

RETAINING WALLS & PARKING STRUCTURES

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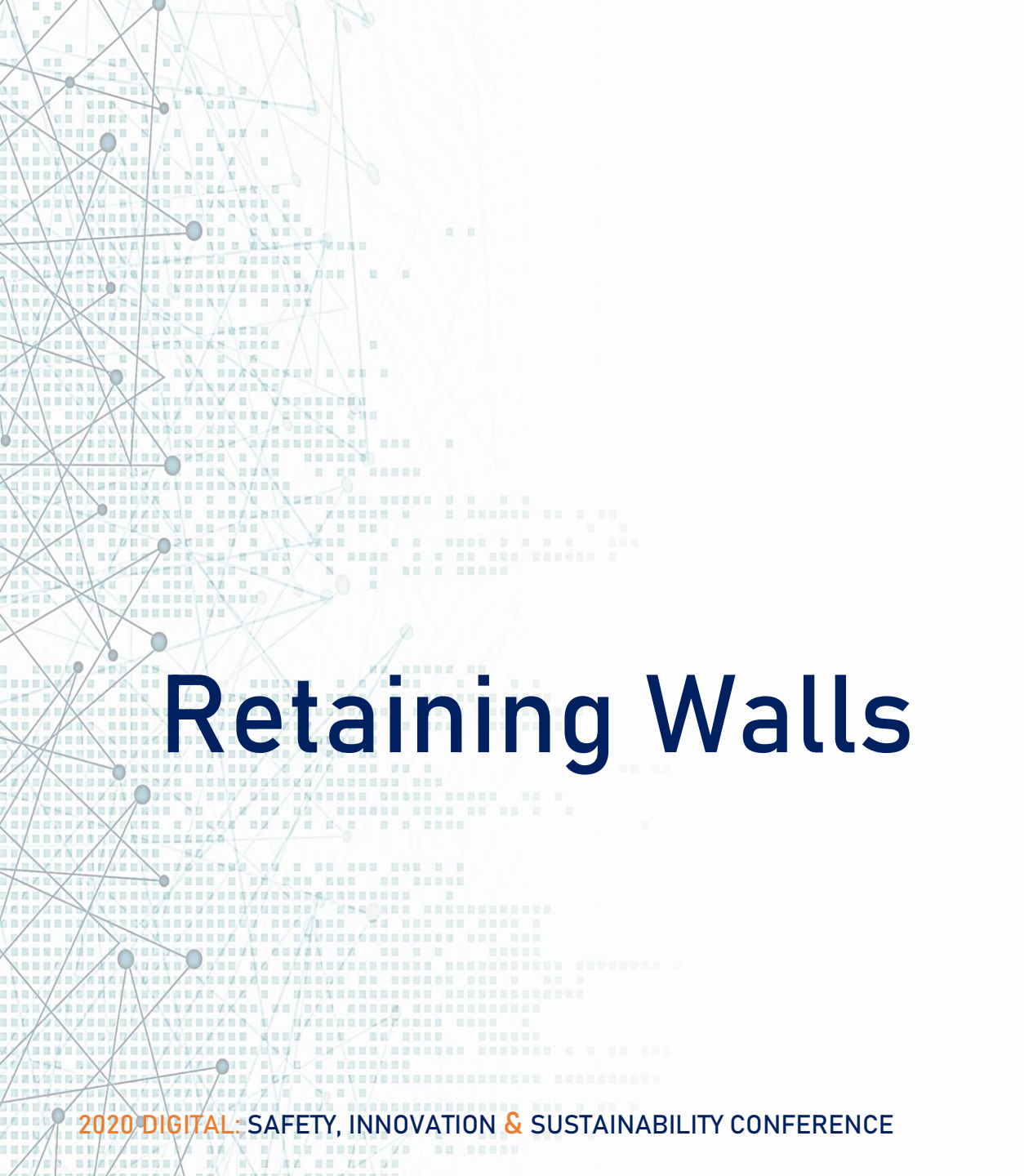
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PRESENTATION DESCRIPTION

- Property owners are or will be required by law to file compliance reports on retaining walls and parking structures. This presentation will review different types of retaining walls and parking structures, the maintenance difficulties and inspection nuances, and the details of the code requirements for each.
- We estimate there to be 1350 private properties with retaining walls that must comply with this law. With Cycle 1 now complete and compliance reports reviewed, we are beginning to develop a database of issues with these structures which we will present.
- Parking structures come in many forms and materials and owners of these structures will be required to have them inspected by an engineer and submit compliance reports every six years. This presentation will go over the relevant data and anticipated reporting requirements.



Retaining Walls

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WHAT'S NEW WITH THE RETAINING WALL UNIT?

- Cycle 1 complete; Cycle 2 open
- Violations issued to 1350 properties for No Report Filed (NRF) in Cycle 1
- Work closely with other agencies on their retaining wall population (MTA, Parks, DOT)
- We continue to refine our population
 - QRWI interviews
 - Outreach

RETAINING WALLS: Overview

- Where retaining walls are found in NYC
- Majority of retaining walls are located on lot lines
 - Makes ownership prone to disputes
- Evolution of old codes with regards to ownership and engineering requirements
- Compliance with current Code
- Current statistics

RETAINING WALLS IN NYC

- Dense Urban Environment
- Mostly built late 19th/Early 20th Century
 - Aging materials (rubble stone)
- Demising walls
 - High Property/Low Property
 - Multiple Private Owners or Public Right of Way
- Municipal Retaining Walls (large stakeholders)
 - DOT
 - Parks
 - MTA

RETAINING WALLS IN NYC



RETAINING WALLS IN NYC



One wall can impact multiple owners, egress pathways, fire escapes, egress corridors. If these areas are blocked due to unsafe or collapsed retaining wall, the building must be vacated until the owner installs fireguards and eventually fixes the wall. Temporary shoring usually blocks these pathways as well.

HISTORY OF CODE REQUIREMENTS

Ownership

1855 – the person causing such excavations...afforded the necessary license to enter on the adjoining land... (legal trespass)

1916 – Made and maintained jointly by land owners on each side of wall, located half on each property

- Owner of lower grade bears cost of construction, wall to be erected entirely on higher grade property (legal trespass until 1938 only); maintained jointly
- If one party does not agree to maintain his share of the wall, the other owner, if having performed repairs on his own, has a legal right to recoup costs of doing so.

HISTORY OF CODE REQUIREMENTS

Ownership *(continued)*

1938 – Owner causing excavation to build wall at his own expense on his own land

HISTORY OF CODE REQUIREMENTS

Maintenance/Engineering

1899 – First time retaining walls are mentioned in the Code; thickness at its base shall be in no case less than one-fourth of its height

1916 – Materials (masonry, concrete); loads (incl water pressure); structural performance (working stresses, soil bearing pressure, stability)

1938 – First definition of retaining walls appears; Structural requirements: separate masonry and concrete chapters (allowable stresses)

§C26-12S.0 Retaining Wall.-The term "retaining wall" shall mean any wall designed to resist lateral pressure.

HISTORY OF CODE REQUIREMENTS

Maintenance/Engineering (*continued*)

1968 (as of 1970) – Engineering requirements more honed: Lateral loads – earth, ground water pressure; Loading eccentricities

1968 (as of 2008) – Lateral loads: earthquake loads required; Sliding, overturning mentioned generally

NYC BUILDING CODE

Maintenance of Buildings

ARTICLE 301 GENERAL

§28-301.1 Owner's responsibilities. All buildings and all parts thereof and all other structures shall be maintained in a safe condition. All service equipment, means of egress, materials, devices, and safeguards that are required in a building by the provisions of this code, the 1968 building code or other applicable laws or rules, or that were required by law when the building was erected, altered, or repaired, shall be maintained in good working condition. Whenever persons engaged in building operations have reason to believe in the course of such operations that any building or other structure is dangerous or unsafe, such person shall forth with report such belief in writing to the department. The owner shall be responsible at all times to maintain the building and its facilities and all other structures regulated by this code in a safe and code-compliant manner and shall comply with the inspection and maintenance requirements of this chapter.

HOW RETAINING WALLS FAIL

- Deterioration of Wall Structure
 - Material Science Issue

- Overturning

- Sliding

- Settlement of the Foundation



Can result from
Deterioration of Structure

20FT WALL: OVERTURNING



WALL DAMAGES LOWER BUILDING



IMPACT TO MEANS OF EGRESS



LOCAL LAW 37/2008

- Inspection, Maintenance and repair of retaining walls...
 - with a height of 10ft or more, and...
 - fronting a public right of way
- Condition assessment every 5 years by Qualified Retaining Wall Inspector (QRWI)
- Submit report to DOB
- Cycle 1 closed December 2018; Now in Cycle 2
- Becomes §28-305.4 in 2008 Building Code

HOW DO I BECOME A QRWI?

- Licensed PE
- Minimum of three (3) years relevant experience
- Information to submit:
 - Detailed resume
 - Full deliverables for three retaining wall projects
 - engineering drawings
 - calculations
 - engineering reports
- Interviewed and approved by RWU staff

Can I submit a compliance report if I'm not a QRWI?

Yes...but you will be asked to apply to become a QRWI.

RCNY §103-09

RETAINING WALL INSPECTIONS, FILING REQUIREMENTS, PENALTIES & WAIVERS: Report Requirements Overview

- General information: property profile and owner
- Scope and procedures of condition assessment
- Cross section: construction type, surface/arch. treatment, exposed wall height, etc.
- Analysis
- Areas of significant distress with photos
- Final Wall Rating
 - Safe
 - Safe With Repair and/or Engineering Monitoring
 - Safe With Minor Repairs or Maintenance
 - Unsafe

RCNY §103-09

RETAINING WALL INSPECTIONS, FILING REQUIREMENTS, PENALTIES & WAIVERS

Safe with Repair and/or Engineering Monitoring

- Identify proposed monitoring program
- Identify engineer performing the monitoring
- Stability analysis with factor of safety showing the wall is stable under anticipated loads

Safe with Minor Repairs or Maintenance

- Recommend time frame for repairs and/or maintenance to prevent condition from becoming unsafe
- Unacceptable time frames: ASAP, <1 year, Immediately

RCNY §103-09

RETAINING WALL INSPECTIONS, FILING REQUIREMENTS, PENALTIES & WAIVERS

Unsafe

- **Immediately**

Owner to commence repairs/reinforcements to secure public safety

- **Within 24 hours**

- Call 3-1-1 (212-NEW-YORK)

- Email/Call DOB with 3-1-1 complaint number

- LRetainingWalls@buildings.nyc.gov

- **Within 2 weeks**

QRWI to inspect, obtain permit sign-offs, file an amended report with the Department, or file for an extension

TR16: AFFIDAVIT OF CONDITIONS

QRWI must inform OWNER of inspection conditions

6 Property Owner Information <input type="checkbox"/> Private <input type="checkbox"/> Parks <input type="checkbox"/> DOT <input type="checkbox"/> Other Public _____			
Last Name		First Name	MI
Bus. Name		Bus. Address	Bus. Tel.
City	State	Zip	Bus. Fax
E-Mail		Mobile Phone	
7 Statements and Signatures			
Owner / Owner Representative I hereby state that I am the owner/owner's representative of the premises referenced in the attached report. Furthermore, I have received and read a copy of the attached report and I am aware of the required repairs and/or maintenance, if any and the recommended time frame for same as per New York City Administrative Code Article 6 and Local Law 37/2008.		Qualified Retaining Wall Inspector (QRWI) Name (please print) _____ Signature _____ Date _____	
Name _____ Signature _____ Relationship to owner _____ Phone _____ Email _____ Date _____		I hereby state that the Owner / Owner's Representative has authorized me to submit this report. Furthermore, I hereby state that all statements are correct and complete to the best of my knowledge. A copy of this report has been given to the owner. P.E. Seal (<i>apply seal, then sign and date</i>)	
<small>New York City Administrative Code 28-211.1 False statements in certificates, forms, written statements, applications, reports or certificates of correction. It shall be unlawful for any person to make a material false statement in any certificate, professional certification, form, signed statement, application, report or certification of the correction of a violation required under the provisions of this code or any rule of any agency promulgated thereunder that such person knew or should have known to be false.</small>			

RCNY §103-09: FEES/VIOLATIONS

- Fee Structure
 - Initial Filing: **\$355**
 - Amended Filing: **\$130**
 - Application for extension of time to complete repairs: **\$260**
- Reports can be emailed (best option) to LRetainingWalls@buildings.nyc.gov
- Hard copy can be mailed to the unit:
NYC Department of Buildings
280 Broadway, 4th Floor
New York, NY 10007
- Payments should be made at the cashier, not mailed.

RCNY §103-09: CIVIL PENALTIES

- **\$1,000** per year for failure to file plus
- **\$250** per month penalty until compliance
- Failure to repair an unsafe condition carries a **\$1,000** per month fine until corrected

RCNY §103-09: FILING CYCLES

- Inspection every five (5) years unless safety issues exist
- Staggered filing cycles by borough

Borough	Cycle 1	Cycle 2	Population
Bronx	2014	2019	400
Manhattan	2015	2020	120
Staten Island	2016	2021	150
Queens	2017	2022	315
Brooklyn	2018	2023	360

WHAT WE LEARNED FROM CYCLE 1

- Violations for No Report Filed (NRF) issued = 1345
- Reports received = 635
 - of these: 564 Not subject (not on public right of way; other jurisdictions; doesn't meet height criteria)
- TR16s received = 45 Private; 2 Public
 - 26 Safe; 13 SMRM; 6 SREM
 - 2 Unsafe Notification Received
- Follow up enforcement
 - 710 Secondary notices sent where NRF
 - 14 DOB violations (no penalty or court date) sent to design professionals requesting additional information

CYCLE 2 – WE NEED YOU!

- We rely on professionals like you to get the word out!
- Please
 - Reach out to your ownership groups
 - Share your newfound knowledge with your staff and colleagues
 - Contact the Department if you would like DOB to present to your office



Parking Structures

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PARKING STRUCTURES: OVERVIEW

- Why parking *structure*?
- State Law vs. NYC Code
- Cause for concern in NYC?
 - Population
 - Incident and violation rate
- Special Concerns
- Proposed Code requirements

PARKING STRUCTURES

- Locations
 - Detached, dedicated use
 - Basement of office or residential building
 - Roof of building
 - Difficult to find
- Materials
 - Concrete, steel, wood
 - Material degradation
- Size
 - How many levels?
- Ownership

NEW STATE LAW

- Requires periodic condition assessments of parking garages every three (3) years
- Effective August 29, 2018
- First reports on oldest buildings due October 2019
- NYC exempt from State laws

POPULATION



POPULATION

- Manhattan: 1160
- Brooklyn: 270
- Queens: 380
- Bronx: 270
- Staten Island: 20

TOTAL ~ 2100

Structures not included:

1. Unenclosed, unattached outdoor parking lots.
2. Private garages serving one- and two-family homes.

CAUSE FOR CONCERN IN NYC?

- Issue approx. 10 Class 1 violations/year
- Receive about 60 complaints/year
- Average ~ 2 incidents/year

SPECIAL CONCERNS

- Unique wear and tear: exposure to de-icing solutions, motor oil, traffic, often open to the elements
- Defects easy to be “hidden”
 - people don’t spend a lot of time there
 - typically not well lit
- Exposed structure: concrete, steel, wood
- NYC: often at the basement level(s) which means columns can support many stories above

INCIDENTS



INCIDENTS



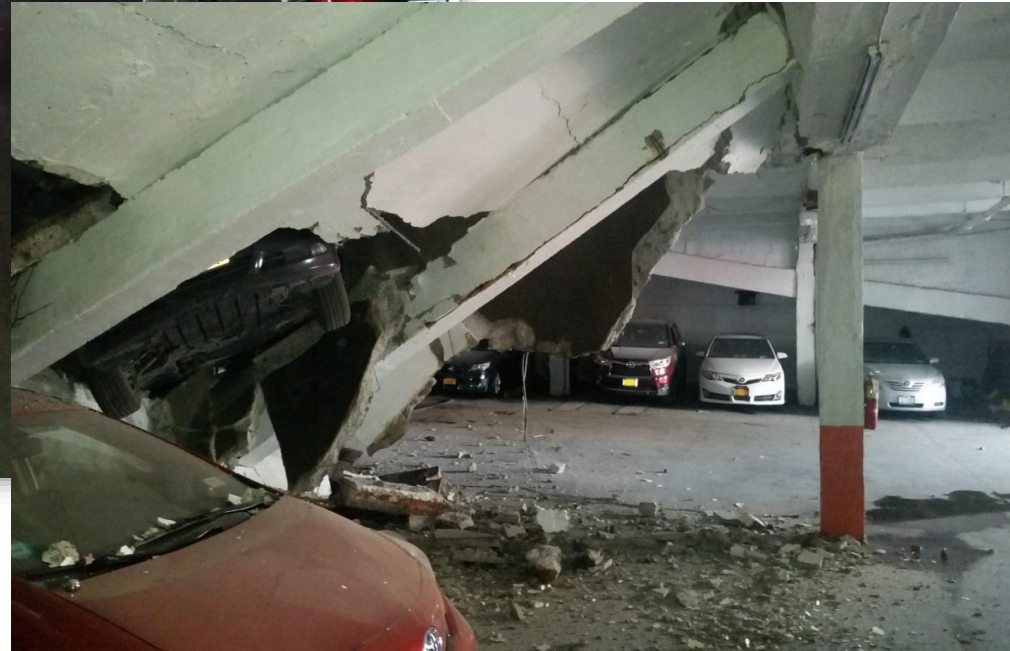
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INCIDENTS



INCIDENTS



STATE LAW vs. NYC CODE

SERVICE NOTICE

Periodic Parking Garage Inspections

New York State recently enacted requirements for the periodic inspection of parking garages. An initial condition assessment is required prior to a certificate of occupancy or certificate of compliance being issued for a new structure. Existing buildings must complete an initial condition assessment prior to October 1, 2019, October 1, 2020, or October 1, 2021, depending on the date of original construction. Following the initial condition assessment of a parking garage, such parking garage shall undergo periodic condition assessments every three years.

The City of New York maintains its own Building Code requirements and buildings located in the city are exempt from the requirements of the NY State Building Code, including the periodic parking garage inspection requirements.

The Department of Buildings is currently recommending similar requirements for periodic parking garage inspections for adoption in New York City as a local law through the Department's Periodic Code Revision Process.

Once details of NYC parking garage inspection requirements are available, the Department will make information available regarding property owner requirements on our website and through *Buildings News*.

NYC CODE

- Next publication expected in ~1 year
- Includes provision for parking structure evaluation
- Rule being developed
- Expect to file via DOB NOW
- Filing Cycles
 - **two (2) year sub cycles** broken down by borough

NYC CODE: OVERVIEW

- Condition assessment performed once every six years
 - To be performed by an approved professional (PE)
 - Prepare checklist for annual observation
 - File the report with the Department
- Observation performed annually
 - To be performed by non-professional assigned by the owner (super, garage attendant, etc.)
 - Not filed (DOB reserves the right to ask for them)
- During either assessment or observation:
Notify DOB immediately of any unsafe conditions

NYC CODE: REQUIREMENTS

- Classification: safe, unsafe, safe with repair and/or engineering monitoring
- Include a record of all potentially unsafe conditions of the structure
- Condition of structural framing members, any visible reinforcement, connections, and conditions of slabs and slab joints
- Must also contain the annual observation checklist to be used for subsequent annual parking structure observations

**SAFE WITH
REPAIR
AND/OR
ENGINEERING
MONITORING**

OR

UNSAFE

Similar as with Retaining Walls

- Safe with Repair and/or Engineering Monitoring
 - Identify proposed monitoring program
 - Identify engineer performing the monitoring
 - Stability analysis with factor of safety showing structure is stable under anticipated loads

- Unsafe
 - Public Safety
 - Notify the Department of Buildings
 - Repair the condition

DEVELOPING THE RULE

- Considerations of similar rules in existence: facades, retaining walls
- How are they similar?
 - Filing Cycles
 - Materials
 - Classification Categories
- How are they different?
 - Complexity of structure
 - Materials
 - Hazards
- The rule will summarize report requirements, inspection requirements, fee structure, and civil penalties



THANK YOU

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