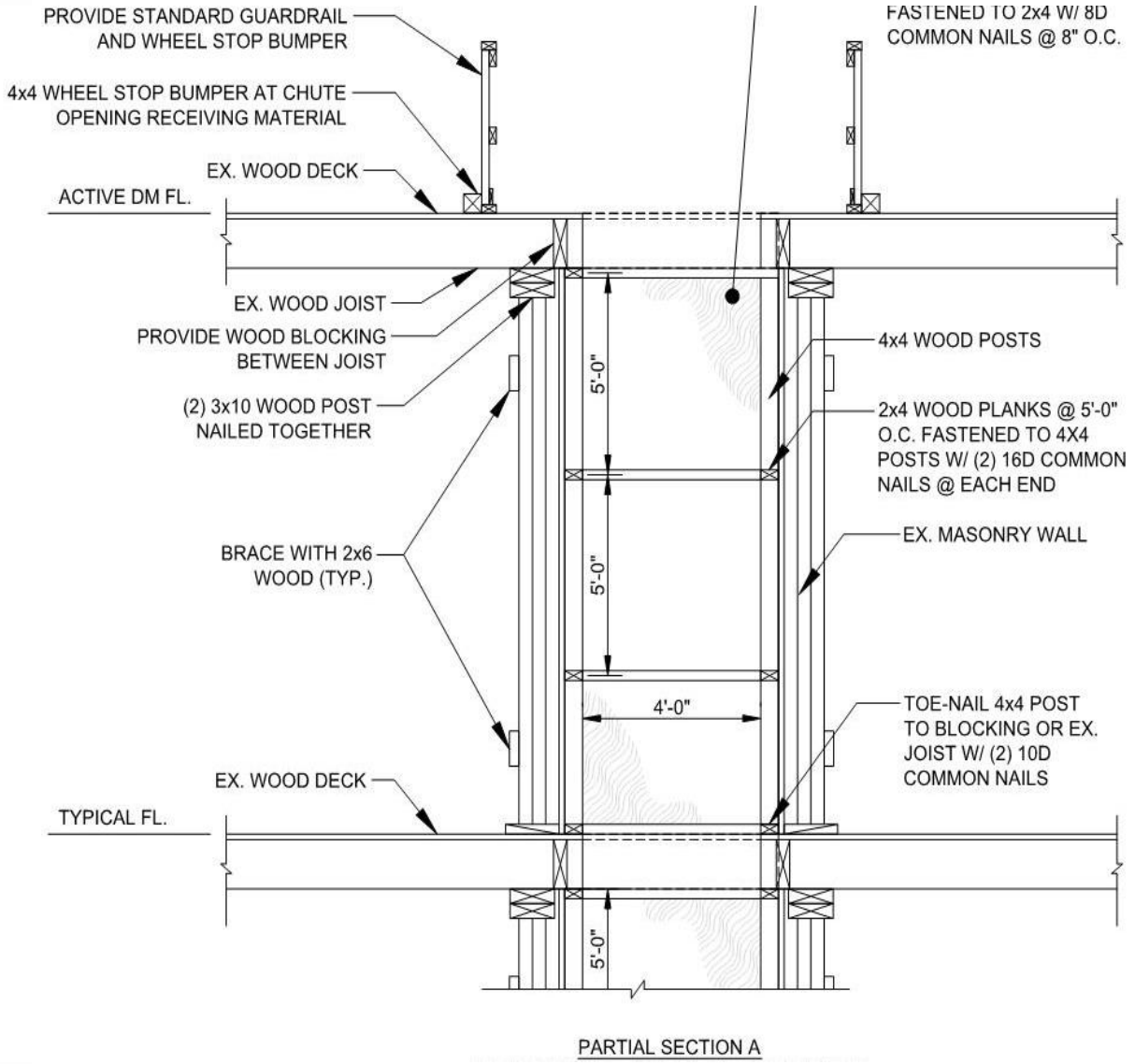
All structures must be lowered in a controlled manner and means, methods and measures to ensure their safe removal shall be provided. The method of removal of any structural member shall not destabilize any remaining members and shall not allow unaccounted impact loads on the structure. Uncontrolled dropping of material is forbidden.

CHUTES
BC 3303.5.5

3303.5.5.5 Design and permit. No chute shall be installed until a permit has been issued by the commissioner on the basis of drawings prepared by a registered design professional.

Exception: Design and permit is not required for a chute that is:

1. Installed on the exterior of a building or structure at a height of 40 feet (12 192 mm) or less in height above the level of the adjoining ground;
2. Has been designed by a manufacturer and is installed in accordance with the manufacturer's design; and
3. Does not attach to or impart a load on a scaffold.



PARTIAL SECTION A

12. MECHANICAL DEMOLITION EQUIPMENT

Plans must show mechanical equipment (non-handheld) to be used and the gross weight of the equipment. The Applicant of Record may designate use of a specific piece of equipment but allow for alternates within the same weight range and type. Alternatives must be listed on plans. A list of cranes must also be provided, including their location and a note that any permits required from the DOB Cranes and Derricks Unit will be obtained. Calculations must be provided demonstrating safe support of mechanical equipment and any conditions imposed on its use or position on the floor.

12. MECHANICAL DEMOLITION EQUIPMENT

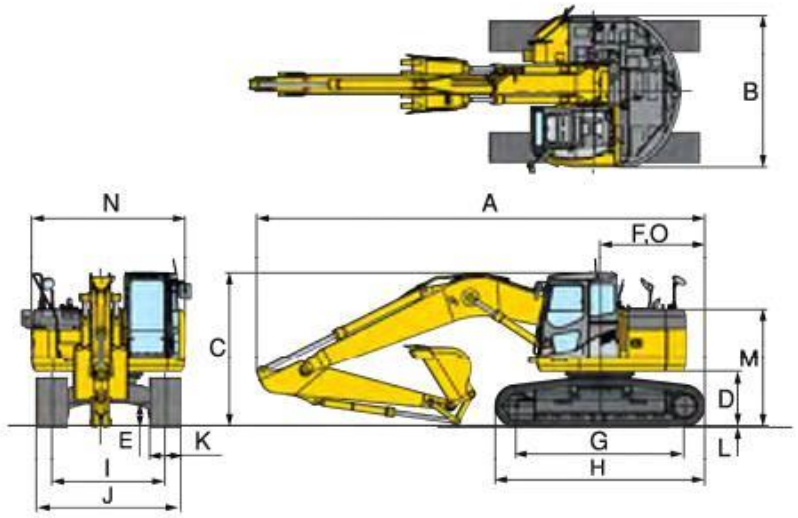
BC 3306.4 Mechanical demolition equipment. Where mechanical demolition equipment, other than handheld devices, is to be used in the full or partial demolition of a building or structure, or is to be used to remove debris or move material, approval of the commissioner for the use of the mechanical demolition equipment must be obtained prior to the commencement of demolition operations.

12. MECHANICAL DEMOLITION EQUIPMENT

DIMENSIONS

		PC228US-3E0		PC228USLC-3E0	
	Arm	2925 mm	9'7"	2925 mm	9'7"
A	Overall length	8700 mm	28'7"	8890 mm	29'2"
B	Overall width	2980 mm	9'9"	3080 mm	10'1"
C	Overall height (to top of cab)*	3035 mm	9'11"	3035 mm	9'11"
D	Ground clearance, counterweight*	1060 mm	3'6"	1060 mm	3'6"
E	Minimum Ground clearance	440 mm	1'5"	440 mm	1'5"
F	Tail swing radius	1680 mm	5'6"	1680 mm	5'6"
G	Length of track on ground	3275 mm	10'9"	3655 mm	12'0"
H	Track length	4070 mm	13'4"	4450 mm	14'7"
I	Track gauge	2200 mm	7'3"	2380 mm	7'10"
J	Width of crawler	2800 mm	9'2"	3080 mm	10'1"
K	Shoe width	600 mm	23'6"	700 mm	27'6"
L	Grouser height	26 mm	1"	26 mm	1"
M	Machine cab height*	2285 mm	7'6"	2285 mm	7'6"
N	Upper structure width	2980 mm	9'9"	2980 mm	9'9"
O	Distance, swing center to rear end	1680 mm	5'6"	1680 mm	5'6"

* Excluding grouser height



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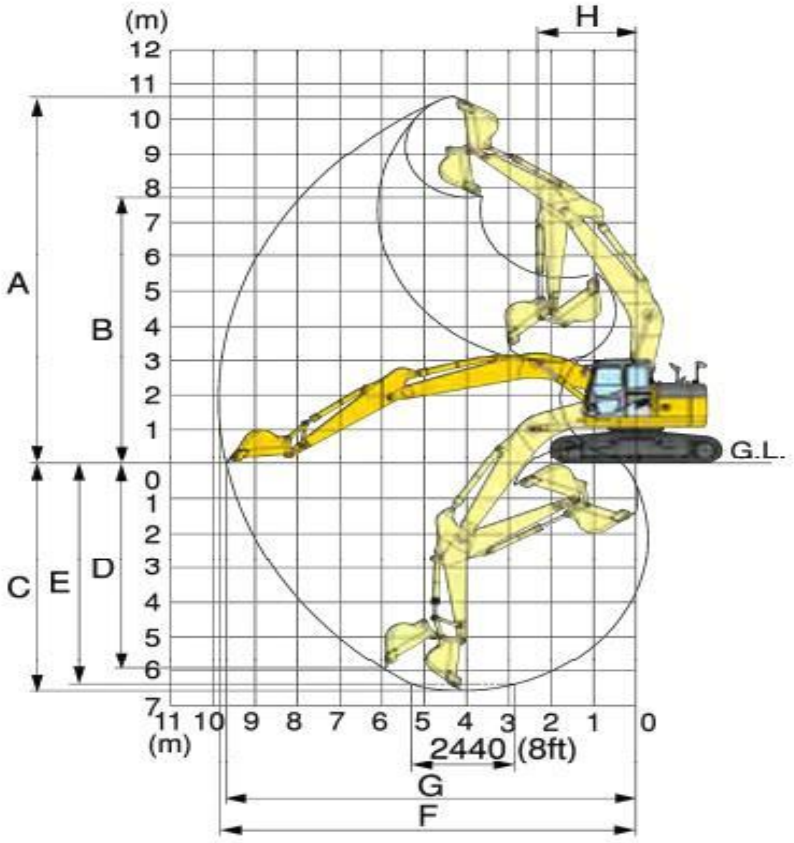
12. MECHANICAL DEMOLITION EQUIPMENT

WORKING RANGE



	Arm	**2925 mm**	9'7"
A	Max. digging height	**10700 mm**	35'1"
B	Max. dumping height	**7825 mm**	25'8"
C	Max. digging depth	**6620 mm**	21'9"
D	Max. vertical wall digging depth	**5980 mm**	19'7"
E	Max. digging depth of cut for 8' level	**6370 mm**	20'11"
F	Max. digging reach	**9875 mm**	32'5"
G	Max. digging reach at ground level	**9700 mm**	31'10"
H	Min. swing radius	**2310 mm**	7'7"
SAE rating	Bucket digging force at power max.	**138 kN** 14100 kgf/31,080 lb	
	Arm crowd force at power max.	**101 kN** 10300 kgf/22,710 lb	
ISO rating	Bucket digging force at power max.	**149 kN** 15200 kgf/33,510 lb	
	Arm crowd force at power max.	**108 kN** 11000 kgf/24,250 lb	

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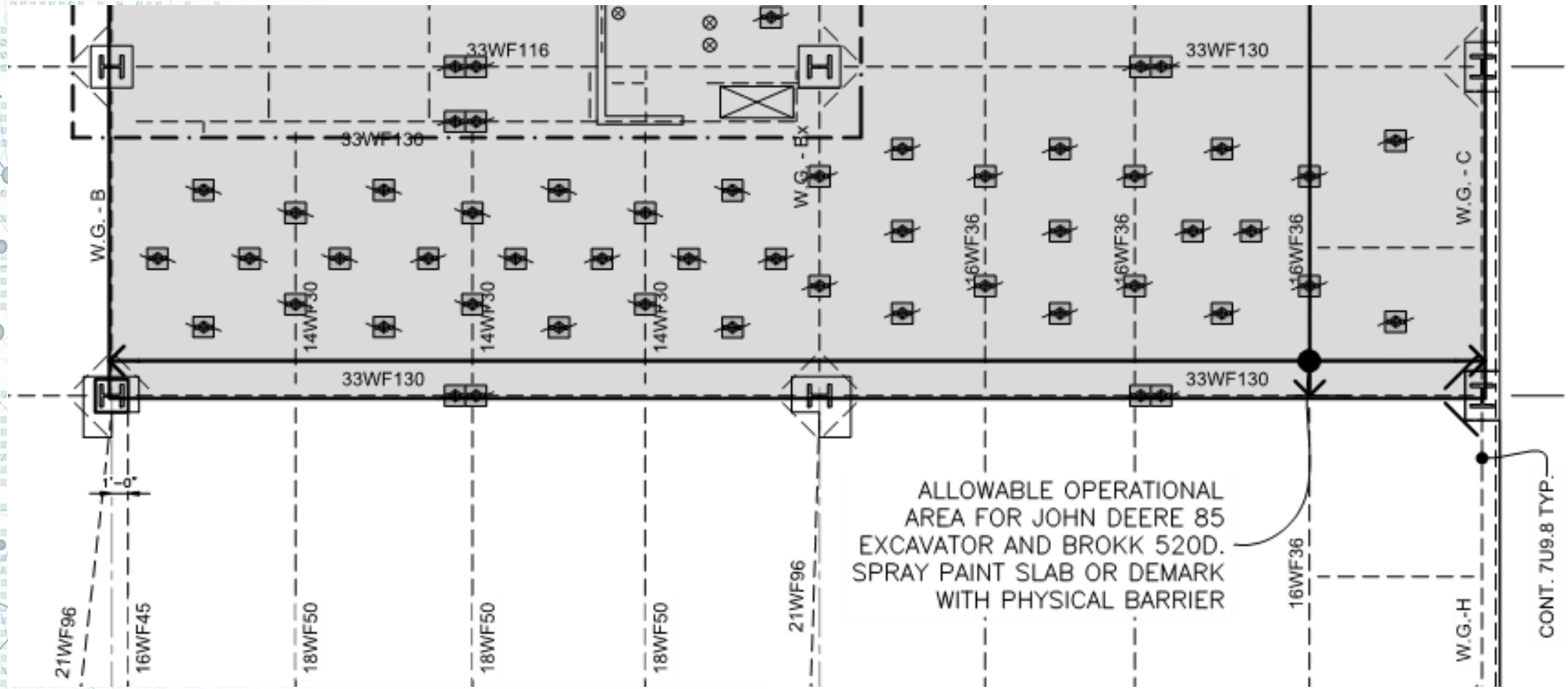
12. MECHANICAL DEMOLITION EQUIPMENT

Performance

Rated Operating Capacity (ISO)	2,100 lb
Operating Capacity (50% of Tip)	3000 lb
Tipping Load	6000 lb
Operating Weight	8555 lb
Travel Speed	6.2 mph
Travel Speed (2-speed option)	10 mph
Ground Pressure (Rubber)	5.3 psi

12. MECHANICAL DEMOLITION EQUIPMENT



LIMITATIONS OF EQUIPMENT OPERATION

Specific guidelines on the limitations of the machine's operation:

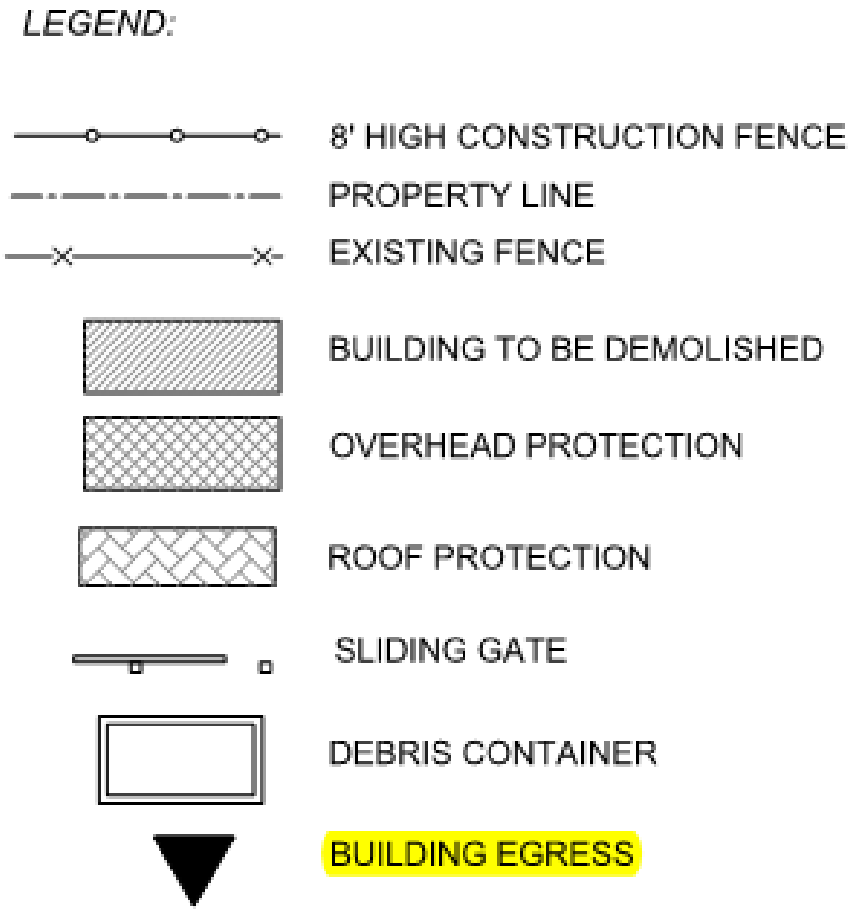
1. Travel area
2. Specific distance from the building line and/or other equipment
3. Any area with inadequate support or limited headroom
4. Controlled access zones

2.3 CONCRETE DEMOLITION

CHOP CONCRETE SLAB WITH MINI–EXCAVATORS, BROKKS, OR BY HAND METHODS. CHOP (1) BAY AT A TIME AND THEN STOP AND CLEAN DEBRIS ACCUMULATION WITH A SKID–STERR ON THE GROUND FLOOR.		
PORTIONS OF CONCRETE DROPPED FROM THE 2ND FLOOR TO THE GROUND FLOOR OR GROUND FLOOR LOADING DOCK SHALL NOT EXCEED 1 SQFT IN PLAN (1'x1' PIECE). PRIOR TO DROPPING CONCRETE TO THE GROUND FLOOR, PROVIDE 1" STEEL PLATE PROTECTION AT GROUND FLOOR BELOW AREA WHERE DEBRIS IS DROPPED.	**"PARTIAL PLAN - GROUND FLOOR PROTECTION"**	**DM-144**
THE CONCRETE DEBRIS SHALL BE ADEQUATELY WETTED TO MINIMIZE DUST.		
THE MECHANICAL EQUIPMENT SHALL MAINTAIN A MINIMUM OF 3' EDGE DISTANCE BETWEEN THE EDGE OF THE MACHINE AND THE WORKING FACE.	**PLAN VIEW**	**DM-304**
AT THE GROUND FLOOR THE DEBRIS WILL BE REMOVED AND LOADED OUT IN CONTAINERS AT THE GROUND FLOOR PLATFORM ON 47TH ST OR AT THE OPTIONAL CURB LANE ON MADISON AVE.	**DEMOLITION DETAIL 4**	**DM-748**
THE MAXIMUM NUMBER OF MINI-EXCAVATORS/BROKKS/SKID-STEERS/SCISSORLIFT PERMITTED ON ANY FLOOR OF THE BUILDING = 12. MINIMUM SPACING BETWEEN MACHINES = 1 BAY or 20' WHICHEVER is GREATER. WHEN CHOPPING CONCRETE, THE MACHINES AND PERSONNEL ON THE FLOORS BELOW SHALL NOT TRAVEL OR OCCUPY THE AREA DIRECTLY BENEATH THE MACHINE ABOVE AS SPECIFIED IN NOTE 2.2. CONTROLLED ACCESS SHALL BE MAINTAINED IN THE BUILDING WHEN CHOPPING IS IN PROGRESS.		
PRIOR TO CHOPPING CONCRETE OVER THE MNR TRAIN SHED, EXCLUSION ZONES SHALL BE PUT INTO EFFECT IN THE DESIGNATED AREAS BELOW THE WORKING AREA.	**PLAN VIEW**	**DM-143**
WHERE PERMITTED, WHEN USING THE MACHINE WITHIN 6' OF THE EDGE OF THE BUILDING, PROVIDE PROTECTION AT PERIMETER OF BUILDING USING PLANK, PLYWOOD, AND WIRE MESH ON THE SCAFFOLD.	**DEMOLITION DETAIL 7**	**DM-764**
THE DIRECTION OF DEMOLITION IS AT THE DISCRETION OF THE CONTRACTOR.		
MAINTAIN ACCESS TO THE STAIRCASE FOR AS LONG AS POSSIBLE. WHEN DEMOLISHING STAIR, PLANK OVER STAIR OPENING TO PREVENT ERRANT DEBRIS FROM ROLLING DOWN THE STAIRS WHILE MAINTAINING STAIR EGRESS ON THE LOWER FLOORS.	**DEMOLITION DETAIL 9**	**DM-764**

13. EGRESS

All means of egress must be indicated for all phases of the demolition.



13. EGRESS

3303.11 Stairs during construction or demolition. During construction and demolition stairs shall comply with the following:

1. During the course of construction of a new building, or in spaces being added to an existing building, at least one permanent stair shall be brought to within a distance of 40 feet (12 192 mm) or 4 floors below the working deck at all times. In all other locations where permanent stairs will be required, a temporary or permanent stair shall be brought to within a distance of 40 feet (12 192 mm) or 4 floors below the working deck at all times.
2. Stairs in an existing building undergoing alteration or a partial demolition shall be maintained in accordance with Section 3303.9. *Stairs in a building undergoing a full demolition shall comply with Section 3306.9.9.*

13. EGRESS

3306.9.9 Stairs. All enclosed vertical shafts and stairs shall be maintained enclosed at all floors except the uppermost floor being demolished, and all work on the uppermost floor shall be completed before stair and shaft enclosures on the floor below are disturbed. All hand rails and banisters shall be left in place until actual demolition of such floor is in progress.

14. FDNY HOIST

3303.12.2 Floors closed to the public. All floors closed to the public in a new or existing building undergoing construction or demolition work shall be served by, at least, either:

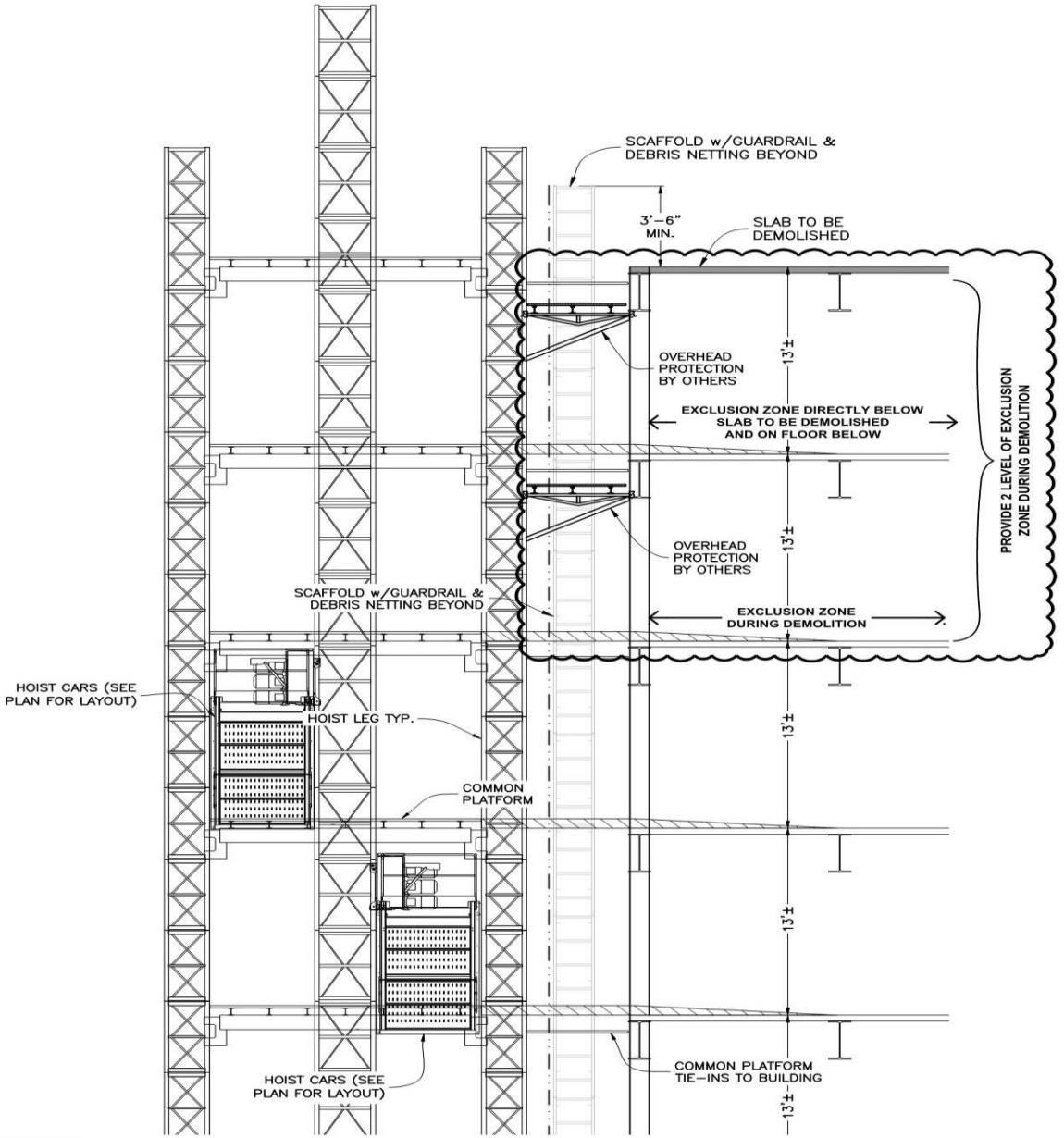
1. An elevator meeting the requirements of Chapter 30, which shall be kept in readiness at all times for Fire Department use; or
2. A hoist meeting the requirements of Section 3318, which shall be available at all times for fire department use.

Exceptions: An elevator or hoist is not required during the course of construction or demolition for:

1. A building that does not require a permanent elevator.
2. *Floors that are located within a vertical distance of seven stories or 75 feet (22 860 mm) or less from the working deck.*

FDNY HOIST

An elevator or hoist is not required during the course of demolition for floors that are located within a vertical distance of seven stories or 75 feet or less from the working deck.



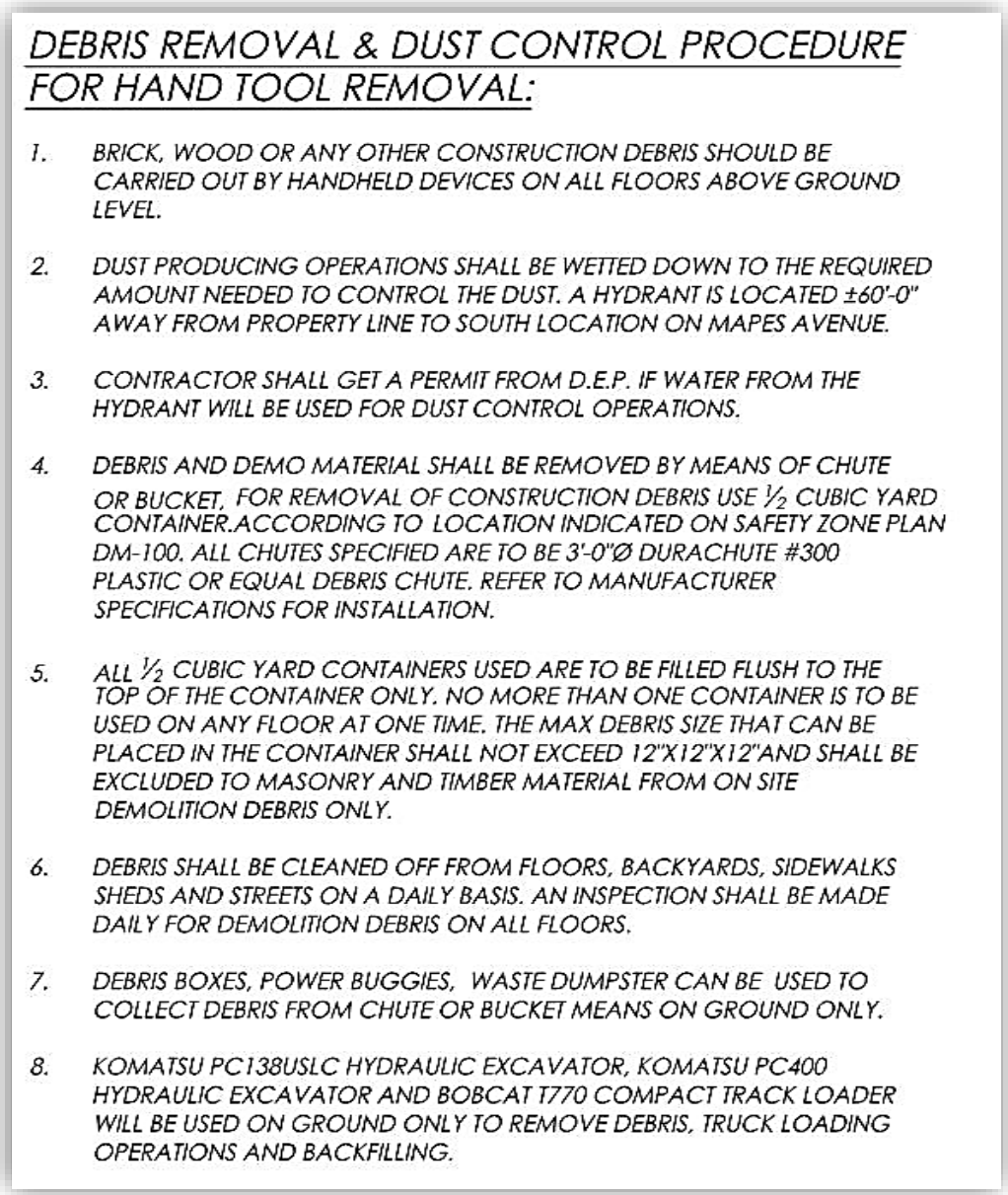
15. WATER SUPPLY

Water supply for suppressing dust must be indicated and the source for the water must be provided. (Use of a hydrant requires a DEP permit. This permit shall be kept on site at all times.) The location of hydrants must be shown.

15. WATER SUPPLY

BC 3306.9.3 Dust.

Dust producing operations shall be wetted down to the extent necessary to control the dust.



DEBRIS REMOVAL & DUST CONTROL PROCEDURE FOR HAND TOOL REMOVAL:

1. BRICK, WOOD OR ANY OTHER CONSTRUCTION DEBRIS SHOULD BE CARRIED OUT BY HANDHELD DEVICES ON ALL FLOORS ABOVE GROUND LEVEL.
2. DUST PRODUCING OPERATIONS SHALL BE WETTED DOWN TO THE REQUIRED AMOUNT NEEDED TO CONTROL THE DUST. A HYDRANT IS LOCATED ±60'-0" AWAY FROM PROPERTY LINE TO SOUTH LOCATION ON MAPES AVENUE.
3. CONTRACTOR SHALL GET A PERMIT FROM D.E.P. IF WATER FROM THE HYDRANT WILL BE USED FOR DUST CONTROL OPERATIONS.
4. DEBRIS AND DEMO MATERIAL SHALL BE REMOVED BY MEANS OF CHUTE OR BUCKET, FOR REMOVAL OF CONSTRUCTION DEBRIS USE ½ CUBIC YARD CONTAINER.ACCORDING TO LOCATION INDICATED ON SAFETY ZONE PLAN DM-100. ALL CHUTES SPECIFIED ARE TO BE 3'-0"Ø DURACHUTE #300 PLASTIC OR EQUAL DEBRIS CHUTE. REFER TO MANUFACTURER SPECIFICATIONS FOR INSTALLATION.
5. ALL ½ CUBIC YARD CONTAINERS USED ARE TO BE FILLED FLUSH TO THE TOP OF THE CONTAINER ONLY. NO MORE THAN ONE CONTAINER IS TO BE USED ON ANY FLOOR AT ONE TIME. THE MAX DEBRIS SIZE THAT CAN BE PLACED IN THE CONTAINER SHALL NOT EXCEED 12"X12"X12"AND SHALL BE EXCLUDED TO MASONRY AND TIMBER MATERIAL FROM ON SITE DEMOLITION DEBRIS ONLY.
6. DEBRIS SHALL BE CLEANED OFF FROM FLOORS, BACKYARDS, SIDEWALKS SHEDS AND STREETS ON A DAILY BASIS. AN INSPECTION SHALL BE MADE DAILY FOR DEMOLITION DEBRIS ON ALL FLOORS.
7. DEBRIS BOXES, POWER BUGGIES, WASTE DUMPSTER CAN BE USED TO COLLECT DEBRIS FROM CHUTE OR BUCKET MEANS ON GROUND ONLY.
8. KOMATSU PC138USLC HYDRAULIC EXCAVATOR, KOMATSU PC400 HYDRAULIC EXCAVATOR AND BOBCAT T770 COMPACT TRACK LOADER WILL BE USED ON GROUND ONLY TO REMOVE DEBRIS, TRUCK LOADING OPERATIONS AND BACKFILLING.

NYC Buildings

16. FIRE DETECTION AND SUPPRESSION

- All means of fire detection and suppression must be shown (i.e. fire extinguishers, fire watch, hot works program, etc.). A note must indicate all will be in accordance with FDNY rules and regulations.

16. FIRE DETECTION AND SUPPRESSION

- BC 3303.7.4.2 Sprinklers during demolition. When existing sprinkler systems with fire department hose connections are present in buildings undergoing full or partial demolition, such systems shall be maintained as a nonautomatic sprinkler system, except as provided in Section 3303.7.4.3. When demolition starts, the sprinkler risers shall be capped immediately below the floor being demolished so as to maintain the sprinkler system on all lower floors for Fire Department use. Cutting and capping of sprinklers during demolition work shall be performed only by a licensed master plumber or licensed master fire suppression piping contractor who has obtained a permit for such work. Fire department hose connections shall be kept free from obstruction and shall be marked by a metal sign reading “Sprinkler Connection” and by a red light at night. The red paint required pursuant to Section 903.6 of this code shall be maintained during any demolition operations.

16. FIRE DETECTION AND SUPPRESSION

- BC 3303.8 Standpipe systems during construction, alteration or demolition. During construction, alteration or demolition operations, standpipe systems shall comply with the following:

  2. Existing standpipe systems in structures undergoing a full demolition shall be maintained as dry standpipes. At the commencement of demolition, the standpipe risers shall be capped above the outlet on the floor immediately below the floor being demolished so as to maintain the standpipe system on all lower floors for Fire Department use. Cutting and capping of standpipes during demolition work shall be performed only by a licensed master plumber or licensed master fire suppression piping contractor who has obtained a permit for such work. Standpipe hose, nozzles and spanners are not required to be maintained and may be removed at any time. The red paint required pursuant to Section 905.11 of this code shall be maintained during any demolition operations. All existing house check valves shall remain in place until completion of the demolition work.

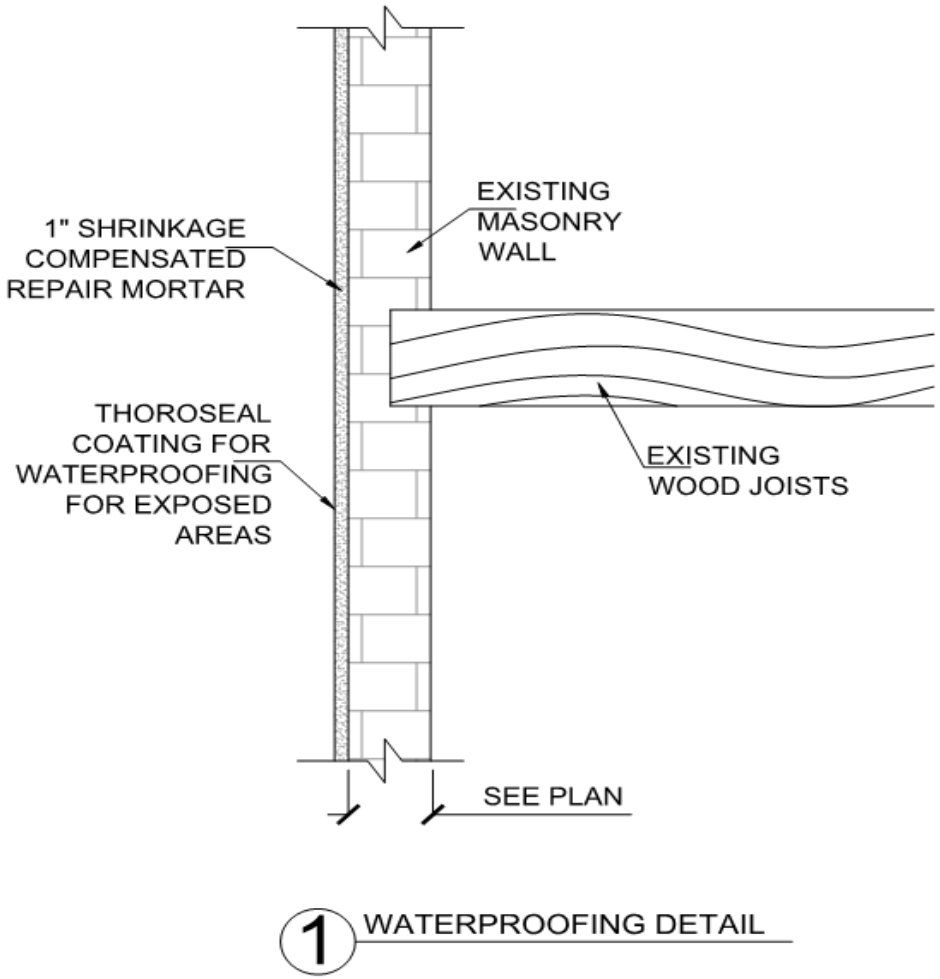
16. FIRE DETECTION AND SUPPRESSION

- 3303.8.1 Air pressurized alarm system for dry standpipe systems during construction or demolition operations. Dry standpipe systems utilized during construction or demolition operations shall be provided with an air pressurized alarm system as set forth in Items 1 through 5 below. The provisions of NFPA 14, Chapter 12, as modified in Appendix Q, shall also apply.

  1. Full demolitions. In buildings and structures undergoing a full demolition, all existing standpipes shall be maintained in a state of readiness as a dry system in accordance with Item 2 of Section 3303.8 and shall be provided with an air pressurized alarm system.

17. ADJOINING WALLS

The methods of remediating adjoining lot line walls must be shown, including weatherproofing, repair, floor-to-wall anchorage, etc.



17. ADJOINING WALLS

BC 3309.8 Adjoining walls. When any construction or demolition operation exposes or breaches an adjoining wall, including load bearing and non load-bearing walls as well as party walls and non party walls, the person causing the construction or demolition operation shall, at his or her own expense, perform the following:

1. Maintain the structural integrity of such walls and adjoining structure, and have a registered design professional investigate the stability and condition of the wall and adjoining structure, and take all necessary steps to protect such wall and structure.

2. Maintain all required fire exits and passageways or provide substitutions meeting the requirements of this code.

17. ADJOINING WALLS

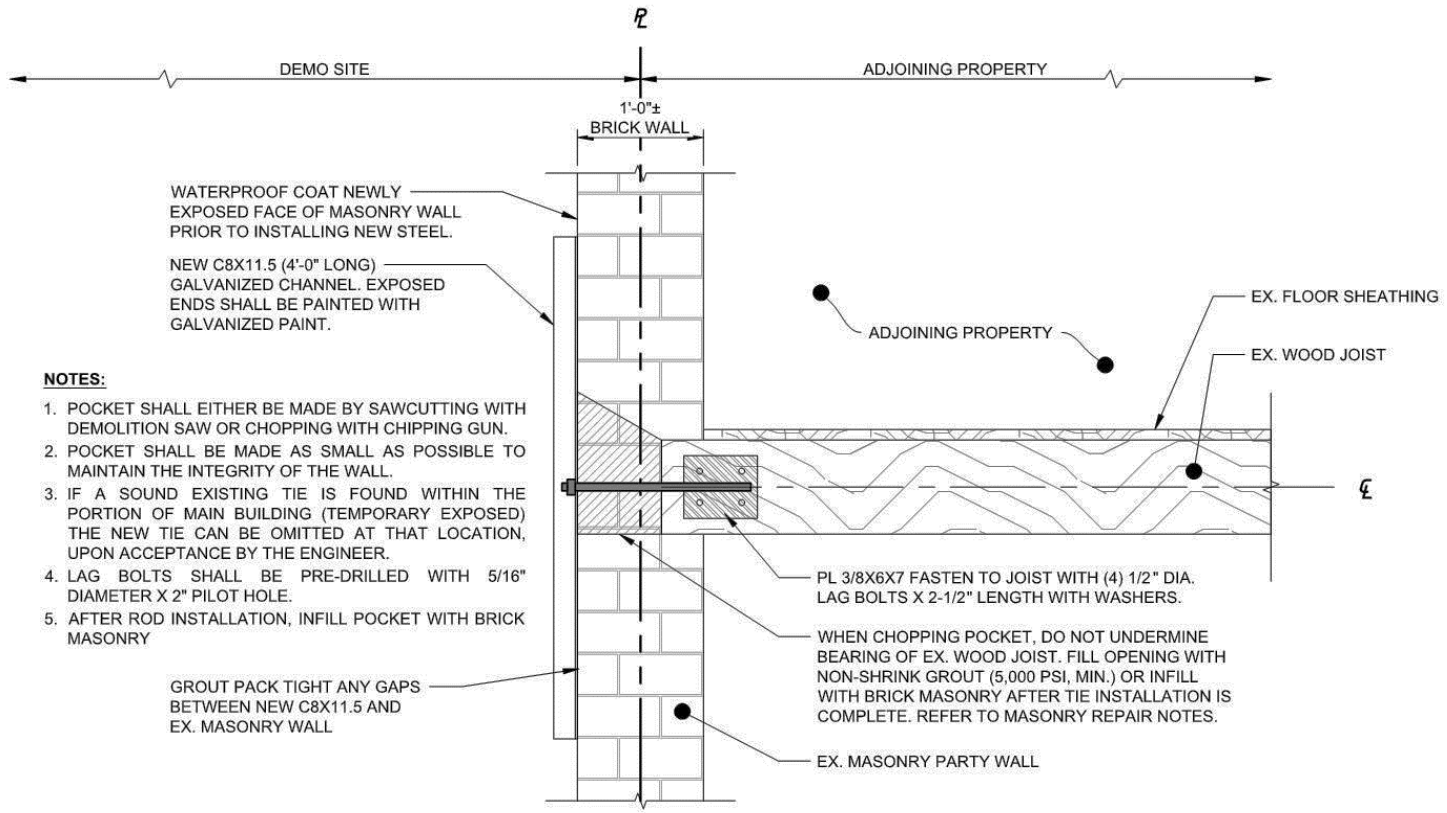
1. Cut off close to the walls all beams in party walls, remove stub ends without weakening existing masonry, clean beam pockets of loose mortar, bend over all wall anchors at the beam ends in the standing wall, and brick-up all open beam holes with sound brick and cement mortar.
2. During demolition operations, where the floor beams of the adjacent building bear on the party wall, the person causing the demolition shall ascertain that such beams are anchored into the wall and, where such anchorage is lacking, shall provide anchorage or otherwise brace the standing wall.
3. During demolition operations, all nonload-bearing chimney breasts, projections and any other debris exposed on party walls shall be examined and monitored by the person causing the demolition. Removal of such items shall be made under the supervision of a registered design professional only if the stability of the adjacent building or structure will not be affected. All openings shall be bricked up flush on the exterior side of the party wall. All masonry that is in poor condition shall be pointed and patched.

17. ADJOINING WALLS

3309.9 Weatherproof integrity of adjoining buildings. Where the waterproof integrity of an adjoining wall or building has been impaired due to construction or demolition operations, the person causing the construction or demolition operations shall, at his or her own expense, provide all necessary measures to permanently waterproof the adjoining wall or building in order to establish or restore the weatherproof integrity of such adjoining wall or building. This shall include, but is not limited to:

1. Bending over and flashing all roofing material of adjoining buildings;
2. Sealing and permanently waterproofing all doors or other openings in party walls;
3. Properly sealing all cornices, where cut;
4. Pointing up and making waterproof any walls and parapets and any walls that have been disturbed;
5. Removing all exposed furring, lath, and plaster on party walls; and
6. Removing, replacing, and firmly anchoring any loose wall material.

17. ADJOINING WALLS



4 WALL TIE - WOOD JOIST SIDE - STANDARD

SCALE: N.T.S.

18. END OF DEMOLITION

The end-of-demolition conditions must be clearly illustrated in plan and section, including any remaining foundation elements and means of stabilizing those elements and the adjoining property (via complete backfill, berms, shoring/bracing, etc.).

A detailed section must show the elevation of the footing of the building being demolished as it relates to the adjoining property footing. This detail is required to determine if the foundation of the building being demolished is providing support (vertical or lateral) for the adjoining property that may require shoring. If so, shoring/underpinning/berming/backfill/etc. must be provided on the DM application (or related ALT 2 referenced on the DM application).

If all foundation elements are NOT being removed and/or site is NOT being completely backfilled, follow the requirements of the notice from July 2014 titled "Demolition Filings + 2014 Construction Codes: Waiver of Backfill and/or Foundation Removal."

18. END OF DEMOLITION

BC 3306.10 Removal of foundations and slabs. Where a building, or any portion, has been demolished to grade, the floor slab or foundation of such building, or portion, shall be removed and the site backfilled to grade.

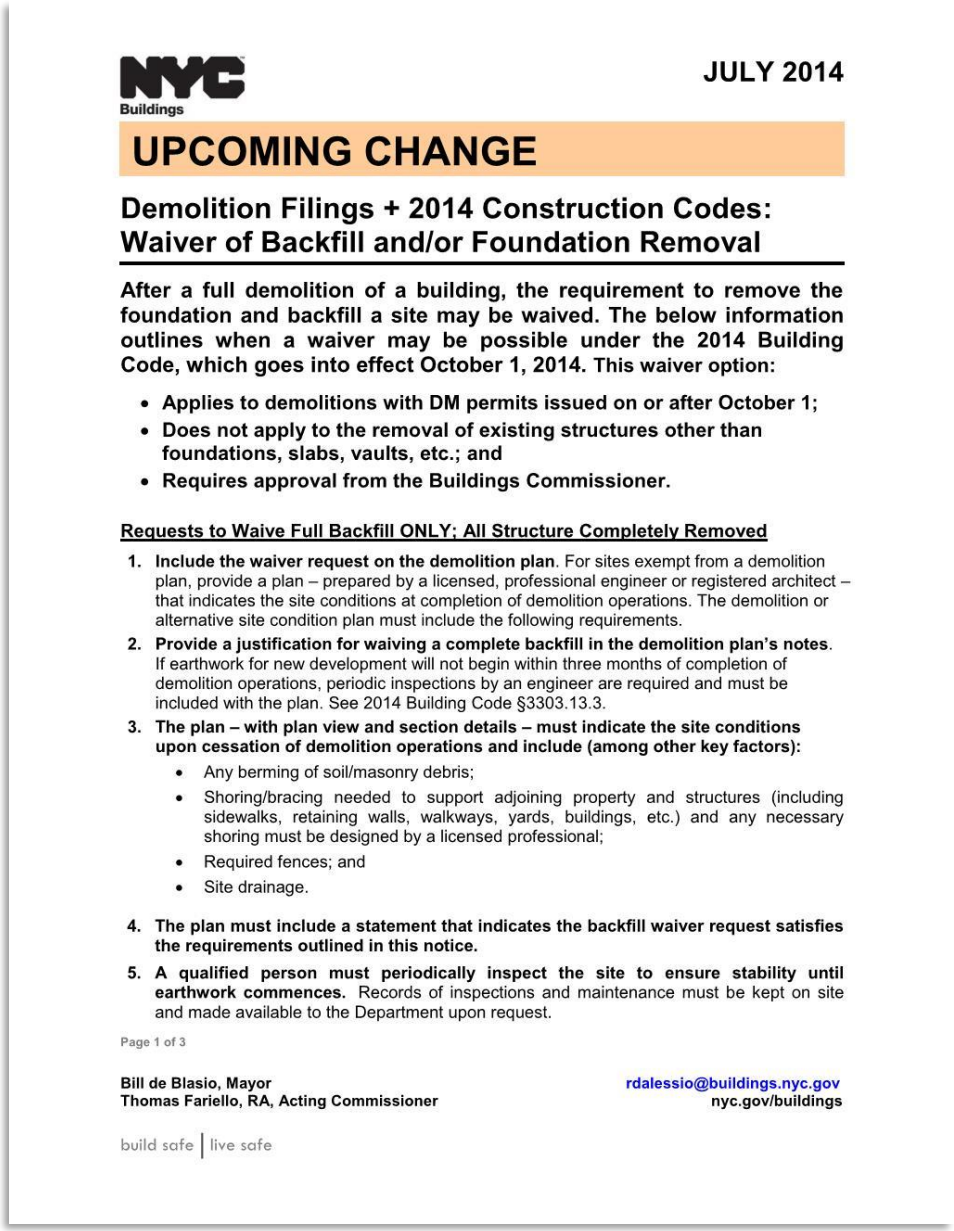
Exceptions:

1. Cellar floors may remain provided the cellar floor slab is broken up to the extent necessary to provide ground drainage and prevent accumulation of water, and also provided that all fixtures or equipment that would cause voids in the fill are removed.
2. Where portions, other than a cellar floor, are to remain and covered with backfill, a waiver approved by the commissioner shall be obtained. Drawings prepared by a registered design professional depicting the remaining buried structure shall be submitted with the waiver request.
3. Where a floor slab or foundation is to remain and not be backfilled, a waiver approved by the commissioner shall be obtained. Such request for waiver shall be accompanied by a statement and drawings prepared by a registered design professional demonstrating the necessity for retaining the existing floor slab or foundation for future construction or site remediation, as well as demonstrating positive cellar drainage to an approved place of disposal.

Waiver of Foundation and Slab Removal

Waiver of:

1. Full Backfill ONLY
2. Foundation/Slab ONLY
3. Full Backfill AND Foundation/Slab



NYC Buildings

JULY 2014

UPCOMING CHANGE

Demolition Filings + 2014 Construction Codes: Waiver of Backfill and/or Foundation Removal

After a full demolition of a building, the requirement to remove the foundation and backfill a site may be waived. The below information outlines when a waiver may be possible under the 2014 Building Code, which goes into effect October 1, 2014. This waiver option:

- **Applies to demolitions with DM permits issued on or after October 1;**
- **Does not apply to the removal of existing structures other than foundations, slabs, vaults, etc.; and**
- **Requires approval from the Buildings Commissioner.**

Requests to Waive Full Backfill ONLY; All Structure Completely Removed

1. **Include the waiver request on the demolition plan**. For sites exempt from a demolition plan, provide a plan – prepared by a licensed, professional engineer or registered architect – that indicates the site conditions at completion of demolition operations. The demolition or alternative site condition plan must include the following requirements.
2. **Provide a justification for waiving a complete backfill in the demolition plan's notes**. If earthwork for new development will not begin within three months of completion of demolition operations, periodic inspections by an engineer are required and must be included with the plan. See 2014 Building Code §3303.13.3.
3. **The plan – with plan view and section details – must indicate the site conditions upon cessation of demolition operations and include (among other key factors):**
   - Any berming of soil/masonry debris;
   - Shoring/bracing needed to support adjoining property and structures (including sidewalks, retaining walls, walkways, yards, buildings, etc.) and any necessary shoring must be designed by a licensed professional;
   - Required fences; and
   - Site drainage.
4. **The plan must include a statement that indicates the backfill waiver request satisfies the requirements outlined in this notice.**
5. **A qualified person must periodically inspect the site to ensure stability until earthwork commences.** Records of inspections and maintenance must be kept on site and made available to the Department upon request.

Page 1 of 3

Bill de Blasio, Mayor
Thomas Fariello, RA, Acting Commissioner

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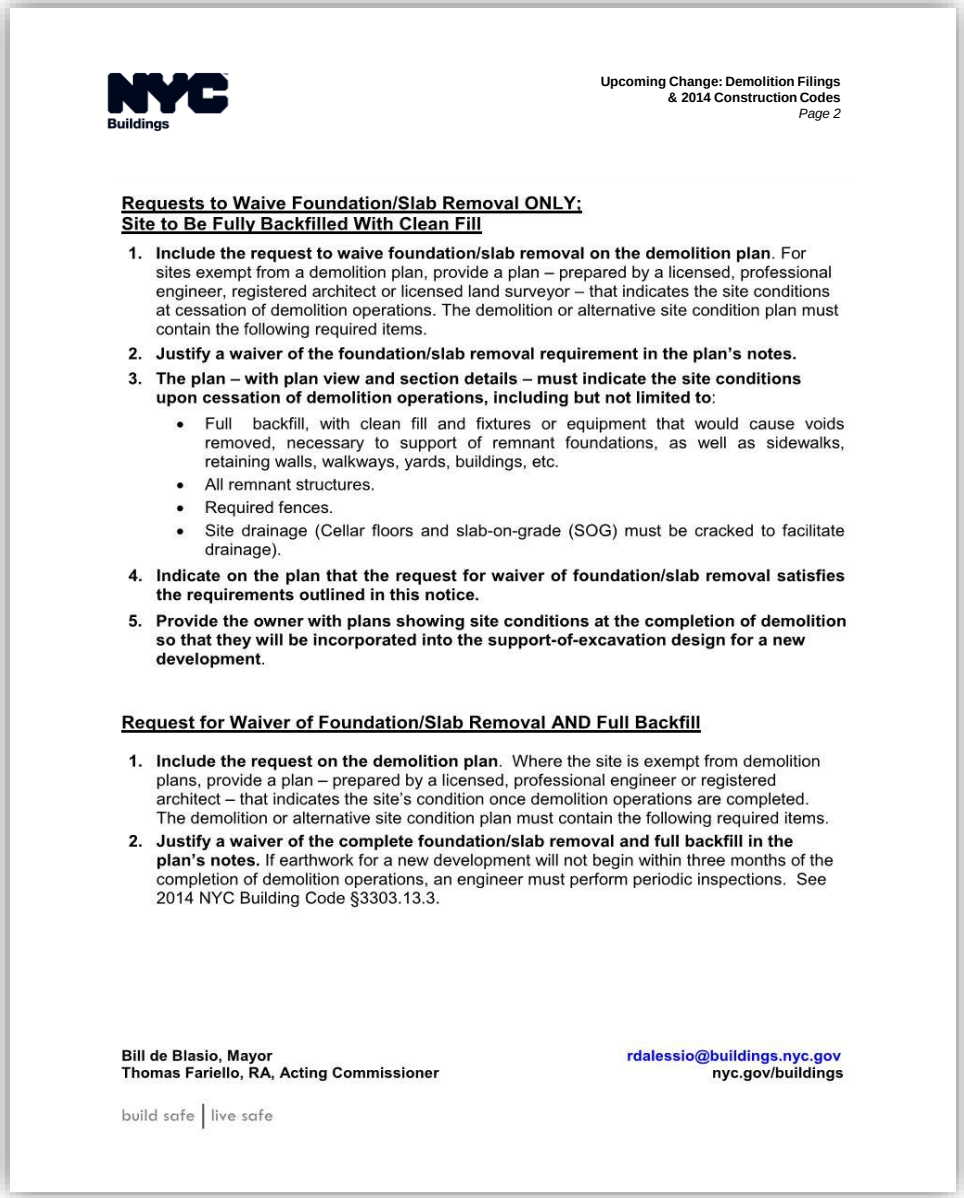
WAIVER OF FOUNDATION & SLAB REMOVAL

Waiver of:

1. Full Backfill ONLY
2. Foundation/Slab ONLY
3. Full Backfill AND Foundation/Slab



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Requests to Waive Foundation/Slab Removal ONLY; Site to Be Fully Backfilled With Clean Fill

1. **Include the request to waive foundation/slab removal on the demolition plan**. For sites exempt from a demolition plan, provide a plan – prepared by a licensed, professional engineer, registered architect or licensed land surveyor – that indicates the site conditions at cessation of demolition operations. The demolition or alternative site condition plan must contain the following required items.
2. **Justify a waiver of the foundation/slab removal requirement in the plan's notes.**
3. **The plan – with plan view and section details – must indicate the site conditions upon cessation of demolition operations, including but not limited to**:
   - Full backfill, with clean fill and fixtures or equipment that would cause voids removed, necessary to support of remnant foundations, as well as sidewalks, retaining walls, walkways, yards, buildings, etc.
   - All remnant structures.
   - Required fences.
   - Site drainage (Cellar floors and slab-on-grade (SOG) must be cracked to facilitate drainage).
4. **Indicate on the plan that the request for waiver of foundation/slab removal satisfies the requirements outlined in this notice.**
5. **Provide the owner with plans showing site conditions at the completion of demolition so that they will be incorporated into the support-of-excavation design for a new development**.

Request for Waiver of Foundation/Slab Removal AND Full Backfill

1. **Include the request on the demolition plan**. Where the site is exempt from demolition plans, provide a plan – prepared by a licensed, professional engineer or registered architect – that indicates the site's condition once demolition operations are completed. The demolition or alternative site condition plan must contain the following required items.
2. **Justify a waiver of the complete foundation/slab removal and full backfill in the plan's notes.** If earthwork for a new development will not begin within three months of the completion of demolition operations, an engineer must perform periodic inspections. See 2014 NYC Building Code §3303.13.3.

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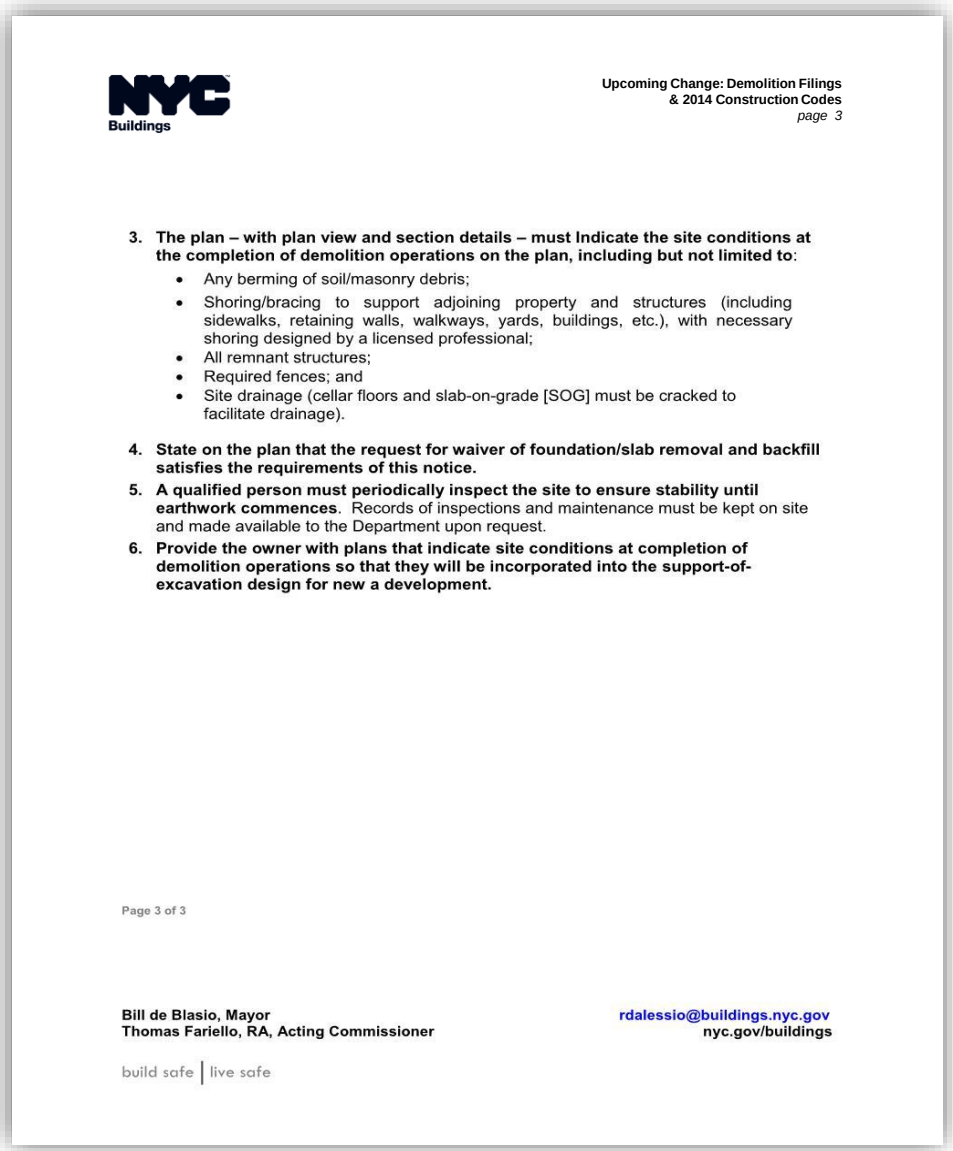
WAIVER OF FOUNDATION & SLAB REMOVAL

Waiver of:

1. Full Backfill ONLY
2. Foundation/Slab ONLY
3. Full Backfill AND Foundation/Slab



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3. **The plan – with plan view and section details – must Indicate the site conditions at the completion of demolition operations on the plan, including but not limited to**:
   - Any berming of soil/masonry debris;
   - Shoring/bracing to support adjoining property and structures (including sidewalks, retaining walls, walkways, yards, buildings, etc.), with necessary shoring designed by a licensed professional;
   - All remnant structures;
   - Required fences; and
   - Site drainage (cellar floors and slab-on-grade [SOG] must be cracked to facilitate drainage).
4. **State on the plan that the request for waiver of foundation/slab removal and backfill satisfies the requirements of this notice.**
5. **A qualified person must periodically inspect the site to ensure stability until earthwork commences**. Records of inspections and maintenance must be kept on site and made available to the Department upon request.
6. **Provide the owner with plans that indicate site conditions at completion of demolition operations so that they will be incorporated into the support-of-excavation design for new a development.**

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WAIVER OF FOUNDATION & SLAB REMOVAL

REQUEST TO WAIVE REMOVAL OF PORTION OF FOUNDATION

1. REQUESTING A WAIVER REGARDING CODE 3306.10 REMOVAL OF FOUNDATIONS AND SLABS: "WHERE A BUILDING, OR ANY PORTION, HAS BEEN DEMOLISHED TO GRADE, THE FLOOR SLAB OR FOUNDATION OF SUCH BUILDING, OR PORTION, SHALL BE REMOVED AND THE SITE BACKFILLED TO GRADE".

2. EXISTING FOUNDATION WALLS FACING THE ADJACENT BUILDING WILL REMAIN IN PLACE IN ORDER TO PROVIDE STABILITY TO THE ADJACENT BUILDING FOUNDATION.

3. FOUNDATION WALLS TO REMAIN ARE SHOWN ON DRAWING DM-109.

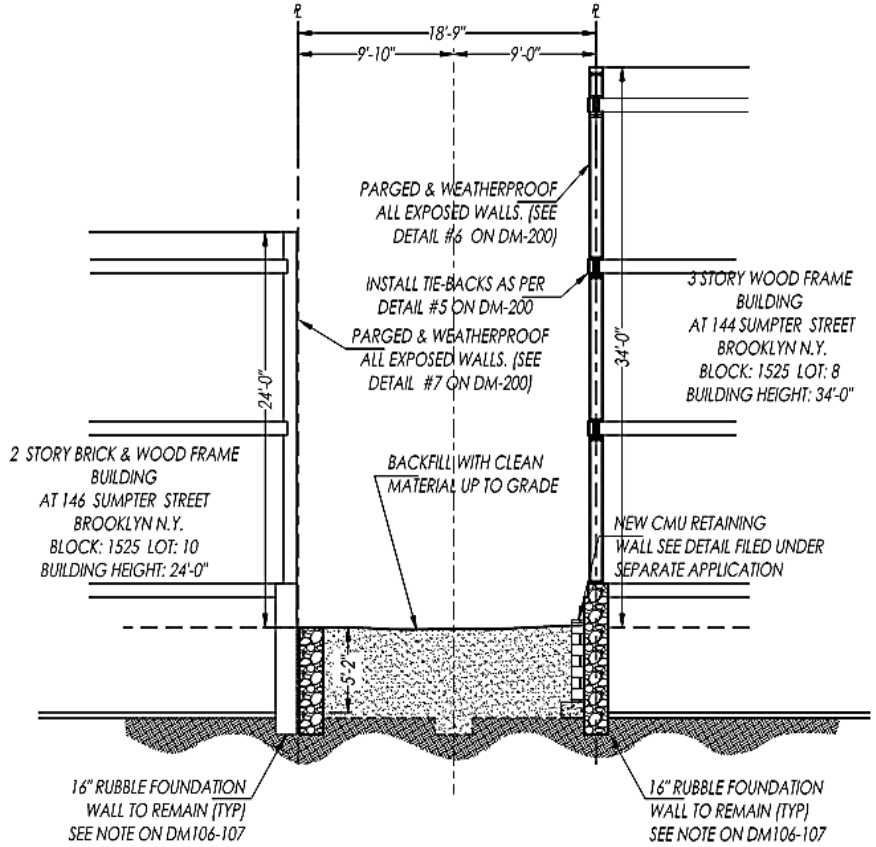
4. THE SITE WILL BE BACKFILLED WITH CLEAN MATERIAL UP TO GRADE.

5. EXISTING SLAB-ON-GRADE WILL BE CRUSHED AND REMOVED TO ALLOWED FOR DRAINAGE AND SINCE THE SITE WILL BE BACKFILL TO GRADE WITH CLEAN MATERIAL, NO FUTURE INSPECTIONS WILL BE REQUIRED.

6. THE LEFT-IN-PLACE FOUNDATION ELEMENTS ARE SHOWN ON DM-109.

7. COPY OF THE APPROVED DEMOLITION DRAWINGS SHOWING FINAL FOUNDATION CONDITION MUST BE PROVIDED TO THE OWNER SO IT CAN BE INCORPORATED IN THE SOE DESIGN FOR NEW DEVELOPMENT. ADDITIONAL COPY SHALL BE MAINTAINED AT THE JOB SITE DURING DEMOLITION OPERATION.

8. THIS FOUNDATION WAIVER REQUEST SATISFIES THE REQUIREMENTS OUTLINED ON NYC DOB "DEMOLITION OF BACKFILL AND/OR FOUNDATION REMOVAL NOTICE" ISSUED ON JULY 2014.



SECTION A-A (FINAL)

SCALE: 1/8"=1'-0"

COMPLETION OF DEMOLITION OPERATIONS

3306.11 Completion of demolition operations. All work required for structural stability and permanent waterproofing of adjacent buildings must be completed prior to demolition sign-off.

19. SPECIAL INSPECTIONS

All required special inspections must be listed.

§28-104.7.7 Identification of special and progress inspections. Whenever work or materials are subject to special inspection, as provided in this code, such work or materials shall be listed on the title sheet of the construction documents, or the sheet immediately following, as subject to special or progress inspection.

SPECIAL INSPECTIONS REQUIRED BY BUILDING CODE:

1.	MECHANICAL DEMOLITION	BC 1704.20.4 BC 3306.6
2.	STRUCTURAL STABILITY	BC 1704.20.1

THANK YOU

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