



NYC EXISTING BUILDING CODE

Designing Structural Alterations: Chapter 7 and Related Appendices

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MODULE E

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New York City Existing Building Code

Background

Origins of the EBC

- DOB has been working toward an Existing Building Code since the development of the 2008 Construction Codes.
 - Current regulatory scheme has numerous shortcomings:
 - Multiple layers of requirements (2022, 1968, 1938, memos, ppns, plus NYS MDL)
 - Current triggers for upgrades to existing buildings are not incremental
 - Some requirements commonly require submission and review of variance requests
 - In combination, these result in longer approval and permitting processes
- DOB's goals for the EBC include:
 - Simplifying the regulatory structure
 - Bridging the gap between current and past codes
 - Clearer direction for 80,000+ annually filed alteration applications
 - Utilize the International Existing Building Code
 - A new addition to the family of NYC Construction Codes, with revision cycles
 - Remove barriers to rehabilitation of existing buildings
 - Facilitating updates, while maintaining acceptable safety

Status of the EBC

Phase 1	✓ CHARRETTES
Phase 2	✓ RESEARCH
Phase 3	✓ CODE DRAFTING
Phase 4	✓ COMMITTEE WORK
Phase 5	CITY COUNCIL
	6/11/2025 ✓ INTRO 1321-2025
	10/9/2025 ✓ INTRO 1422-2025
	<input type="checkbox"/> HOUSING & BUILDINGS COMMITTEE HEARING
	<input type="checkbox"/> COUNCIL VOTE
	<input type="checkbox"/> ENACTMENT
	<input type="checkbox"/> EFFECTIVE DATE
Phase 6	IMPLEMENTATION, OUTREACH & TRAINING

INDUSTRY TRAINING PROGRAM

9/30/25 10-11:30	A module	All About the Existing Building Code: An Overview
10/9/25 10-11:30	B module	Beginning Chapters: Administration, General Requirements and Limited Alterations
10/16/25 10-11:30	C module	Charting the Compliance Path: Work Area Method and Levels of Alteration
10/22/25 10-11:30	D module	Everything Alterations: Level 1 (Chapter 8) and Level 2 (Chapter 9)
10/29/25 10-11:30	E module	Designing Structural Alterations: Chapter 7 and Related Appendices
11/5/25 10-11:30	F module	Future Changes: Occupancy, Additions, and Relocation of Buildings

Designing Structural Alterations

EBC APPLICABILITY MAP & CODE STRUCTURE

CHAPTER 7: STRUCTURAL

APPENDIX A: GUIDELINES FOR THE STRENGTHENING OF EXISTING BUILDINGS

APPENDIX H: IN-PLACE MATERIAL, COMPONENT PROPERTIES AND ARCHAIC STRUCTURAL SYSTEMS

NEXT STEPS

QUESTIONS & ANSWERS

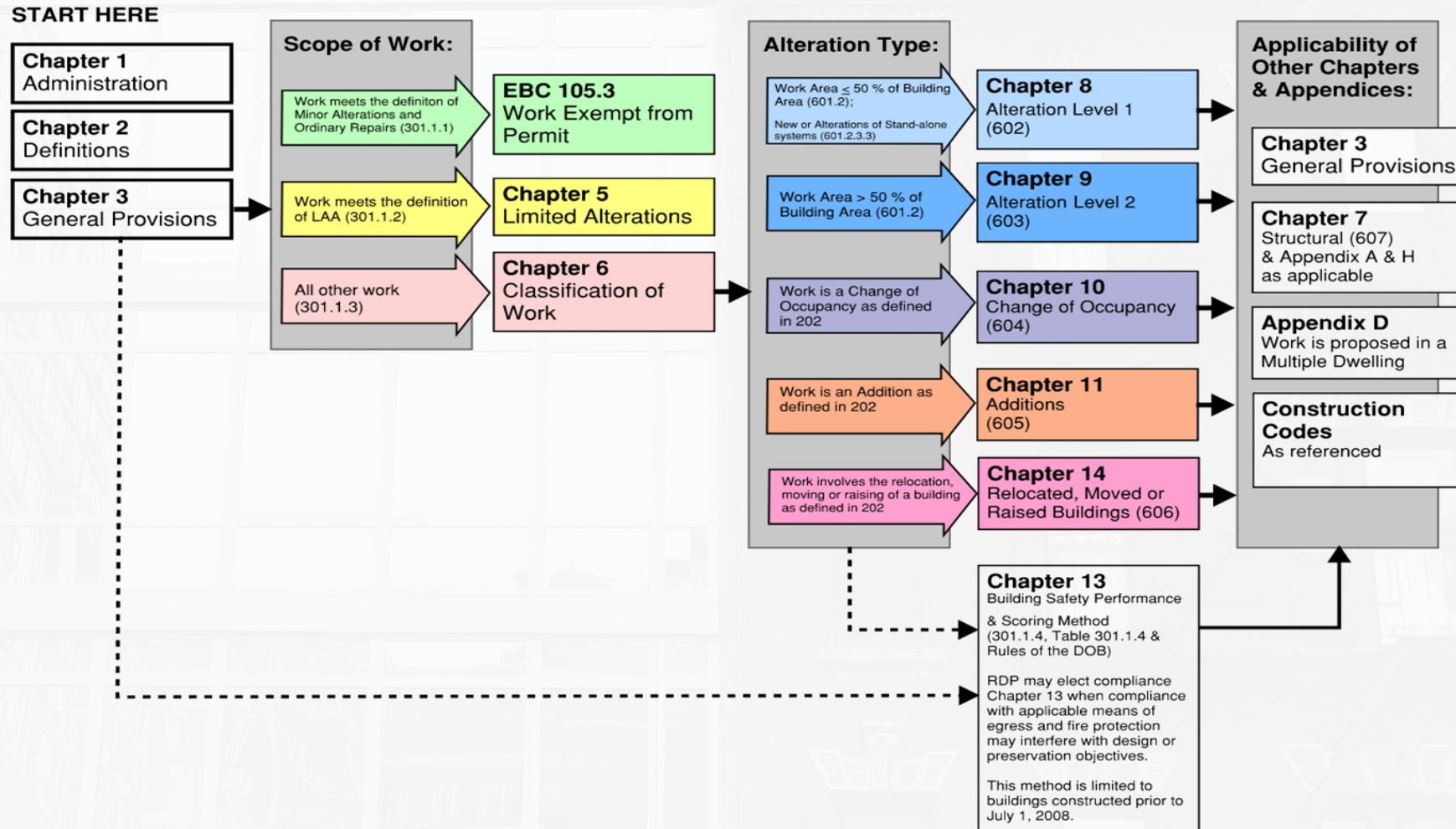
INFORMATION LEGEND

INDICATOR	DESCRIPTION
Prior	Prior Code ex. 1968 code; 1938 code, etc
Legislation	Current legislation ex. 2022 code; NYS MDL
Practice	Codifies current practice ex. Department Memos, Policy & Procedure Notices, etc
New	New
IEBC	IEBC 2015 edition of the International Existing Building Code



EBC Applicability Map

EBC Applicability Map



Code Structure

EBC Chapter	Building Systems									
	Fire Prot.	Egress	Access.	Struct.	Elec.	Mech.	Plumb.	Fuel Gas	Elevs.	Energy
3 General	304	305	306	307	308	309	310	311	312	313
8 Alteration Level 1	804	805	806	807	808	809	810	811	812	813
9 Alteration Level 2	904	905	906	907	908	909	910	911	-	912
10 Change of Occupancy	1004	1005	1006	1007	1008	1009	1010	-	-	1011
11 Additions	1104	1105	1106	1103	1108	1108	1108	1108	1108	1107



EBC Chapter 7

Structural

Table of Contents

701	General
702	Construction Documents
703	General Design Requirements
704	Condition Assessment
705	Loads
706	Flood Hazard Areas
707	In-place Material, Component Properties and Archaic Structural Systems
708	Remediation Work
709	Peer Review
710	Structural Integrity

Key Concepts

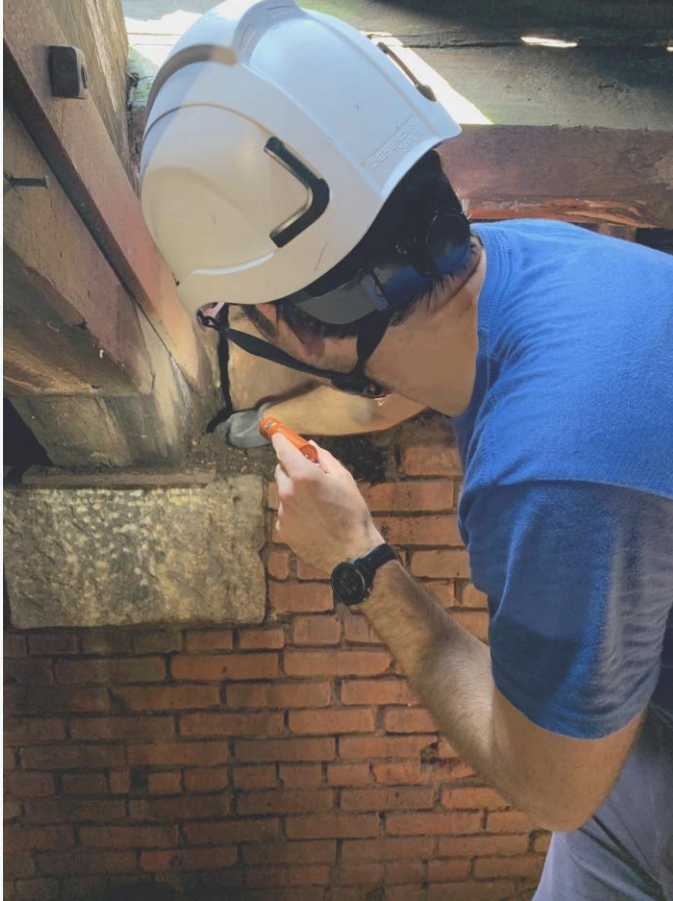
- The provisions of CH 7 apply to all work on existing buildings except for in-kind replacement of facade elements. Three-story or less, one- and two-family houses are exempt from some loading requirements and the building assessment requirement.
- The existing structure is to be documented on the filing drawings for the area of work, including member locations and sizes and material properties.
- Compliance with various structural analysis and design provisions is triggered by changes in floor area, changes in load, and/or changes in structural demand/capacity ratio of the building as a whole.

Key Concepts

- **The existing structural condition is to be assessed by the DPoR.** The conditions found on site are to be documented and, depending on the type of assessment required, a report kept on site or submitted to the DoB.
- The assessed conditions are to be used as the basis for structural design.
- Existing structural elements and systems are to be analyzed based on the appropriate material properties and system standards.
- Known deficient systems are to be improved when encountered during work, even when they are not part of the planned work. **The existing building stock will improve incrementally as a result.**

Key Concepts

Assessment



Triggers - Floor Area Changes



Notable Provisions

■ Definitions.

STRUCTURAL ALTERATION. Work performed on a structural element or that increases the loading on a structural element in an existing building.

STRUCTURAL ELEMENT. Any member or portion of a building structure or non-building structure, or its connections or foundations, that resist structural loads defined in Chapter 16 of the *New York City Building Code*.

Notable Provisions

■ Section 701 – General Provisions

Scope and Codes (701.1, 701.2 and 701.3)

- Chapter 7 addresses all structural alterations of existing buildings except for in-kind replacement of facade elements that cause no changes to the building's load path, strength, or stiffness.
- One- and two-family houses three stories or less in height are exempt from the provisions of sections 703.4 (triggers based on increases in seismic and wind loading), 703.5 (stability review), 703.7 (seismic separation), 704 (conditions assessment), and 705.6 (seismic loading).
- All structural alterations are to comply with the Existing Building Code.
- The New York City Building Code governs structural analysis and design except where modified by the Existing Building Code.
- Calculations of demand-capacity ratios use the BC load combinations, loads per section 705 of the EBC, and capacity per section 707 and Appendix H of the EBC.

Notable Provisions

■ Section 702 – Construction Documents

Section 702.1 Requirements

- The requirement to meet drawings standards in Building Code 1603 and Administrative Code 28-104 apply.

Section 702.2 Additional Drawing Requirements

- Existing structure has to be shown in the area of work: location of structural elements, element sizes, element types, material properties, foundations sizes, foundation types, soil capacity, existing details, and repair details.
- Notes on the drawings are to indicate the source of information stated, including specifically the material properties.
- Where information is not known, assumptions and requirements for field verification are to be stated on the drawings.

Notable Provisions

■ Section 703 – General Design Requirements

General

- Section 703 defines the triggers used to assign different requirements to different types of structural alteration. The triggers are based on changes other than building area, changes to gravity load, changes other wind load, changes to seismic load, and changes to Risk Category.
- These triggers replace those currently in the building code (for wind) and other documents (TPPN 4/99 for seismic load in expansions) and add new ones for conditions not previously codified (e.g. an increase in seismic load without an expansion).
- This section provides the basic design criteria for alteration. Unlike chapter 16 in the BC, the alteration criteria depend on the nature of the alteration: if the existing building is kept mostly as is, then the criteria for the new structural elements are similar to those for the existing elements; the larger the structural effects of the alteration, the more the criteria are similar to those in the BC

Notable Provisions

■ Section 703 – General Design Requirements

Section 703.1.1 Underpinning

- All underpinning and alternate support methods are to be per the BC chapters 18 and 33.

Section 703.1.2 Separation of Additions

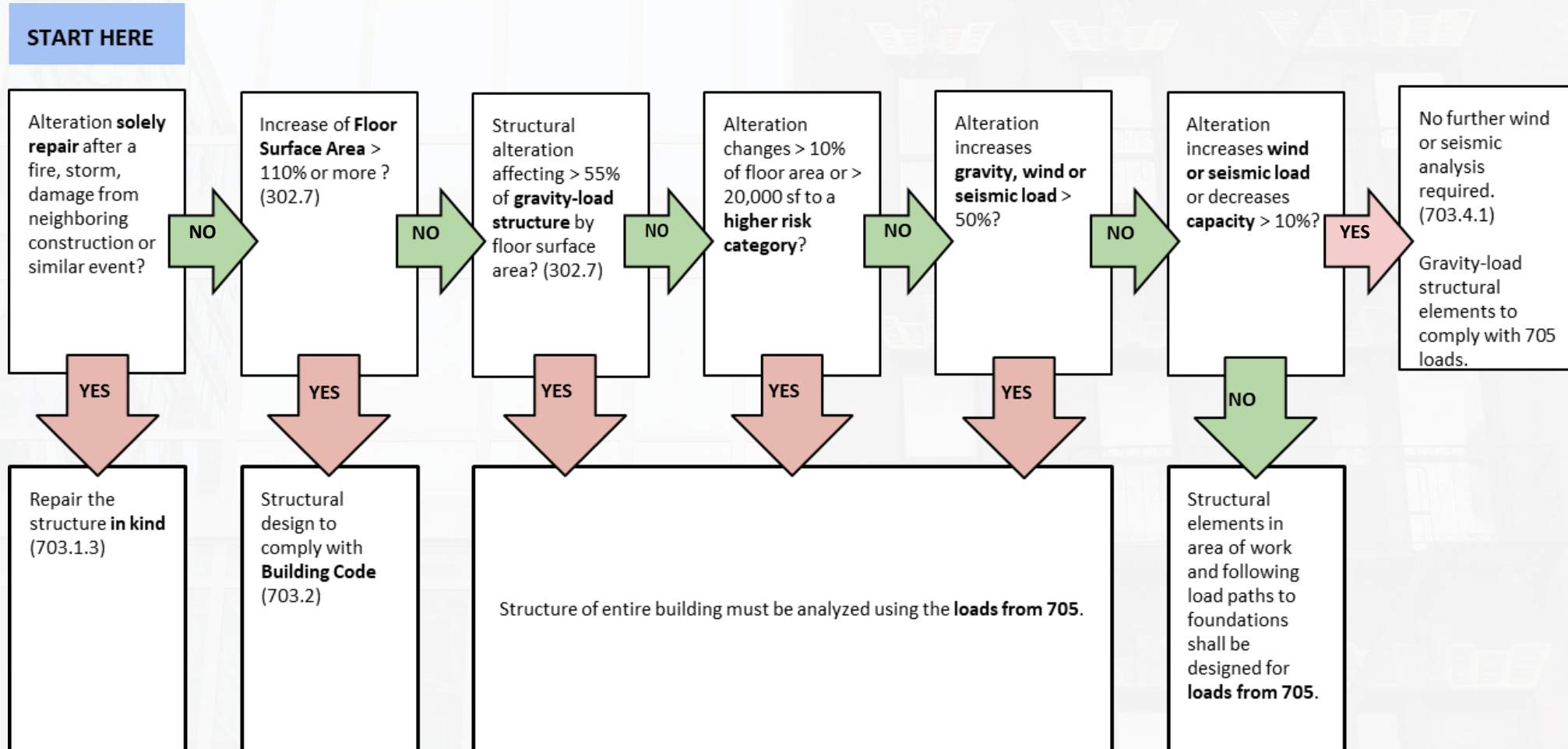
- Additions that are completely separated from the existing building by a joint are to be designed per the BC. The joint is to be twice the width of the separation defined in BC 1613.4 unless calculations show that a smaller separation can be used.

Section 703.1.3 Repairs due to accidental events

- Structural repairs that restore a building to its existing condition before an event (storm, fire, vehicular impact, or damage from neighboring construction) can be simply in-kind replacement and repairs as long as a registered design professional submits a report that such damage affected less than 20 percent of the structure. In other words, such repairs do not trigger any code-compliance issues.

Notable Provisions

■ Section 703 – General Design Requirements



Notable Provisions

■ Section 703 – General Design Requirements

Section 703.2 Buildings required to comply as hereafter erected

- When an alteration increases *the floor surface area* by more than 110% (per section 302.7), the structure of the entire building must be made to comply with all requirements of the Building Code as if it were a new building. In other words, such alterations trigger full code compliance.

Notable Provisions

■ Section 703 – General Design Requirements

Section 703.3 Buildings required to comply with loads

The following alterations trigger whole-building compliance with EBC loading criteria (the entire structure must meet the load provisions of section 705, which are based on but not identical to those in the Building Code):

- When alterations are made to gravity-load structure that carries 55% or more of the total gravity load.
- When 10% or more of the building, or more than 20,000 s.f. is altered in a manner that changes the building to a higher Risk Category (per BC 1604.5).
- When there is a 50% or greater increase in gravity load unless it can be demonstrated that the building was originally designed for the increased loads or has capacity as is for the new loads.
- When there is a 50% or greater increase in wind base shear or overturning moment unless it can be demonstrated that the building was originally designed for the increased loads or has capacity as is for the new loads.
- When there is a 50% or greater increase in seismic base shear or overturning moment unless it can be demonstrated that the building was originally designed for the increased loads or has capacity as is for the new loads.

Notable Provisions

■ Section 703 – General Design Requirements

Section 703.4.1 Increase structural demand

- If the effect of an alteration is small enough that neither 703.2 or 703.3 applies, then it triggers compliance with EBC loading criteria (section 705) for structural elements in the area of work and following the load path to the subgrade below the foundations.
- Exceptions:
 - No seismic analysis is required for alterations that increase seismic mass or decrease seismic resisting capacity by less than 10%.
 - No overall wind analysis is required for alterations that increase wind sail area or decrease wind resisting capacity by less than 10%.
 - No analysis is required when design loads increase only because of an alteration that affects less than 10% of the building or less than 20,000 s.f. in a manner that changes the building to a higher Risk Category or II or III.
 - No analysis is required for an increase in dead load from adding roofing that weighs 3 psf or less over an existing single layer of roofing.

Notable Provisions

■ Section 703 – General Design Requirements

Section 703.4.2 Increased demand on foundations

- Bearing values for soil, and design of new foundations are per Chapter 18 of the BC.
- Existing foundations subject to increased loads must be shown to comply or altered to comply with Chapter 18 of the BC. **Exceptions:**
 - No compliance is required for alterations that increase gravity load on foundations by less than 5 percent.
 - Analysis of potential building movement is required for alterations that increase gravity load on foundations by 5 to 10 percent.
 - No compliance is required for alterations that increase wind or seismic load on foundations by less than 20 percent.
 - The exceptions above do not apply if existing settlement is observed or if the alteration will reduce the soil bearing capacity.

Notable Provisions

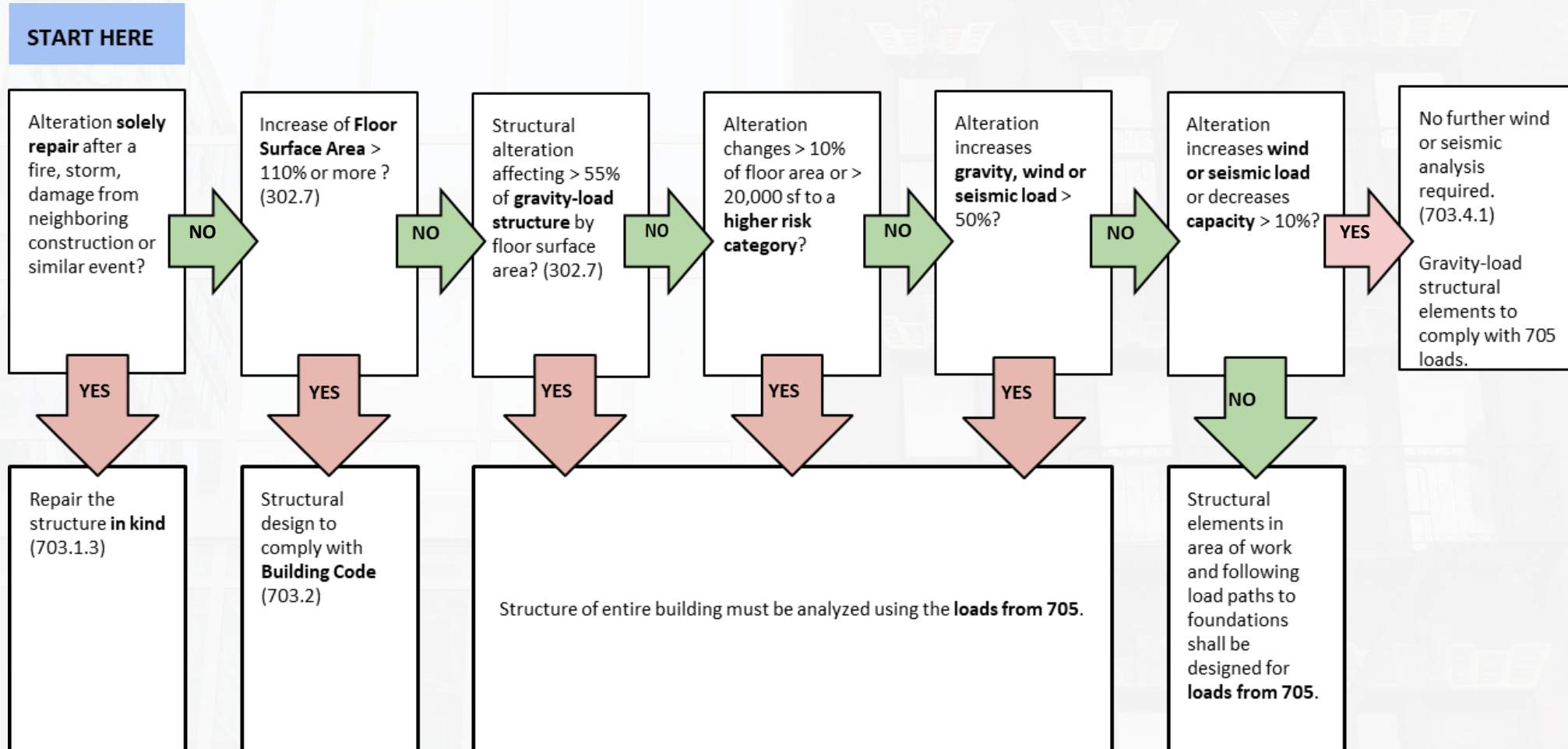
■ Section 703 – General Design Requirements

Section 703.5 Stability

- The stability index (calculated using the lateral loads and lateral drift at each floor) must be checked for alterations that reduce the building's lateral stiffness by more than 10 percent.
Exception: wood-floor, masonry-wall buildings constructed before 1903.
- For wood-joist, masonry-wall buildings constructed before 1903, the following are provided:
 - Lateral loads to be used during alterations to the perimeter walls, in lieu of calculated wind and seismic loads.
 - Analysis criteria for the effect of interior partitions on lateral strength.
 - Wall-to-floor connection requirements.
- The effects of existing out-of-plumb conditions greater than 1% must be included in analysis.

Notable Provisions

■ Section 703 – General Design Requirements



Notable Provisions

■ Section 703 – General Design Requirements

Section 703.6 Detailing

- Existing structural elements do not have to conform to the BC continuity or seismic detailing requirements (e.g. BC 1912.2 and BC 2213.2), unless remediation is required per EBC section 708.

Section 703.7 Seismic Separation

- Additions adjacent to lot lines are required to have separation per BC 1613.4.1.
- Existing independent walls at lot lines may remain without separation.
- Where a structure must comply with 703.2 (full BC compliance) or 703.3 (compliance with loads) and has lot-line party walls, a lateral load to be used for structural design and connections at the wall is provided.

Notable Provisions

■ Section 704 – Conditions Assessment

Section 704.1 General

- All structural alterations require conditions assessments.
- Assessments must include the area of work and any areas affected by the work (including the load path down to foundations and soil.)
- For buildings 7 stories or less, an exterior visual assessment of the exterior from the ground is required.
- Depending on the type of alteration, an initial structural assessment may be required prior to filing.
- For any project with alterations to existing structural elements or changes in demand-capacity ratios of existing elements, a detailed conditions assessment is required prior to the beginning of construction, filed with the DOB.

New

Notable Provisions

■ Section 704 – Conditions Assessment

Section 704.2 Initial conditions assessment

- When there is an increase in the demand/capacity ratio from the alteration, where there is an addition, change of occupancy, or Level 2 alterations, an initial conditions assessment by the DPoR is required before filing. Simple alterations (e.g., new tenant stairs, new lintels, repairs, dunnage) do not qualify.
- The assessment includes structural element materials and geometry, continuity of load paths, physical condition, damage and deformation, bracing, any conditions that need section 708 remediation.
- The assessment must identify any assumptions and any areas needing further examination, testing, monitoring, or field verification.
- The assessment document form is not specified (either a report or drawings could contain the information necessary), but it must be kept on site until work is complete, and available to the DoB on request.

Notable Provisions

■ Section 704 – Conditions Assessment

Section 704.3 Detailed conditions assessment

- When there is an alteration to existing structural elements or an increase in demand-capacity ratio for any structural element, a detailed conditions assessment by the DPoR is required prior to the beginning of construction, filed with the DoB.
- The assessment includes confirming any design assumptions (including any made in an initial structural assessment), structural element materials and geometry, continuity of load paths, physical condition, damage and deformation, bracing, any conditions that need section 708 remediation, identification of methods used for assessment, causes of deficiencies, immediate hazards, timing of repairs, and the relation of conditions noted to design assumptions used.
- The assessment is required to be refiled when additional information is found during the work, such as field conditions exposed by interior demolition.

New

Notable Provisions

■ Section 705 – Loads

Dead loads

- To be determined using reliable documentation, past codes, and on-site observations and testing.

Live loads

- Per BC 1607 except that structural elements designed prior to 2008 and that are not being altered can use loads in EBC table 705.3, which are lower than current BC loads but match old codes.

Snow, ice, and rain loads

- When an addition is adjacent to a wood- or steel-joist roof with a span of less than 25, that roof must be visually assessed from the exterior by a professional working or the owner of the building receiving the addition and provided to the owner of the adjacent building.

Wind and seismic loads

- Per BC chapter 16.

Notable Provisions

■ Section 706 – Flood & Section 707 - In-Place Material

Section 706 Flood regulations

- Buildings in special flood hazard areas are governed by Appendix G of the BC

Section 707 In-place structural material, components, and systems

- Material properties and analysis methods are to be determined per Appendix H.

Notable Provisions

■ Section 708 – Remediation Work

Section 708.1.1 Requirements within the work area

- Specific structural conditions (listed on the next slide), when exposed in the area of work by the removal of finishes or others building elements, are to be remediated within the area of work.
- These conditions are known to be common in specific existing building types.



New

Notable Provisions

■ Section 708 – Remediation Work

Section 708.1.1 Requirements within the work area

Conditions to be reviewed and remediated:

- Anchorage of floors to bearing walls and parallel walls in masonry-wall buildings is to be strengthened as needed per Appendix A.
- Anchorage of floors to bearing walls and parallel walls in wood-frame buildings is to be strengthened as needed per BC Chapter 23.
- “Cripple” walls in wood-frame buildings are to be strengthen per Appendix A.
- Damaged or overly-deflected wood headers and trimmers at stair openings to repaired as needed.
- Existing soft front or rear stories in masonry-wall (previously removed masonry at the first floor) is to be remediated with new structure using the wind loads in 705, or relieve new structure per Appendix A.
- Existing window openings in masonry bearing walls to be reviewed for structural compliance and repaired as needed.
- Damage to wood in plumbing areas (water damage or cuts) to repaired as needed.
- Bearing of wood elements in masonry-wall pockets to repaired as needed.
- Sill plates in wood-frame buildings are to be anchored per Appendix A or the BC.
- Repairs to wood in brick-nogging walls, and pointing of joints in the brick.

New

Notable Provisions

■ Section 708 – Remediation Work

Section 708.1.2 Requirements independent of the work area

- Specific structural conditions (listed on the next slide), are to be remediated regardless of whether they are in the area of work, because of their potential to create unsafe conditions.
- These conditions are known to be common in specific existing building types.



Notable Provisions

■ Section 708 – Remediation Work

Section 708.1.2 Requirements independent of the work area

Conditions to be reviewed and remediated:

- When roof or wall sheathing is removed, anchorage of roofs to bearing and parallel walls in masonry-wall and wood-stud buildings is to be verified and reinforced as needed per Appendix A or BC.
- When more than 25 percent of a roof is replaced or parapet repair is performed on buildings with unreinforced-masonry parapets, the parapets are to be braced per Appendix A, or other remediated in accordance with chapter 16 of the BC.
- When through-wall flashing is found in masonry parapets, the parapets must be analyzed and remediated as required.
- When more than 50 percent of a roof is replaced, brick chimneys are to be braced per Appendix A, or other remediated in accordance with the BC.
- When roofing is removed at wood-framed cornices, the cornice framing must be inspected and remediated as needed.
- When alterations are performed at a building with wood bowstring trusses, the truss members are to be reviewed per chapter 23 of the BC, unless this has already been done.

Notable Provisions

■ Section 709 – Peer Review

Section 709.2 Structural peer review

- Required when an alteration meets the peer review requirements of BC section 1618.2.
- Required when a building is required to meet the requirements for a new building per section 703.2 and the altered building meets the peer review requirements of BC section 1618.2.
- Required when an alteration of a building taller than 7 stories has (a) a new column transfer will support more than 15 percent of the floor area, or (b) when a new structural wall support will carry more than 25 percent of the floor area.

Section 709.3 Geotechnical peer review

- Required when structural peer review is required.
- Required when a building is required to meet the requirements for a new building per section 703.2 and the building is of Risk Category III or IV where the Seismic site class is determined to be Site Class F.
- Required when performance-based foundation design is used for the alteration.

Notable Provisions

■ Section 710 – Structural Integrity

Section 710.1 Prescriptive structural integrity

- New structural elements are to follow the requirements of BC section 1616.

Section 710.2 Key element analysis

- Required when an alteration meets the requirements of BC section 1617.1.
- Required when a building is required to meet the requirements for a new building per section 703.2 and the altered building meets the requirements of BC section 1617.1.
- Required for the new load-transfer elements only when an alteration of a building taller than 7 stories has (a) a new column transfer will support more than 15 percent of the floor area, or (b) when a new structural wall support will carry more than 25 percent of the floor area.



EBC Appendix A

GUIDELINES FOR THE STRENGTHENING OF EXISTING BUILDINGS

Table of Contents

CHAPTER A1	STRENGTHENING PROVISIONS FOR UNREINFORCED MASONRY WALLS, PARAPETS AND CHIMNEYS
A101	General
A102	Definitions
A103	Parapets and chimneys
CHAPTER A2	RESERVED
CHAPTER A3	PRESCRIPTIVE AND SCHEMATIC PROVISIONS FOR STRENGTHENING OF SILL PLATE ANCHORAGE AND CRIPPLE WALLS OF LIGHT, WOOD-FRAME RESIDENTIAL BUILDINGS
A301	General
CHAPTER A4	STRENGTHENING PROVISIONS FOR UNREINFORCED MASONRY WALL BUILDINGS WITH OPEN FRONT OR REAR WALLS AT GROUND FLOOR LEVEL
A401	Scope
A402	Prescriptive requirements

Notable Provisions

■ Appendix A – Guidelines for the Strengthening of Existing Buildings

Purpose

- To reduce the risk of damage to unreinforced-masonry elements (such as parapets) from lateral loading by providing a standard for incrementally improving those elements when adjacent work is being performed.
- To reduce the risk of damage to wood-frame houses from lateral loading by providing a standard for incrementally improving those elements when adjacent work is being performed.
- To provide a minimum standard for the common alteration of the removal (planned or past) of the front or rear wall of a narrow masonry-wall building.

Note

- The subject structural elements and buildings have performed acceptably if left unaltered, so the requirements apply when work is performed.

Notable Provisions

■ Appendix A – Guidelines for the Strengthening of Existing Buildings

Section A102 Masonry Wall Connections

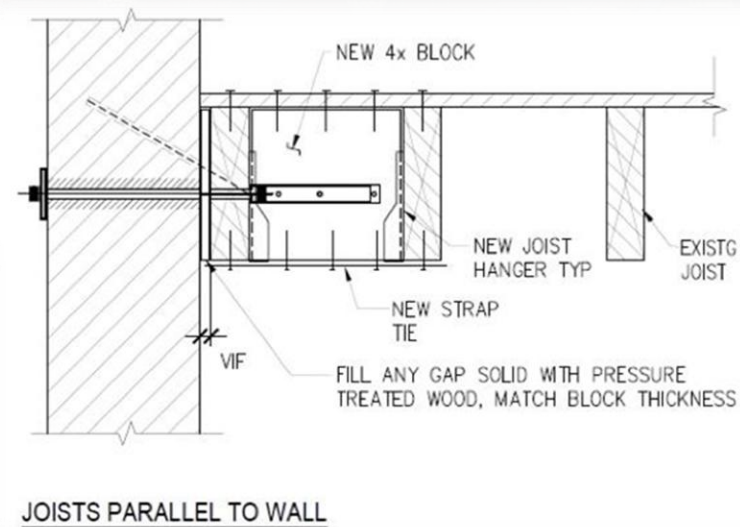
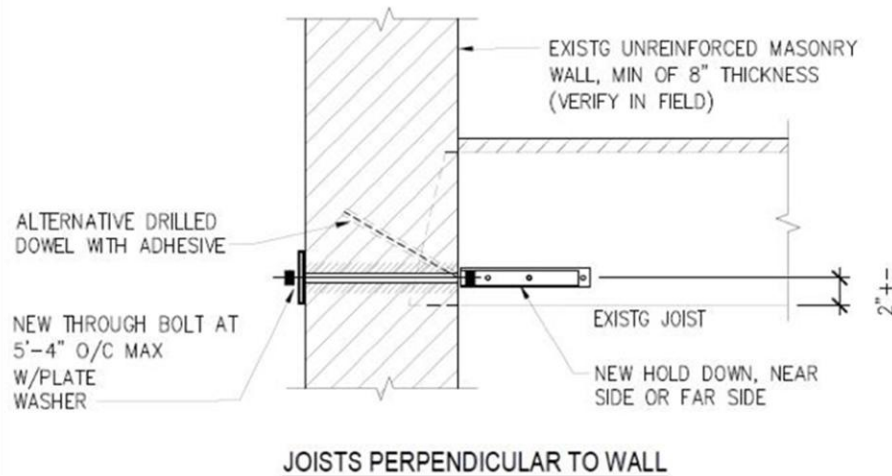
- Provides prescriptive details for improving the connection between wood-joint floors and unreinforced masonry walls, to improve lateral-load performance by providing proper diaphragm-to-wall load transfer.
- Provides minimum loads for use in design when the professional of record uses details other than those provided.

Section A103 Parapets and Chimneys

- Provides details for improving the connection between wood-joint roofs and unreinforced masonry parapets and chimneys.
- Provides details for improving bracing of the cantilevered portions of unreinforced masonry parapets and chimneys.
- Provides minimum loads for use in design when the professional of record uses details other than those provided.

Notable Provisions

- **Appendix A – Guidelines for the Strengthening of Existing Buildings**
Example Details: Joist-To-Wall Connections



Notable Provisions

■ Appendix A – Guidelines for the Strengthening of Existing Buildings Example Details: Joist-To-Wall Connections

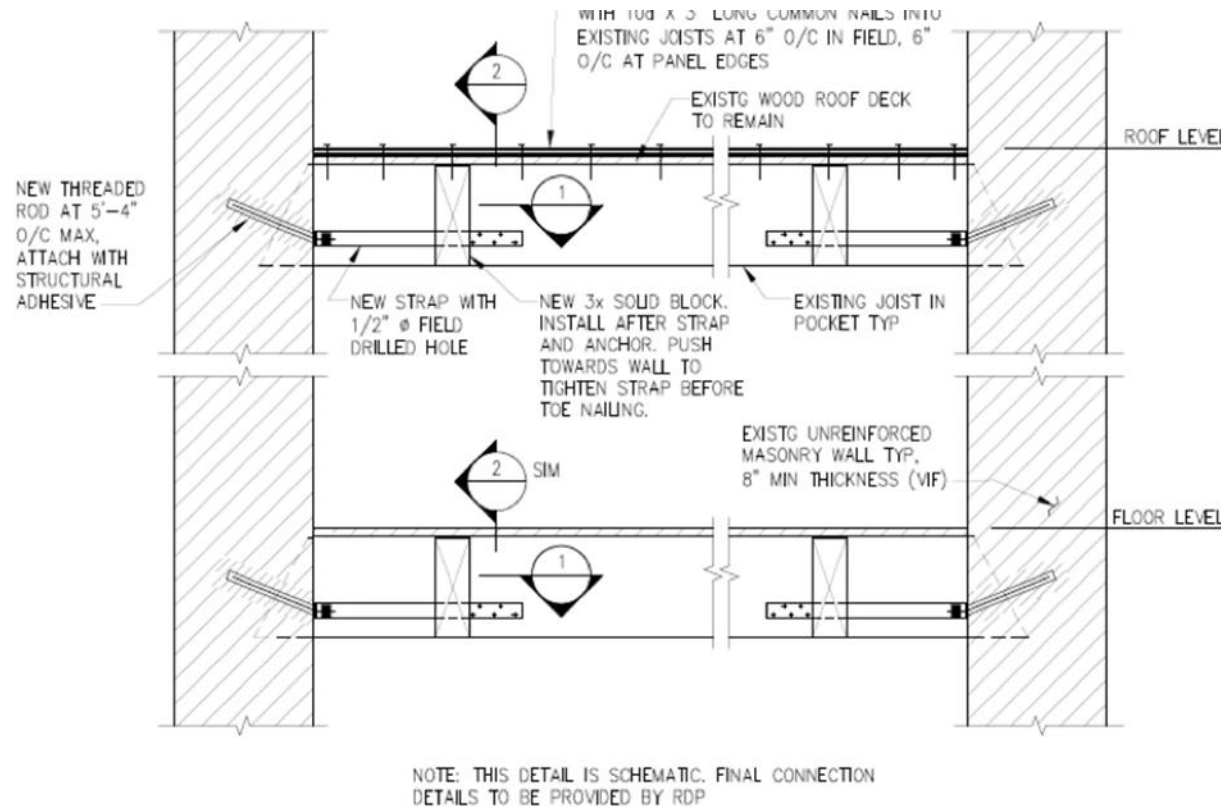
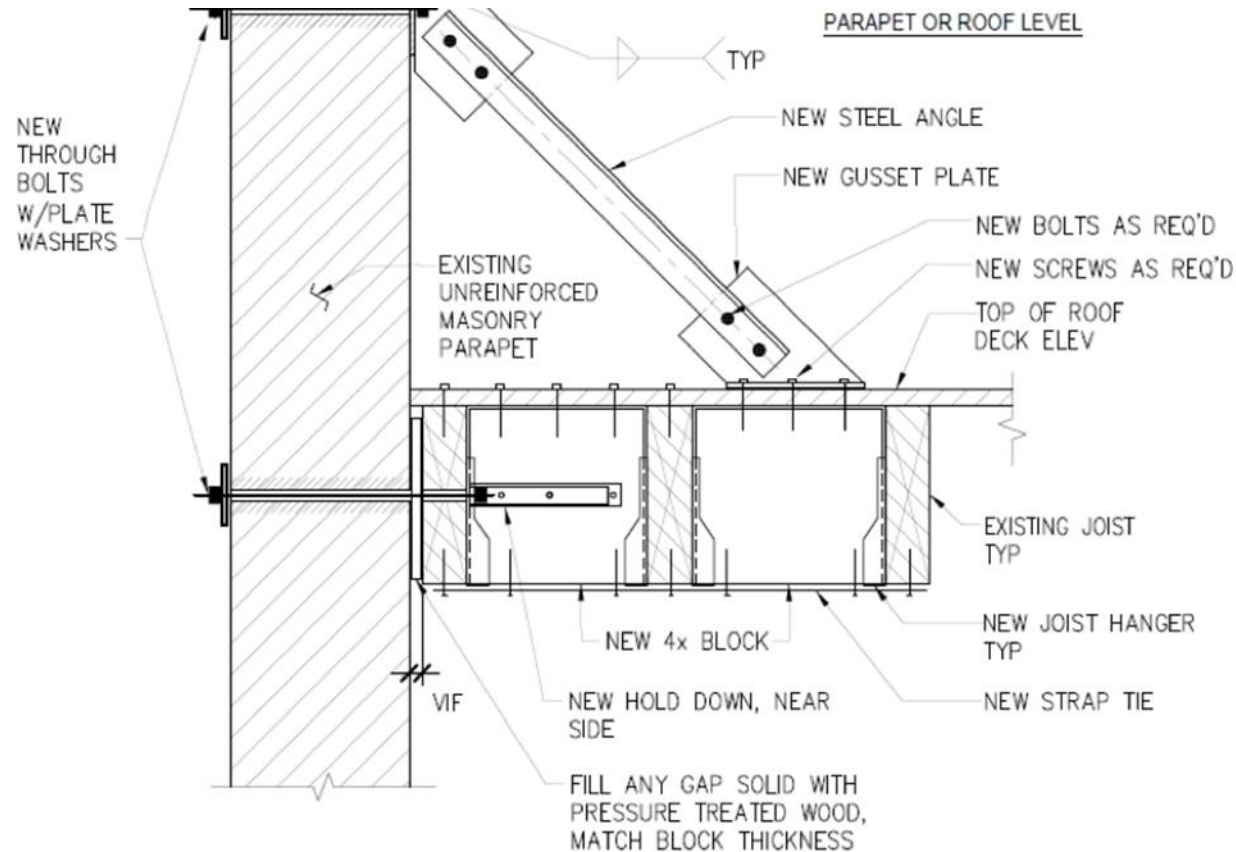


Figure A1-2

Notable Provisions

- **Appendix A – Guidelines for the Strengthening of Existing Buildings**
Example Details: Parapet-To-Roof Bracing



Notable Provisions

■ Appendix A – Guidelines for the Strengthening of Existing Buildings

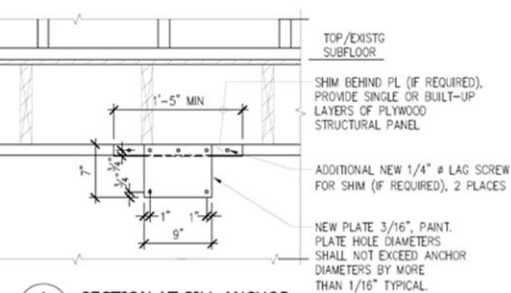
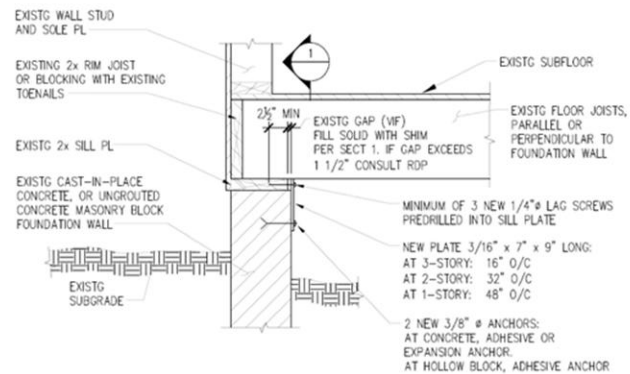
Section A301 Anchorage of Wood-Frame Residential Buildings

- Provides details for improving the connections at the base of wood-framed residential buildings, specifically tie-down between sill plates (at both joist-bearing and joist-parallel conditions) and concrete or concrete block foundation walls.
- Provides details for improving the connections and lateral-load performance at the base of wood-framed residential buildings, specifically at “cripple” stud walls at crawl spaces where the first-floor framing is elevated above masonry foundation walls.
- Provides a minimum standard for the amount of bracing required at “cripple” walls, measuring along the building perimeter.

Notable Provisions

■ Appendix A – Guidelines for the Strengthening of Existing Buildings

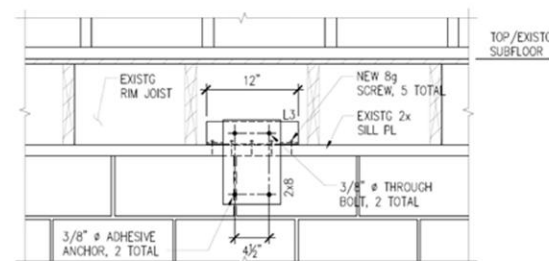
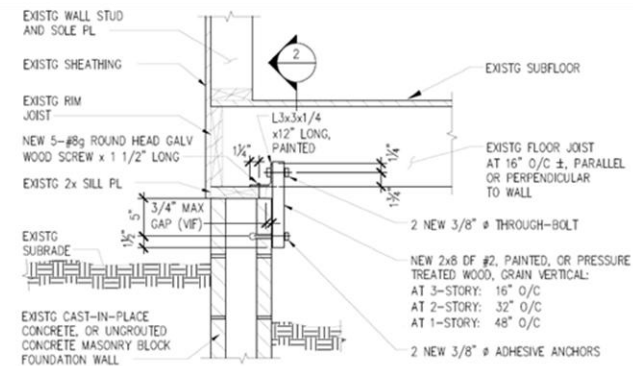
Strengthening Wood-Frame to Foundation Connections



1 SECTION AT SILL ANCHOR
SCALE: NTS

NOTE: FOR FRAMING CONDITIONS OR MATERIALS NOT SHOWN, CONSULT RDP

Figure A3-1
Missing sill plate anchors to wall
Prescriptive remedial connection of sill plate



2 SECTION AT ALTERNATIVE SILL ANCHOR
SCALE: NTS

NOTE: FOR WALL MATERIALS AND FRAMING CONDITIONS NOT SHOWN, CONSULT RDP

Figure A3-2
Missing sill plate anchors to wall
Alternate prescriptive remedial connection of sill plate

Notable Provisions

■ Appendix A – Guidelines for the Strengthening of Existing Buildings

Section A401, A402 Strengthening for Buildings with Open Front or Rear Walls

- Provides prescriptive details for lateral-load steel frames for narrow buildings with unreinforced-masonry exterior walls. (The two most common buildings types that meet the requirements of A401 are rowhouses and small commercial buildings.) The details are for existing or new openings in the narrow-side walls that create soft stories.
- The prescriptive details can be used without numeric design on buildings that meet the geometric requirements. (e.g. 20 feet by 60 feet to 25 feet by 85 feet in plan, four stories and 40.5 feet high maximum.) Other buildings require calculations and specific design.

Notable Provisions

■ Appendix A – Guidelines for the Strengthening of Existing Buildings

Strengthening for Buildings with Open Front or Rear Walls (A401, A402)

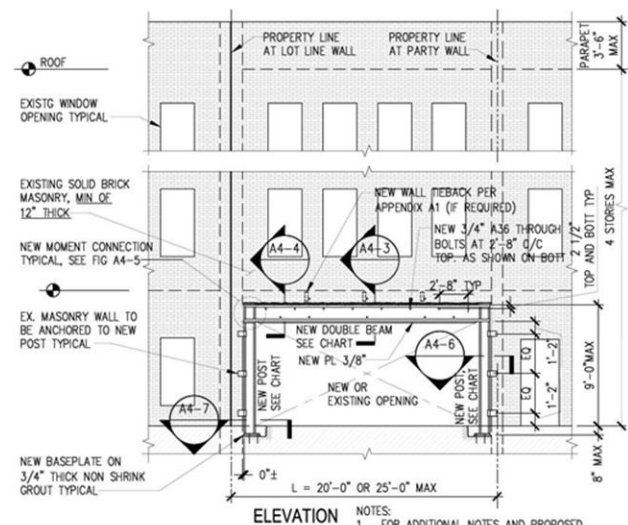
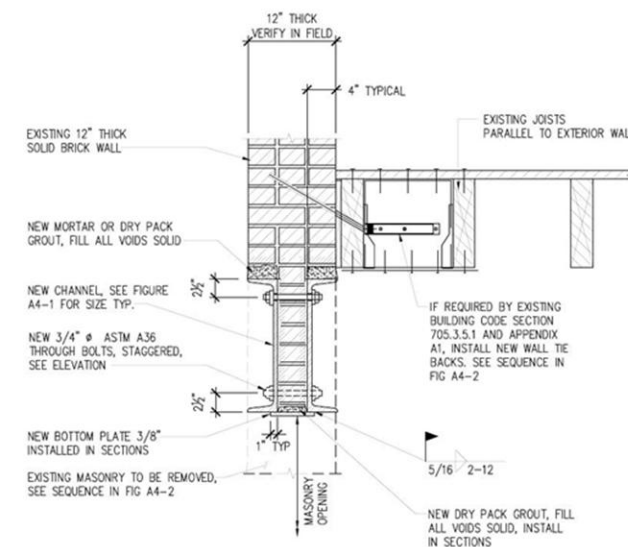


CHART OF PRESCRIPTIVE BEAM AND POST SIZES

TOTAL STORIES	L=20'-0"		L<=25'-0"	
	POST	BEAM	POST	BEAM
1	W10x33	2-C12x20.7	W10x39	2-C12x30
2	W12x45	2-C15x33.9	W14x48	2-C15x40
3	W14x48	2-C15x50	W14x53	2-MC18x42.7
4	W14x61	2-MC18x42.7	W14x68	2-MC18x59

Figure A4-1
Soft story at first floor level
Prescriptive remedial moment frame



NOTE: SEE NOTES ON
FIGURE A4-2

Figure A4-3
Soft story at first floor level
Section at top of steel frame



EBC Appendix H

IN-PLACE MATERIAL, COMPONENT PROPERTIES AND ARCHAIC STRUCTURAL SYSTEMS

Notable Provisions

■ Appendix H – In-Place Material, Component Properties and Archaic Structural Systems

Purpose

- To provide a uniform standard for all projects with respect to the structural properties of existing materials and systems.
- To provide a uniform standard for determining the structural properties of materials in any given building.
- To provide guidance on structural analysis of structural materials and systems commonly used in the past and which are not represented in current codes.

Exception

- If ASCE 41 is used for structural analysis and design (per Chapter 7), the provisions of ASCE 41 for material properties must be used rather than Appendix H.
- The material-property provisions of ASCE 41 may be used rather than Appendix H.

Notable Provisions

■ Appendix H – In-Place Material, Component Properties and Archaic Structural Systems

Section H101.2 Material Properties Based on Data

- Only sources known to be reasonably accurate can be used. This includes:
 - Original construction documents or DoB applications
 - Materials testing records
 - Manufacturers' data related to materials or systems in the building
 - Specified public records: BIS Actions, BIS new-building C of O, LPC designation reports, HPD I-cards, PLUTO for buildings constructed after 1950, Fire insurance maps from the NYPL.
- All data to be confirmed during the section 704 conditions assessment.

Section H101.3 Material Properties Based on Testing

- When original records are not available or not reliable, or there are reasons to believe that conditions have been changed by alterations or deterioration, material properties can be determined using standard tests.

Notable Provisions

■ Appendix H – In-Place Material, Component Properties and Archaic Structural Systems

Section H102 Archaic and Legacy Structural Systems or Assemblies

This section includes physical descriptions, analysis methods, and alteration methods for structural systems that used to be common, are described in past NYC codes, and are no longer used. Examples include:

- Masonry, terra cotta, and concrete arch floors
- Draped-mesh concrete floors
- Proprietary reinforced concrete and other floors systems
- Cast-iron columns,
- Wood bowstring trusses.
- Wood relieving walls and brick logging in wood walls.
- Rubble masonry and ashlar stone structural elements.

Notable Provisions

- **Appendix H – In-Place Material, Component Properties and Archaic Structural Systems**

Brick vault floor on wrought-iron beams and cast-iron column.



Notable Provisions

- **Appendix H – In-Place Material, Component Properties and Archaic Structural Systems**

Cast-iron column supporting cast-iron arches with wrought-iron tie rods.



Notable Provisions

■ Appendix H – In-Place Material, Component Properties and Archaic Structural Systems

Section H103 Historic Material Properties

This section provides minimum material properties that can be used (per section H101.2) when other data for the structural materials is not available. Information on the building date is required by research, or the lowest tabulated values must be used. There are tables for:

- Structural steel (starting in 1880)
- Concrete and steel reinforcing for concrete (starting in 1900)
- Brick, concrete, CMU, and rubble masonry (starting before 1900)
- Timber (starting before 1938)
- Cold-formed steel (starting before 1991)
- Wrought iron

Notable Provisions

- **Appendix H – In-Place Material, Component Properties and Archaic Structural Systems**

Cast Iron lintel in brick bearing wall.





NYC EXISTING BUILDING CODE

Designing Structural Alterations:

Chapter 7 and Related Appendices

Course# S102925 Expires 10/9/28

build safe | live safe

Gus Sirakis, PE

MODULE E

UPCOMING SESSIONS

9/30/25 10-11:30	A module	All About the Existing Building Code: An Overview
10/9/25 10-11:30	B module	Beginning Chapters: Administration, General Requirements and Limited Alterations
10/16/25 10-11:30	C module	Charting the Compliance Path: Work Area Method and Levels of Alteration
10/22/25 10-11:30	D module	Everything Alterations: Level 1 (Chapter 8) and Level 2 (Chapter 9)
10/29/25 10-11:30	E module	Designing Structural Alterations: Chapter 7 and Related Appendices
11/5/25 10-11:30	F module	Future Changes: Occupancy, Additions, and Relocation of Buildings

CONTACT US

■ **WEBPAGE**

- <https://www.nyc.gov/site/buildings/codes/existing-building-code.page>

■ **EMAIL**

- EBC@buildings.nyc.gov



The image shows a street-level view of two buildings. On the left is a modern building with a grid of large glass windows reflecting the sky and other buildings. On the right is a traditional red brick building with multiple stories, featuring small windows with decorative lintels and ornate black metal fire escapes. A large, white, stylized logo is centered over the image, spanning both buildings. The logo consists of the letters 'NYC' in a bold, blocky font, with a small 'TM' trademark symbol to the upper right of the 'C'. Below 'NYC' is the word 'Buildings' in a clean, white, sans-serif font.

NYCTM Buildings