

**FLORIDA BUILDING COMMISSION
EXISTING BUILDING INSPECTION WORKGROUP
UNANIMOUS CONSENSUS RECOMMENDATIONS – MARCH 20, 2024**

ASSIGNMENT 3 (PHASE 3 OF PROJECT)

**SECTION 553.899, F.S. – ESTABLISHMENT OF A BUILDING SAFETY
PROGRAM FOR IMPLEMENTATION OF SECTION 553.899, F.S.,
MANDATORY STRUCTURAL INSPECTIONS FOR CONDOMINIUM AND
COOPERATIVE BUILDINGS, FLORIDA STATUTES WITHIN THE 2023
FLORIDA BUILDING CODE, EXISTING BUILDING**

Workgroup members were asked to evaluate four draft documents for the establishment a Building Safety Program for Implementation of Section 553.899, F.S., Mandatory Structural Inspections for Condominium and Cooperative Buildings, within the 2023 Florida Building Code, Existing Building. The draft documents are as follows:

1. **2024 Draft Supplement to the 8th Edition (2023), Florida Building Code.** This document includes deleting Section 110.9 from the 8th Edition (2023), Florida Building Code, Building volume and relocating it as amended to the 8th Edition (2023), Florida Building Code, Existing Building volume. The 8th Edition (2023), Florida Building Code, Existing Building volume includes proposed amendments to Chapter 1, Scope and Administration; Section 113, Violations; Section 115, Unsafe Buildings and Equipment; Chapter 2, Definitions; and Chapter 18, Minimum Requirements for the Mandatory Milestone Inspections.
2. **Milestone Inspection Report Form** – Fillable PDF Reporting Form.
3. **Milestone Inspection Report Form** – Electronic Reporting Form.
4. **General Conditions and Guidelines** – Scope of Structural Conditions.

During the meetings, Workgroup members were asked to evaluate and rank key sections of the draft documents, or if appropriate an entire document, and to rank any proposed amendments developed for consideration. Once ranked for acceptability, all language/text (as drafted or as amended) with a ≥ 3.0 average ranking (75%) are considered consensus recommendations for inclusion in the final package of recommendations to the Commission.

ASSIGNMENT 3 SUMMARY (SB 154)

By December 31, 2024, the Florida Building Commission shall adopt rules pursuant to ss. 120.536(1) and 120.54 to establish a building safety program for the implementation of this section within the Florida Building Code: Existing Building. The building inspection program must, at minimum, include inspection criteria, testing protocols, standardized inspection and reporting forms that are adaptable to an electronic format, and record maintenance requirements for the local authority.

MEETING FACILITATION

Meetings are facilitated, and options ranking worksheets designed and prepared by Jeff Blair from Facilitated Solutions, LLC. Information at: <http://facilitatedsolutions.org>.



WORKGROUP'S UNANIMOUS CONSENSUS RECOMMENDATIONS TO THE FLORIDA BUILDING COMMISSION:

At the final meeting held on March 20, 2024 the Workgroup voted unanimously in favor of the following motion:

MOTION: The Existing Building Inspection Workgroup recommends that the Florida Building Commission incorporate the Workgroup's package of consensus ranked recommendations as the Florida Building Commission's requirements for establishment of a Building Safety Program for Implementation of Section 553.899, F.S., Mandatory Structural Inspections for Condominium and Cooperative Buildings, within the 2023 Florida Building Code, Existing Building.

SECTION 1 – 2024 DRAFT SUPPLEMENT TO THE 8TH EDITION (2023)

2024 Draft Supplement to the 8th Edition (2023), Florida Building Code. This document includes deleting Section 110.9 from the 8th Edition (2023), Florida Building Code, Building volume and relocating it as amended to the 8th Edition (2023), Florida Building Code, Existing Building volume. The 8th Edition (2023), Florida Building Code, Existing Building volume includes proposed amendments to Chapter 1, Scope and Administration; Section 113, Violations; Section 115, Unsafe Buildings and Equipment; Chapter 2, Definitions; and Chapter 18, Minimum Requirements for the Mandatory Milestone Inspections.

8TH EDITION (2023), FLORIDA BUILDING CODE, EXISTING BUILDING

1) Deleting Section 110.9 from the 8th Edition (2023), Florida Building Code, Building volume and relocating it as amended to the 8th Edition (2023), Florida Building Code, Existing Building volume.

2) Amendments to Chapter 1, Scope and Administration – FBC, EB Volume.

Delete Section 101.9 without substitution.

3) Insert Section 101. Insert the following sections as amended into Section 101, Existing Building Code.

101.2 Scope. The provisions of the *Florida Building Code, Existing Building* shall apply to the *repair, alteration, change of occupancy, addition* to and the relocation of *existing buildings*. The provisions of the *Florida Building Code, Existing Building* shall also apply to existing buildings that are subject to *Milestone Inspections*, as defined in Chapter 2 and as required in Chapter 18.

Exception: For the purpose of public educational facilities and state licensed facilities, see Chapter 4, Special Occupancy, of the *Florida Building Code, Building*.

101.4 Applicability.

This code shall apply to the *repair, alteration, change of occupancy, addition* and relocation of *existing buildings*, regardless of occupancy, subject to the criteria of Sections 101.4.1 and 101.4.2. This code shall also apply to existing buildings that are subject to *Milestone Inspections*, as defined in Chapter 2 and as required in Chapter 18.

101.4.1 Buildings Not Previously Occupied.

A building or portion of a building that has not been previously occupied or used for its intended purpose in accordance with the laws in existence at the time of its completion shall be permitted to comply with the provisions of the laws in existence at the time of its original permit unless such permit has expired. Subsequent permits shall comply with the Florida Building Code, Building or Florida Building Code, Residential, as applicable, for new construction.

101.4.2 Buildings Previously Occupied.

The legal occupancy of any building existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the Florida Fire Prevention Code, or as is deemed necessary by the *code official* for the general safety and welfare of the occupants and the public.

4) Section 113, Violations; Section.

113.1 Application. The application of this section is limited in scope to buildings that are required to comply with the requirements of Chapter 18.

113.2 Unlawful Acts. It shall be unlawful for any person, firm or corporation to *repair*, alter, extend, add, move, remove, demolish or change the occupancy of any building or equipment regulated by this code or cause same to be done in conflict with or in violation of any of the provisions of this code.

113.3 Notice of violation. The *code official* is authorized to serve a notice of violation or order on the person responsible for the *repair, alteration, extension, addition, moving, removal, demolition* or change in the occupancy of a building in violation of the provisions of this code or in violation of a permit or certificate issued under the provisions

of this code. Such order shall direct the discontinuance of the illegal action or condition and the abatement of the violation.

113.4 Prosecution of violation. If the notice of violation is not complied with promptly, the *code official* is authorized to request the legal counsel of the jurisdiction to institute the appropriate proceeding at law or in equity to restrain, correct or abate such violation or to require the removal or termination of the unlawful occupancy of the building or structure in violation of the provisions of this code or of the order or direction made pursuant thereto.

113.5 Violation penalties. Any person who violates a provision of this code or fails to comply with any of the requirements thereof or who *repairs* or alters or changes the occupancy of a building or structure in violation of the approved construction documents or directive of the *code official* or of a permit or certificate issued under the provisions of this code shall be subject to penalties as prescribed by law.

113.6 Failure to Timely Submit the Milestone Inspection Report. If an owner or association of a building or structure fails to timely submit the building milestone inspection report to the Building Official or seek an extension request, the Building Official shall elect the choice of either a Special Magistrate or Code Enforcement Board as set forth under Florida Statutes, Section 162, et al., to conduct a hearing to address such failure. In the event an owner fails to comply with the repair and/or modification requirements as determined from the milestone inspection report as set forth herein, the structure may be deemed to be unsafe and unfit for occupation. Such findings shall be reviewed by the building official and shall be sent to the Special Magistrate, Code Enforcement Board, or Unsafe Structures Board, as appropriate.

113.7 Revocation. The building official may revoke, at any time, or refuse to accept a building milestone inspection report if the building official determines that the written inspection report contains any misrepresentation of the actual conditions of the building or structure.

5) Section 115, Unsafe Buildings.

115.1 Application. The application of this section is limited in scope to buildings that are required to comply with the requirements of Chapter 18.

115.2 Unsafe Conditions. Buildings that are or hereafter become *unsafe*, insanitary or deficient because of inadequate means of egress facilities, inadequate light and ventilation, or that constitute a fire hazard, or are otherwise dangerous to human life or the public welfare, or that involve illegal or improper occupancy or inadequate maintenance, shall be deemed an *unsafe* condition. *Unsafe* buildings shall be taken down and removed or made safe as the *code official* deems necessary and as provided for in this code. A vacant building that is not secured against unauthorized entry shall be deemed *unsafe*.—If an owner of the building fails to submit proof to the local enforcement agency that repairs have been scheduled or have commenced for substantial structural deterioration identified in a phase two milestone inspection report within the required timeframe, the local enforcement agency must review and determine if the building is unsafe for human occupancy.

115.3 Record. The *code official* shall cause a report to be filed on an *unsafe* condition. The report shall state the occupancy of the structure and the nature of the *unsafe* condition.

115.4 Notice. If an *unsafe* condition is found, the *code official* shall serve on the owner of the building or the owner's authorized agent a written notice that describes the condition deemed *unsafe* and specifies the required *repairs* or improvements to be made to abate the *unsafe* condition, or that requires the *unsafe* building to be demolished within a stipulated time. Such notice shall require the person thus notified to declare immediately to the *code official* acceptance or rejection of the terms of the order.

115.5 Method of Service. Such notice shall be deemed properly served where a copy thereof is served in accordance with one of the following methods:

1. A copy is delivered to the owner or the owner's authorized agent personally.
2. A copy is sent by certified or registered mail addressed to the owner at the last known address with the return receipt requested.
3. A copy is delivered in any other manner as prescribed by local law.

If the certified or registered letter is returned showing that the letter was not delivered, a copy thereof shall be posted in a conspicuous place in or about the structure affected by such notice. Service of such notice in the foregoing manner on the owner's authorized agent shall constitute service of notice on the owner.

115.6 Restoration or Abatement. The building determined to be *unsafe* by the *code official* is permitted to be restored to a safe condition. The owner, the owner's authorized agent, of a building deemed *unsafe* by the *code official* shall abate or cause to be abated or corrected such *unsafe* conditions either by *repair*, rehabilitation, demolition or other *approved* corrective action. To the extent that *repairs*, *alterations* or *additions* are made, or a *change of occupancy* occurs during the restoration of the structure, such *repairs*, *alterations*, *additions* or *change of occupancy* shall comply with the requirements of this code.

6) Chapter 2, Definitions – FBC, EB Volume.

Revise Section 202 to add the following definitions:

Major Structural Component. Means a building's load-bearing elements, primary structural members, and primary structural systems.

Milestone Inspection. Means a structural inspection of a building, including an inspection of load-bearing elements and the primary structural members and primary structural systems as those terms are defined in *s. 627.706, Florida Statutes*, by an architect licensed under *Chapter 481, Florida Statutes* or engineer licensed under *Chapter 471, Florida Statutes*, authorized to practice in this state for the purposes of attesting to the life safety and adequacy of the structural components of the building and, to the extent reasonably possible, determining the general structural condition of the building as it affects the safety of such building, including a determination of any necessary maintenance, repair, or replacement of any structural component of the building. The purpose of such inspection is not to determine if the condition of an existing building is in compliance with the Florida Building Code or the firesafety code. The milestone inspection services may be provided by a team of professionals with an architect or engineer acting as a registered design professional in responsible charge with all work and reports signed and sealed by the appropriate qualified team member.

Primary Structural Member. Means a structural element designed to provide support and stability for the vertical or lateral loads of the overall structure.

Primary Structural System. Means an assemblage of primary structural members.

Substantial Structural Deterioration. Means a condition that negatively affects a building's structural condition and integrity that negatively affects a building's general structural condition and integrity, or a major structural component whose condition meets the definition of Dangerous. The term does not include surface imperfections such as cracks, distortion, sagging, deflections, misalignment, signs of leakage, or peeling of finishes unless the licensed engineer or architect performing the phase one or phase two inspection determines that such surface imperfections are a sign of substantial structural deterioration.

CHAPTER 18, MINIMUM REQUIREMENTS FOR THE MANDATORY MILESTONE INSPECTIONS - 8TH EDITION (2023), FLORIDA BUILDING CODE, EXISTING BUILDING

1) Section 1801. Mandatory Structural Inspections for Condominium and Cooperative Buildings.

1801.1 General. Maintaining the structural integrity of a building throughout the life of the building is of paramount importance in order to ensure that buildings are structurally sound so as to not pose a threat to the public health, safety, or welfare. The Legislature has found that the imposition of a statewide structural inspection program for aging condominium and cooperative buildings in this state is necessary to ensure that such buildings are safe for continued use.

1801.2 Scope. An owner or owners of a building that is three stories or more in height as determined by the Florida Building Code and that is subject, in whole or in part, to the condominium or cooperative form of ownership as a residential condominium under chapter 718 or a residential cooperative under chapter 719 must have a milestone inspection performed.

Exception:

This section does not apply to a single-family, two-family, or three-family dwelling with three or fewer habitable stories above ground.

2) Section 1802. Milestone Inspection Timeframe and Frequency.

Applicable buildings shall have a milestone inspection as follows:

- A.** By December 31 of the year in which the building reaches 30 years of age, based on the date the certificate of occupancy for the building was issued, and every 10 years thereafter. If a building reached 30 years of age before July 1, 2022, the building's initial milestone inspection must be performed before December 31, 2024.
- B.** If a building reaches 30 years of age on or after July 1, 2022, and before December 31, 2024, the building's initial milestone inspection must be performed before December 31, 2025.
- C.** If the date of issuance for the certificate of occupancy is not available, the date of issuance of the building's certificate of occupancy shall be the date of occupancy evidenced in any record of the local building official.

Exceptions:

- 1.** The local enforcement agency may determine that local circumstances, including environmental conditions such as proximity to salt water as defined in *s. 379.101, Florida Statutes*, require that a milestone inspection must be performed by December 31 of the year in which the building reaches 25 years of age, based on the date the certificate of occupancy for the building was issued, and every 10 years thereafter. If needed, the local enforcement agency must adopt such local circumstances by ordinance.
- 2.** The local enforcement agency may extend the date by which a building's initial milestone inspection must be completed upon a showing of good cause by the owner or owners of the building that the inspection cannot be timely completed if the owner or owners have entered into a contract with an architect or engineer to perform the milestone inspection, the inspection cannot reasonably be completed before the deadline or other circumstance to justify an extension, and there is no evidence that the building is unsafe, substantial structural deterioration exists, or potentially dangerous conditions exist as certified by the architect or engineer responsible for the Milestone Inspection.
- 3.** The local enforcement agency may accept an inspection report prepared by a licensed engineer or architect for a structural integrity and condition inspection of a building performed before July 1, 2022, if the inspection and report substantially comply with the requirements of this section. The inspection for which an inspection report is accepted by the local enforcement agency under this paragraph is deemed a milestone inspection for the applicable requirements in *Chapters 718 and 719, Florida Statutes*. If a previous inspection and report is accepted by

the local enforcement agency under this paragraph, the deadline for the building's subsequent 10-year milestone inspection is based on the date of the accepted previous inspection.

Section 1802.1

1802.1 If an owner or owners of a building that is subject to a milestone inspection, fails to ensure a Phase 1 or Phase 2 milestone inspection is completed in accordance with Chapter 18, the Building Official may file a complaint with the Department of Business and Professional Regulation Division of Condominiums, Timeshares, and Mobile Homes documenting such failure.

3) Section 1803. Notice for Compliance.

1803.1 Upon determining that a building must have a milestone inspection, the local enforcement agency must provide written notice of such required inspection to the condominium association or cooperative association and any owner of any portion of the building which is not subject to the condominium or cooperative form of ownership, as applicable, by certified mail, return receipt requested.

4) Section 1804. Milestone Inspection Phases and Completion Date.

1804.1 A milestone Inspection Consists of Two Phases:

1804.1.1 Phase One. For phase one of the milestone inspection, a licensed architect or engineer authorized to practice in this state shall perform a visual examination of habitable and nonhabitable areas of a building, including the major structural components of a building, and provide a qualitative assessment of the structural conditions of the building. If the architect or engineer finds no signs of substantial structural deterioration to any building components under visual examination, phase two of the inspection, as provided in Section 1804.1.2, is not required. An architect or engineer who completes a phase one milestone inspection shall prepare and submit an inspection report pursuant to Section 1806.1. If the architect or engineer finds that unpermitted work was performed to the structural components of the building they shall notify the building official of such work.

1804.1.1.1 Completion Timeline for Phase One. Phase one of the milestone inspection must be completed within 180 days after the owner or owners of the building receive the written notice under Section 1803. For purposes of this section, completion of phase one of the milestone inspection means the licensed architect or engineer responsible for the phase one inspection submitted the inspection report by e-mail, United States Postal Service, or commercial delivery service to the local enforcement agency.

1804.1.2 Phase Two. A phase two milestone inspection must be performed if any substantial structural deterioration is identified during phase one. A phase two inspection may involve destructive or nondestructive testing at the inspector's direction. The inspection may be as extensive or as limited as necessary to fully assess areas of structural distress in order to confirm that the building is structurally sound and safe for its intended use and to recommend a program for fully assessing and repairing distressed and damaged portions of the building. When determining testing locations, the inspector must give preference to locations that are the least disruptive and most easily repairable while still being representative of the structure. However, such preference shall not supersede the inspector's professional judgement as to determining locations for destructive and nondestructive testing that are necessary, in the sole opinion of the inspector, to assess if the building is structurally sound and safe.

1804.1.2.1 Completion Timeline for Phase Two. If a phase two inspection is required, within 180 days after submitting a phase one inspection report the architect or engineer responsible for the phase two inspection must submit a phase two inspection report to the local enforcement agency or a progress report with a timeline for completion of the phase two inspection. The architect or engineer responsible for a phase two milestone inspection shall prepare and submit an inspection report pursuant to subsection 1806.1.

1804.2 Duty to Report.

Any registered design professional who performs an inspection of an existing building or structure has a duty to report to the owner, association, the local fire chief, and the building official any findings that, if left unaddressed, would endanger life or property, and shall inform the appropriate parties no later than ten (10) days after making such findings.

However, if such professional finds that there are conditions in the building or structure meeting the definition of *Dangerous*, such professional shall report such conditions immediately to the building owner or association, the local fire chief, and to the building official within twenty-four (24) hours of the time of discovery. The registered design professional shall also render an opinion if the building or portions of the building need to be vacated and the timeframe for such vacation to occur. In addition to assessing any fines or penalties provided by the jurisdiction, the Building Official may report any violations of this provision to the appropriate licensing agency, regulatory board, and professional organization of such engineer or architect.

5) Section 1805. Milestone Inspection Responsibility.

1805.1 The milestone inspection report must be obtained by a condominium or cooperative association and any owner of any portion of the building which is not subject to the condominium or cooperative form of ownership. The condominium association or cooperative association and any owner of any portion of the building which is not subject to the condominium or cooperative form of ownership are each responsible for ensuring compliance with the requirements of this section. The condominium association or cooperative association is responsible for all costs associated with the milestone inspection attributable to the portions of a building which the association is responsible to maintain under the governing documents of the association.

6) Section 1806. Milestone Inspection Reporting.

1806.1 Minimum Criteria. Upon completion of a phase one or phase two milestone inspection, the architect or engineer responsible for the inspection must submit a sealed copy of the inspection report with a separate summary of, at minimum, the material findings and recommendations in the inspection report to the condominium association or cooperative association, to any other owner of any portion of the building which is not subject to the condominium or cooperative form of ownership, and to the building official of the local government which has jurisdiction. The inspection report must, at a minimum, meet all of the following criteria:

- (a) Bear the seal and signature, or the electronic signature, of the licensed engineer or architect responsible for the inspection.
- (b) Indicate the manner and type of inspection forming the basis for the inspection report.
- (c) Identify any substantial structural deterioration, within a reasonable professional probability based on the scope of the inspection, describe the extent of such deterioration, and identify any recommended repairs for such deterioration.
- (d) State whether unsafe or dangerous conditions, as those terms are defined in the Florida Building Code, were observed.
- (e) Recommend any remedial or preventive repair for any items that are damaged but are not substantial structural deterioration.
- (f) Identify and describe any items requiring further inspection.

7) Section 1807. Milestone Inspection Report Form.

1807.1 The Milestone Inspection Report Form (Appendix XX) shall serve as minimum inspection compliance for Phase One and Phase Two milestone inspection requirements.

8) Section 1808. Local Enforcement Agency Action on Milestone Inspection Results.

1808.1 Enforcement. A local enforcement agency may prescribe timelines and penalties with respect to compliance with this section.

1808.2 Repair. A board of county commissioners or municipal governing body may adopt an ordinance requiring that a condominium or cooperative association and any other owner that is subject to this section schedule or commence repairs for substantial structural deterioration within a specified timeframe after the local enforcement agency receives a phase two inspection report; however, such repairs must be commenced within 365 days after receiving such report. If an owner of the building fails to submit proof to the local enforcement agency that repairs have been scheduled or have commenced for substantial structural deterioration identified in a phase two inspection report within the required timeframe, the local enforcement agency must review and determine if the building is unsafe for human occupancy.

1808.3 Required Repairs or Modifications.

1. In the event that repairs or modifications are found to be necessary as a result of the milestone inspection, the building owner shall have a total of 180 days from the date of the building milestone inspection report, unless otherwise permitted by the Building Official, in which to complete required repairs and correct the structural deficiencies. All applicable requirements of this code shall be followed with all applicable permits obtained. If an owner or association fails to submit proof to the local enforcement agency that repairs have been scheduled or have commenced for substantial structural deterioration identified in the inspection report within the required timeframe, the structure may be deemed to be unsafe and unfit for occupation. Such findings shall be reviewed by the Building Official and shall be sent to the Special Magistrate, Code Enforcement Board, or Unsafe Structures Board, as appropriate. Such finding may also be reported as a complaint to the Department of Business and Professional Regulation Division of Condominiums, Timeshares, and Mobile Homes.
2. Once a permit is obtained for all necessary repairs or modifications from the local building department, which has jurisdiction, the *Florida Building Code* shall govern time restraints for such permits, or in accordance with a more restrictive timeframe as directed by the design professional.
3. For corrective action of deficiencies that cannot be commenced within 180 days, the time frame may be extended an additional 185 days not to exceed a total of 365 days when a time frame is specified by the architect or engineer responsible for the Milestone Inspection or the Architect or Engineer of Record for the repairs and approved by the Building Official. Such extensions shall be contingent on maintaining an active building permit as specified in Section 105.3.2 of the *Florida Building Code, Building*.
4. The building official may issue an extension of not more than 60 days to submit a building milestone inspection report or to obtain any necessary permits upon a written extension request from the architect or engineer responsible for the Milestone Inspection. Such request shall contain a signed and sealed statement from the architect or engineer responsible for the Milestone Inspection that the building may continue to be occupied while undergoing the building milestone inspection.
5. Once all required repairs have been completed, the architect or engineer responsible for the milestone inspection and the report shall re-inspect the areas noted on the original report and shall provide the building owner, association, and building official an amended report with a signed and sealed letter stating that all of the required repairs and corrections have been completed and that the building or structure is acceptable for continued use under the present occupancy. The building owner or the architect or engineer responsible for the Milestone Inspection shall submit that letter to the building official.

SECTION 2 – MILESTONE INSPECTION REPORT FORMS

MILESTONE INSPECTION REPORT FORMS - STRUCTURAL BSIP INSPECTION FORM

Form EB18 – 2024 (Draft)

MILESTONE INSPECTION REPORT FORM

PHASE 1 Milestone Inspection

Licensed Engineer(s) or Architect(s) Responsible for The Milestone Inspection

Inspection Firm Name (if applicable): _____

Inspection Engineer/Architect Name and License Number: _____

Address: _____

Telephone Number: _____

Assuming Responsibility for: " All, " Portion, If Portion please list: _____

Inspection Commenced Date: _____ Inspection Completed Date: _____

Additional Inspection Firm Name (if applicable): _____

Additional Inspection Engineer/Architect Name: _____

Address: _____

Telephone Number: _____

Assuming responsibility for: Portion (please list): _____

Inspection Commenced Date: _____ Inspection Completed Date: _____

NOTE: Add pages as required to list all additional design professionals assuming responsibility for the Milestone Inspection or portions thereof.

Substantial Structural Deterioration Observed; Phase 2 inspection is required

Reason to Believe a Dangerous Inaccessible Condition of Major Structural Component; Phase 2 inspection is required to complete Milestone Inspection of Inaccessible Conditions

Potentially Dangerous Condition Observed; Structural Evaluation is required*

**A condition exists that the Milestone Inspector determines would need a Phase II Inspection or structural evaluation of the specific item identified or area in order to determine whether a dangerous condition exists.*

Dangerous Condition Observed; Notify Building Official; Structural Evaluation is required

See Section 17 for Summary of Findings

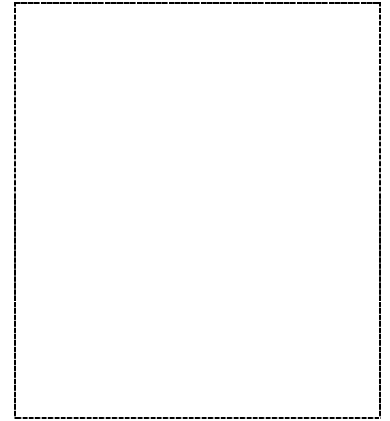
Licensed Design
Professional:

Engineer

Architect

Name: _____

License
Number: _____



Seal

I am qualified to practice in the discipline in which I am hereby signing,

Signature: _____ Date _____

This report has been based upon the minimum milestone inspection requirements as listed in *Chapter 18 of the Florida Building Code, Existing Building*. To the best of my knowledge and ability, this report represents an accurate appraisal of the present condition of the structure, based upon careful evaluation of observed conditions, to the extent reasonably possible.

See: General Considerations & Guidelines

1. DESCRIPTION OF STRUCTURE	
a. Name on Title:	
b. Street Address:	
c. Legal Description:	
d. Owner's Name:	
e. Owner's Mailing Address:	
f. Email Address:	Contact Number:
g. Folio Number of Property on which building is located:	
h. Building Code Occupancy Classification:	
i. Present Use:	
j. General Description:	Type of Construction:
k. Square Footage:	Number of Stories:
1. Total building area:	
2. Building footprint area:	
l. Name of the Condo or Coop entity:	
m. Special Features:	

n. Describe any additions to original structure:	

o. Approximate distance to the coast:	

2. PRESENT CONDITION OF STRUCTURE

a. General Alignment (Note: Good, Fair, Poor, Explain if significant):

1. Bulging:	<input type="checkbox"/>	Good	<input type="checkbox"/>	Fair	<input type="checkbox"/>	Poor	<input type="checkbox"/>	Significant (Explain):
<hr/> <hr/> <hr/>								

2. Settlement:	<input type="checkbox"/>	Good	<input type="checkbox"/>	Fair	<input type="checkbox"/>	Poor	<input type="checkbox"/>	Significant (Explain):
<hr/> <hr/> <hr/>								

3. Deflections:	<input type="checkbox"/>	Good	<input type="checkbox"/>	Fair	<input type="checkbox"/>	Poor	<input type="checkbox"/>	Significant (Explain):
<hr/> <hr/> <hr/>								

4. Expansion:	<input type="checkbox"/>	Good	<input type="checkbox"/>	Fair	<input type="checkbox"/>	Poor	<input type="checkbox"/>	Significant (Explain):
<hr/> <hr/> <hr/>								

5. Contraction:	<input type="checkbox"/>	Good	<input type="checkbox"/>	Fair	<input type="checkbox"/>	Poor	<input type="checkbox"/>	Significant (Explain):
<hr/> <hr/> <hr/>								

b. Portion Showing Distress (Note: Beams, Columns, Structural Walls, Floor, Roofs, Other):

c. Surface Conditions – Describe general conditions of finishes, noting cracking, spalling, peeling, signs of moisture penetration and strains:

d. Cracks – Note location in significant members. Identify crack size as HAIRLINE if barely discernible; FINE if less than 1mm in width; MEDIUM if between 1mm and 2mm in width; WIDE if over 2mm:

e. General extent of deterioration – Cracking or spalling concrete or masonry, oxidation of metals; rot or borer attack in wood:

f. Note previous patching or repairs:

g. Nature of present loading indicate residential, commercial, other estimate magnitude: _____

h. Are there any other significant observations Yes No

Describe:

3. INSPECTIONS

a. Date of notice of required inspection: _____

b. Date(s) of actual inspection: _____

c. Name and qualifications of the individual preparing report: _____

d. Description of laboratory or other formal testing, if required, rather than manual or visual procedures:

e. Has the property record been researched for any current code violations or unsafe structure cases?

Yes

No

Explanation/Comments:

4. SUPPORTING DATA ATTACHED

a. Sheets of written data: _____

b. Photographs:

c. Drawings or sketches:

d. Test reports:

5. FOUNDATION

a. Describe building foundation:

b. Is wood in contact or near soil? (Yes/No): _____

c. Signs of differential settlement? (Yes/No) _____

d. Describe any cracks, separation, or other signs in the walls, column or beams that signal differential settlement:

e. Is there additional sub-soil investigation required? Yes No

1. If yes, explain:

f. Is water drained away from the foundation? (Yes/No):

g. Is there additional sub-soil investigation required? (Yes/No): _____

1. Describe: _____

6. MASONRY BEARING WALL – Indicate good, fair or poor on appropriate lines

a. Concrete masonry units:
 Good Fair Poor Significant

b. Clay tile or cotta units:
 Good Fair Poor Significant

c. Reinforced concrete tie columns:
 Good Fair Poor Significant

d. Reinforced concrete tie beams:
 Good Fair Poor Significant

e. Lintel:

Good Fair Poor Significant

f. Other type bond beams:

Good Fair Poor Significant

g. Masonry Finishes – **Exterior:**

1. Stucco:

Good Fair Poor Significant

2. Veneer:

Good Fair Poor Significant

3. Paint Only:

Good Fair Poor Significant

4. Other:

Good Fair Poor Significant

4.a. Explain: _____

h. Cracks – Note beams, columns, or others, including locations (description):

i. Spalling – In beams, columns, or others, including locations (description):

j. Rebar corrosion – Check appropriate line:

- | | | |
|----|--------------------------|---|
| 1. | <input type="checkbox"/> | None Visible |
| 2. | <input type="checkbox"/> | Minor – Patching will suffice |
| 3. | <input type="checkbox"/> | Significant – Patching will suffice |
| 4. | <input type="checkbox"/> | Significant – Structural repairs required |

4a. Describe:

k. Were samples chipped out for examination in spalled areas?

1. No
2. Yes – Describe color, texture, aggregate, general quality:

7. FLOOR AND ROOF SYSTEM

a. Roof:

1) Roof pitch

Flat

Pitched

2) Roof structural framing

Wood

Steel

Concrete

3) Roof Structural framing condition

- Good Fair Poor Significant

4) Roof deck material

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Concrete
Wood
Structural concrete on steel deck

<input type="checkbox"/>
<input type="checkbox"/>

Non-structural / insulating concrete on steel deck
Bare steel deck

5) Roof cladding type

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Tile
Asphalt shingles
Built-up roofing (BUR)

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Single ply (Membrane)
Metal
Other

6) Roof covering condition

- Good
- Fair
- Poor
- Significant

7) Note water tanks, cooling towers, air conditioning equipment, signs, other heavy equipment and condition of support:

8) Note types of drains, scuppers, and condition:

9) Describe parapet construction and current condition:

10) Describe mansard construction and current condition:

Good Fair Poor Significant

11) Describe any roofing framing member with obvious overloading, overstress, deterioration, or excessive deflection:

12) Note any expansion joint and condition:

Condition: Good Fair Poor Significant

b. Floor System(s):

1. Describe (Type of system framing, material, spans, condition, balconies):

Condition: Good Fair Poor Significant

2. Balcony structural system

- Edge and building face supported
- Cantilever

3. Balcony exposure (if structure is on the coast)

- Ocean facing
- Non-ocean facing

4. Balcony construction

- Concrete
- Steel framing with concrete topping
- Wood
- Other (define in narrative)

5. Balcony condition rating

- Good
- Fair (e.g., minor cracking, minor rebar corrosion – patching will suffice)
- Poor (e.g., significant cracking, rebar corrosion requiring repairs)
- Significant
- N/A

6. Balcony condition description (e.g., spalling, cracking, rebar corrosion)

7. Stairs and escalators – Indicate location, framing system, material, and condition:

8. Ramps – Indicate location, framing system, material, and condition:

9. Guardrails – Indicate type, location, material, and condition:

Guard system

<input type="checkbox"/>	Wood	<input type="checkbox"/>	Stainless steel	<input type="checkbox"/>	Glass
<input type="checkbox"/>	Metal	<input type="checkbox"/>	Ungalvanized Steel	<input type="checkbox"/>	CMU Kneewall
<input type="checkbox"/>	Aluminum	<input type="checkbox"/>	Concrete Kneewall	<input type="checkbox"/>	Other _____

10. Guard condition (define ratings depending on guard system)

<input type="checkbox"/>	Good
<input type="checkbox"/>	Fair
<input type="checkbox"/>	Poor
<input type="checkbox"/>	Significant

c. Inspection – Note exposed areas available for inspection, and where it was found necessary to open ceilings, etc. for inspection of typical framing members:

8. STEEL FRAMING SYSTEM

a. Full description of system:

b. Exposed Steel – Describe condition of paint and degree of corrosion:

c. Steel Connections – Describe type and condition:

d. Concrete or other fireproofing – Describe any cracking or spalling and note where any covering was removed for inspection:

e. Identify any steel framing member with obvious overloading, overstress, deterioration or excessive deflection (provide location(s)):

f. Elevator sheave beams, connections, and machine floor beams – Note column:

9. CONCRETE FRAMING SYSTEM

a. Full description of structural system:

b. **Cracking:**

1. Significant Not Significant

2. Description of members affected location and type of cracking:

c. General condition:

d. Rebar Corrosion – Check appropriate line:

1.	<input type="checkbox"/>	Non-Visible
2.	<input type="checkbox"/>	Location and description of members affected and type cracking
3.	<input type="checkbox"/>	Significant – Patching will suffice
4.	<input type="checkbox"/>	Significant – Structural repairs required (Describe):

e. Were samples chipped out for examination in spalled areas?

1. No
2. Yes – Describe color, texture, aggregate, general quality:

f. Identify any concrete framing member (e.g., slabs and transfer elements) with obvious overloading, overstress, deterioration (e.g., efflorescence at underside of slab or at base of column or wall) or excessive deflection (provide location(s)):

10. WINDOWS, STOREFRONTS, CURTAINWALLS AND EXTERIOR DOORS

a. **Structural Glazing on the exterior envelope of threshold building:**

Yes No

1. Previous Inspection
Date:

2. Description of Curtainwall Structural Glazing and adhesive sealant: _____

3. Describe condition of system: _____

b. Exterior Doors:

1. Type (wood, steel, aluminum, sliding glass door, other): _____

Anchorage type and condition of fasteners and latches: _____

2. Sealant type and condition of sealant: _____

3. General Condition:

4. Describe repairs needed:

11. WOOD FRAMING

a. Type – Fully describe if mill construction, light construction, major spans, trusses:

b. Indicate condition of the following:

1. Walls:

2. Floors:

3. Roof member, roof trusses:

c. Note metal fitting (i.e., angles, plates, bolts, splint pintles, other and note condition): _____

d. Joints – Note if well fitted and still closed:

e. Drainage – Note accumulations of moisture: _____

f. Ventilation – Note any concealed spaces not ventilated: _____

g. Note any concealed spaces opened for inspection: _____

h. Identify any wood framing member with obvious overloading, overstress, deterioration, or excessive deflection: _____

12. BUILDING FACADE INSPECTION

a. Identify and describe the exterior walls and appurtenances on all sides of the building (cladding type, corbels, precast appliques, etc.): _____

b. Identify attachment type of each appurtenance type (mechanically attached or adhered): _____

c. Indicate the condition of each appurtenance (distress, settlement, splitting, bulging, cracking, loosening of metal anchors and supports, water entry, movement of lintel or shelf angles or other defects):

13. SPECIAL OR UNUSUAL FEATURES IN THE BUILDING

a. Identify and describe any special or unusual features (i.e., cable suspended structures, tensile fabric roof, large sculptures, chimney, porte-cochere, retaining walls, seawalls, etc.): _____

b. Indicate condition of special feature, its supports and connections: _____

14. DETERIORATION

a. Based on the scope of the inspection, describe any structural deterioration and describe the extent of such deterioration. _____

15. UNSAFE CONDITIONS

a. State whether unsafe or dangerous conditions exist, as these terms are defined in the Florida Building Code, where observed. Yes No

By checking this box, the undersigned states that the inspections detailed in this report were performed with the primary objective of identifying potential structural issues. Other conditions may render a building unsafe,

including, but not limited to, the existence of unsanitary conditions, inadequate maintenance, illegal occupancy, inadequate means of egress, or inadequate lighting and ventilation. If potentially unsafe conditions were observed, they will be noted, but the inspections were not intended to be a comprehensive assessment of whether any such conditions exist in the subject building.

16. SAFE OCCUPANCY DETERMINATION

a. Based on the results of the inspection, does the building or any portion of the building need to be vacated, secured, or access limited? If so, what portions of the building need to be vacated and how quickly do those portions need to be vacated, secured, or access limited?

17. SUMMARY OF FINDINGS

The below Condition(s) were noted within this Phase 1 Inspection.

- Indication of Dangerous Condition Observed
- Actual Dangerous Condition Observed
- Indication of Substantial Structural Deterioration Observed
- Actual Substantial Structural Deterioration Observed
- Indication of Need for Maintenance
- Indication of Need for Repair
- Indication of Need for Replacement
- Inaccessible Condition of Structural Component

18. REVIEW OF EXISTING DOCUMENTS AND PERMIT RECORDS

It appears that unpermitted structural work has been performed as follows, and the Building Official has been notified:

- Yes No

19. DEFINITIONS OF TERMS

Good: No Substantial Structural Deterioration and No Dangerous Condition Observed.

Fair: Indication of Substantial Structural Deterioration Observed and No Dangerous Condition Observed.

Poor: Actual Substantial Structural Deterioration Observed and No Dangerous Condition Observed.

Significant: Any Observation which is an Indication of Dangerous Condition or Actual Dangerous Condition.

PHASE 2 MILESTONE INSPECTION

1. Description of Structure	
Name on Title:	
Street Address:	
Legal Description:	
Owner's Name:	
2. Name of the Condo or Coop Entity and Contact Information	
Name:	
Address:	
Telephone Number:	
3. Name and Contact Information of the Licensed Individual(s) Conducting the Inspection	
Inspection Firm or Individual Name:	
Address:	
Telephone Number:	
Inspection Commenced Date:	Inspection Completed Date:

- Substantial Structural Deterioration Observed; Structural Evaluation is required.
- Inaccessible Condition of Major Structural Component; The Milestone Inspection was not able to conclude the Structural Condition of inaccessible areas.
- Potentially Dangerous Condition Observed; Structural Evaluation is required.
- Dangerous Condition Observed; Notify Building Official; Structural Evaluation is required.
- See Section 9 for Summary of Findings.

Provision for Signature and Seal of the Licensed Individual Conducting the Inspection

Licensed Design Professional:	<input type="checkbox"/>	Engineer	<input type="checkbox"/>	Architect	Seal
Name:	_____				
License Number:	_____				



I am qualified to practice in the discipline in which I am hereby signing,

Signature: _____

Date: _____

This report has been based upon the minimum milestone inspection requirements as listed in *Chapter 18 of the Florida Building Code, Existing Building*. To the best of my knowledge and ability, this report represents an accurate appraisal of the present condition of the structure, based upon careful evaluation of observed conditions, to the extent reasonably possible.

See: General Considerations & Guidelines

1. DESCRIBE REFERENCES CITED UNDER PHASE 1 REPORT FOR FOLLOW-UP:

2. IDENTIFY THE DAMAGE AND DESCRIBE THE EXTENT OF THE SUBSTANTIAL STRUCTURAL DETERIORATION ALONG WITH NEED FOR MAINTENANCE, REPAIR, AND/OR REPLACEMENT RECOMMENDATIONS:

3. IDENTIFY AND DESCRIBE AREAS REQUIRING ADDED INSPECTION AS WELL AS RESULTS OF ANY TESTING:

4. DESCRIBE MANNER AND TYPE OF INSPECTION PERFORMED:

Note: When testing and at the discretion of the design professional, scientific testing protocols must be used in addition to visual inspection techniques for determining the structural integrity of a building.

5. PROVIDE GRADED URGENCY OF EACH RECOMMENDED REPAIR:

6. STATE WHETHER UNSAFE OR DANGEROUS CONDITIONS EXIST, AS THESE TERMS ARE DEFINED IN THE FLORIDA BUILDING CODE, WHERE OBSERVED:

By checking this box, the undersigned states that the inspections detailed in this report were performed with the primary objective of identifying potential structural issues. Other conditions may render a building unsafe, including, but not limited to, the existence of unsanitary conditions, inadequate maintenance, illegal occupancy, inadequate means of egress, or inadequate lighting and ventilation. If potentially unsafe conditions were observed, they will be noted, but the inspections were not intended to be a comprehensive assessment of whether any such conditions exist in the subject building.

7. IDENTIFY AND DESCRIBE ANY ITEMS REQUIRING ADDITIONAL INSPECTIONS:

8. SAFE OCCUPANCY DETERMINATION

- a. Based on the results of the inspection, does the building or any portion of the building need to be vacated, secured, or access limited? If so, what portions of the building need to be vacated and how quickly do those portions need to be vacated, secured, or access limited?

9. SUMMARY OF FINDINGS

The below Condition(s) were noted within this Phase 2 Inspection.

- The Building has Substantial Structural Deterioration, Corrective Action is Required.
- A Need for Maintenance was Observed, but Does Not Meet the Standard of Substantial Structural Deterioration at This Time. The Building Passes the Milestone Inspection Program.
- There Are No Signs of Substantial Structural Deterioration. The Building Passes the Milestone Inspection Program.

10. DEFINITIONS OF TERMS

Good: No Substantial Structural Deterioration and No Dangerous Condition Observed.

Fair: Indication of Substantial Structural Deterioration Observed and No Dangerous Condition Observed.

Poor: Actual Substantial Structural Deterioration Observed and No Dangerous Condition Observed.

Significant: Any Observation which is an Indication of Dangerous Condition or Actual Dangerous Condition.

SECTION 3 – GENERAL CONDITIONS AND GUIDELINES

GENERAL CONDITIONS AND GUIDELINES – SCOPE OF STRUCTURAL CONDITIONS TO BE INCLUDED AS AN APPENDIX

1) General Conditions and Guidelines – Scope of Structural Conditions.

[Source – Broward County Building Safety Inspection Program] (Testing protocols)

SCOPE OF STRUCTURAL INSPECTION

The fundamental purpose of the required milestone inspection and report is to confirm in reasonable fashion that the building or structure under consideration is safe for continued use under present occupancy. **As implied by the title of this document, this is a recommended procedure, and under no circumstances are these minimum recommendations intended to supplant proper professional judgment.**

Such inspection shall be for the purpose of determining the general structural condition of the building or structure to the extent reasonably possible of any part, material or assembly of a building or structure which affects the safety of such building or structure and/or which supports any dead or live load, or wind load.

In general, unless there is obvious overloading, or significant deterioration of important structural elements, there is little need to verify the original design. It is obvious that this has been time tested if still offering satisfactory performance. Rather, it is of importance that the effects of time with respect to degradation of the original construction materials be evaluated. It will rarely be possible to visually examine all concealed construction, nor should such be generally necessary. However, a sufficient number of typical structural members should be examined to permit reasonable conclusions to be drawn.

Visual Examination will, in most cases, be considered adequate when executed systematically. The visual examination must be conducted throughout all habitable and non-habitable areas of the building, as deemed necessary, by the inspecting professional to establish compliance. Surface imperfections such as cracks, distortion, sagging, excessive deflections, significant misalignment, signs of leakage, and peeling of finishes should be viewed critically as indications of possible difficulty.

Testing Procedures and quantitative analysis will not generally be required for structural members or systems except for such cases where visual examination has revealed such need, or where apparent loading conditions may be critical.

Manual Procedures such as chipping small areas of concrete and surface finishes for closer examinations are encouraged in preference to sampling and/or testing where visual examination alone is deemed insufficient. Generally, unfinished areas of buildings such as utility spaces, maintenance areas, stairwells and elevator shafts should be utilized for such purposes. In some cases, to be held to a minimum, ceilings or other construction finishes may have to be opened for selective examination of critical structural elements. In that event, such locations should be carefully located to be least disruptive, most easily repaired and held to a minimum. In any event, a sufficient number of structural members must be examined to afford reasonable assurances that such are representative of the total structure.

Evaluating an existing structure for the effects of time, must take into account two basic considerations; movement of structural components with respect to each other, and deterioration of materials.

With respect to the former, volume change considerations, principally from ambient temperature changes, and possibly long-time deflections, are likely to be most significant. Foundation movements will frequently be of importance, usually settlement, although upward movement due to expansive soils may occur, although infrequently in this area. Older buildings on spread footings may exhibit continual, even recent settlements if founded on deep unconsolidated fine grained or cohesive soils, or from subterranean losses or movements from several possible causes.

With very little qualifications, such as rather rare chemically reactive conditions deterioration of building materials can only occur in the presence of moisture, largely related to metals and their natural tendency to return to the oxide state in the corrosive process.

In this marine climate, highly aggressive conditions exist year-round. For most of the year, outside relative humidity may frequently be about 90 or 95%, while within air-conditioned building, relative humidity will normally be about 55 to 60%. Under these conditions moisture vapor pressures ranging from about 1/3 to 1/2 pounds per square inch will exist much of the time. Moisture vapor will migrate to lower pressure areas. Common building materials such as stucco, masonry and even concrete, are permeable even to these slight pressures. Since most of construction does not use vapor barriers, condensation will take place within the enclosed walls of the building. As a result, deterioration is most likely adjacent to exterior walls, or wherever else moisture or direct leakage has been permitted to penetrate the building shell.

Structural deterioration will always require repair. The type of repair, however, will depend upon the importance of the member in the structural system, and degree of deterioration. Cosmetic type repairs may suffice in certain non-sensitive members such as tie beams and columns, provided that the remaining sound material is sufficient for the required function. For members carrying assigned gravity or other loads, cosmetic type repairs will only be permitted if it can be demonstrated by rational analysis that the remaining material, if protected from further deterioration can still perform its assigned function at acceptable stress levels. Failing that, adequate repairs or reinforcement will be considered mandatory.

Written reports shall be required attesting to each required inspection. Each such report shall note the location of the structure, description of the type of construction, and general magnitude of the structure, the existence of drawings and location thereof, history of the structure to the extent reasonably known, and a description of the type and manner of the inspection, noting problem areas and recommended repairs, if required to maintain structural integrity.

Evaluation: Each report shall include a statement to the effect that the building or structure is structurally safe, unsafe, safe with qualifications, or has been made safe. It is suggested that each report also include the following information indicating the actual scope of the report and limits of liability. This paragraph may be used:

"As a routine matter, in order to avoid possible misunderstanding, nothing in this report should guarantee for any portion of the structure. To the best of my knowledge and ability, this report represents an accurate appraisal of the present condition of the building based upon careful evaluation of observed conditions, to the extent reasonably possible.

Foundations:

If all of the supporting subterranean materials were completely uniform beneath a structure, with no significant variations in grain size, density, moisture content or other mechanical properties; and if dead load pressures were completely uniform, settlements would probably be uniform and of little practical consequence. In the real world, however, neither is likely. Significant deviations from either of these two idealisms are likely to result in unequal vertical movements.

Monolithic masonry structures are generally incapable of accepting such movements, and large openings. Since, in most cases, differential shears are involved, cracks will typically be diagonal.

Small movements, in themselves, are most likely to be structurally important only if long term leakage through fine cracks may have resulted in deterioration. In the event of large movements, contiguous structural elements such as floor and roof systems must be evaluated for possible fracture or loss of bearing.

Pile foundations are, in general, less likely to exhibit such difficulties. Where such does occur, special investigation will be required.

Roofs

Sloping roofs, usually having clay or cement tiles, are of concern in the event that the covered membrane may have deflections, if merely resulting from deteriorated rafters or joists will be of greater import. Valley flashing and base flashing at roof penetration will also be matters of concern.

Flat roofs with built up membrane roofs will be similarly critical with respect to deflection considerations. Additionally, since they will generally be approaching expected life limits at the age when building recertification is required careful examination is important. Blisters, wrinkling, alligatoring, and loss of gravel are usual signs of difficulty. Punctures or loss of adhesion of base flashings, coupled with loose counter-flashing will also signify possibility of other debris, may result in ponding, which if permitted, may become critical.

Masonry Bearing Walls

Random cracking, or if discernible, definitive patterns of cracking, will of course, be of interest. Bulging, sagging, or other signs of misalignment may also indicate related problems in other structural elements. Masonry walls where commonly constructed of either concrete masonry units, or scored clay tile, may have been constructed with either reinforced concrete columns and tie beams, or lintels.

Of most probable importance will be the vertical and horizontal cracks where masonry units abut tie columns, or other frame elements such as floor slabs. Of interest here is the observation that although the raw materials of which these masonry materials are made may have much the same mechanical properties as the reinforced concrete framing, their actual behavior in the structure, however, is likely to differ with respect to volume change resulting from moisture content, and variations in ambient thermal conditions.

Moisture vapor penetration, sometimes abetted by salt laden aggregate and corroding rebars, will usually be the most common cause of deterioration. Tie columns are rarely structurally sensitive, and a fair amount of deterioration may be tolerated before structural impairment becomes important. Cosmetic type repair involving cleaning, and parching to effectively seal the member, may often suffice. A similar

approach may not be unreasonable for tie beams, provided they are not also serving as lintels. In that event, a rudimentary analysis of load capability using the remaining actual rebar area, may be required.

Floor and Roof Systems

Cast in place reinforced concrete slabs and/or beams and joists may often show problems due to corroding rebars resulting from cracks or merely inadequate protecting cover of concrete. Patching procedures will usually suffice where such damage has not been extensive. Where corrosion and spalling has been extensive in structurally critical areas, competent analysis with respect to remaining structural capacity, relative to actual supported loads, will be necessary. Type and extent of repair will be dependent upon the results of such investigation.

Pre-cast members may present similar deterioration conditions. End support conditions may also be important. Adequacy of bearing, indications of end shear problems, and restraint conditions are important, and should be evaluated in at least a few typical locations.

Steel bar joists are, of course, sensitive to corrosion. Most critical locations will be web member welds, especially near supports, where shear stresses are high and possible failure may be sudden, and without warning.

Cold formed steel joists, usually of relatively light gage steel, are likely to be critically sensitive to corrosion, and are highly dependent upon at least nominal lateral support to carry designed loads. Bridging and the floor or roof system itself, if in good condition, will serve the purpose.

Wood joists and rafters are most often in difficulty from "dry rot", or the presence of termites. The former (a misnomer) is most often prevalent in the presence of sustained moisture or lack of adequate ventilation. A member may usually be deemed in acceptable condition if a sharp pointed tool will penetrate no more than about one eighth of an inch under moderate hand pressure. Sagging floors will most often indicate problem areas.

Gypsum roof decks will usually perform satisfactorily except in the presence of moisture. Disintegration of the material and the form-board may result from sustained leakage. Anchorage of the supporting bulb tees against uplift may also be of importance.

Floor and roof systems of cast in place concrete with self-centering reinforcing, such as paper backed mesh and rib-lath, may be critical with respect to corrosion of the unprotected reinforcing. Loss of uplift anchorage on roof decks will also be important if significant deterioration has taken place, in the event that dead loads are otherwise inadequate for that purpose. Expansion joints exposed to the weather must also be checked.

Steel Framing System

Corrosion, obviously enough, will be the determining factor in the deterioration of structural steel. Most likely suspect areas will be fasteners, welds, and the interface area where bearings are embedded in masonry. Column bases may often be suspect in areas where flooding has been experienced, especially if salt water has been involved. Concrete fireproofing will, if it exists, be the best clue indicating the condition of the steel.

Concrete Framing Systems

Concrete deterioration will, in most cases, similarly be related to rebar corrosion possibly abetted by the presence of salt water aggregate or excessively permeable concrete. In this respect, honeycomb areas may contribute adversely to the rate of deterioration. Columns are frequently most suspect. Extensive honeycomb is most prevalent at the base of columns, where fresh concrete was permitted to segregate, dropping into form boxes. This type of problem has been known to be compounded in areas where flooding has occurred, especially involving salt water.

Thin cracks usually indicate only minor corrosion, requiring minor patching only. Extensive spalling may indicate a much more serious condition requiring further investigation.

In spall areas, chipping away a few small loose samples of concrete may be very revealing. Especially, since loose material will have to be removed even for cosmetic type repairs, anyway. Fairly reliable quantitative conclusions may be drawn with respect to the quality of the concrete. Even though our cement and local aggregate are essentially derived from the same sources, cement will have a characteristically dark grayish brown color in contrast to the almost white aggregate. A typically white, almost alabaster like coloration will usually indicate reasonably good overall strength.

Based on preliminary findings from the National Institute of Standards and Technology on the collapse of Champlain Towers South in Surfside, Florida in April of 2022, special attention should be paid to deck slabs and plaza decks. Often, additional load has been added to these structures, so it is incumbent upon the inspecting design professional to look closely at slabs, columns and other transfer members for evidence of distress. This evidence may manifest as efflorescence from water passing through the concrete structures as a white or light-colored powdery substance on the underside of slabs and at the base of columns.

Windows and Doors

Window and door condition is of considerable importance with respect to two considerations. Continued leakage may have resulted in other adjacent damage and deteriorating anchorage may result in loss of the entire unit in the event of severe windstorms even short of hurricane velocity. Perimeter sealants, glazing, seals, and latches should be examined with a view toward deterioration of materials and anchorage of units for inward as well as outward (suction) pressure, most importantly in high buildings.

Wood Framing

Older wood framed structures, especially of the industrial type, are of concern in that long term deflections may have opened important joints, even in the absence of deterioration. Corrosion of ferrous fasteners will in most cases be obvious enough. Dry rot must be considered suspect in all sealed areas where ventilation has been inhibited, and at bearings and at fasteners. Here too, penetration with a pointed tool greater than about one eighth inch with moderate hand pressure will indicate the possibility of further difficulty.

Building Facade

Appurtenances on an exterior wall of a building are elements including, but not limited to, any cladding material, precast appliques, exterior fixtures, ladders to rooftops, flagpoles, signs, railings, copings, guardrails, curtain walls, balcony and terrace enclosures, including greenhouses or solariums, window guards, window air conditioners, flower boxes, satellite dishes, antennae, cell phone towers, and any equipment attached to or protruding from the façade that is mechanically and/or adhesive attached.

Loading

It is of importance to note that even in the absence of any observable deterioration, loading conditions must be viewed with caution. Recognizing that there will generally be no need to verify the original design, since it will have already been "time tested", this premise has validity only if loading patterns and conditions remain **unchanged**. Any material change in type and/or magnitude or loading in older buildings should be viewed as sufficient justification to examine load carrying capability of the effected structural system.

Historical Documents and Permitting

An attempt should be made to investigate the existence of documents with the local jurisdiction to assist with the overall inspection of the building.

Understanding the structural system, building components, and intended design may guide the design professional to investigate certain critical areas of the structure.

Violations through the local jurisdiction's code compliance division should be investigated. Cases on file may lead to issues pre-existing with the building, especially any unsafe structure determinations. Depending on the nature of the violation, recertification inspections may be affected.

Unpermitted activities may also affect the outcome of a milestone inspection, especially with unpermitted additions to the building. Unpermitted additions found during the milestone inspection process present an unsafe situation and must be identified in the report, even if found to be properly built. Like a repair process identified by the report, legalizing an unpermitted addition would be a prerequisite to the completion of a successful milestone inspection report. Examples of unpermitted work include but are not limited to additions, alterations, balcony enclosures, etc.

Repairs identified in the milestone inspection report will most likely require permits. Once the initial report is completed it should be immediately submitted to the local jurisdiction for processing, do not proceed to conduct repairs without permits. Some repairs, like changing a bulb in an exit sign, may not require a permit but most other work will require permits. Proceeding without obtaining repair permits may lead to a violation of the code.

Completing the reports concisely is vital to the overall understanding of the conditions of the building and successful completion of the milestone inspection process. The approved report forms provided must be used, proprietary forms will not be accepted. Where required, photos must be in color and with sufficient resolution to detail the conditions being shown. Milestone inspection reports may be audited, and the subject building may be inspected at the discretion of the Building Official. The Building Official reserves the right to rescind or revoke an approved milestone inspection report.

The **Code in Effect** at the time of the original construction is the baseline for the milestone inspections. Subsequent improvements to the original building should be inspected based on the code at the time of permitting. It is not the intent of the milestone inspection that buildings must be brought in compliance with current codes.

Destructive and nondestructive structural assessment technologies and techniques that can, or have the potential to, aid in the structural assessment of buildings based on current development, applications, and industry guidance:

- (1) 1. ASTM F1869 – Chloride test for concrete
- (2) 2. ASTM C876 (half-cell) – Scan of concrete at a depth of 6” to measure rebar deterioration
- (3) 3. ASTM C1153- Thermography
- (4) 4. ASTM D8231 modified – Electronic Leak Detection of membrane roofing
- (5) 5. AAMA 511 – Pressure Testing of Fenestrations
- (6) 6. ASTM D4580 – Delam roller for Stucco and Concrete
- (7) ASCE 11-99
- (8) Acoustic Emission (*)
- (9) Sounding Techniques (*)
- (10) Stress Wave Methods – Ultrasonics (*)
- (11) Grund Penetrating Radar (GPR) (*)
- (12) Thermography (*)
- (13) Fiber Optic Sensors (*)
- (14) Imagery (*)
- (15) AR/VR Guided Inspection (*)
- (16) Vibration Sensors and Dynamic Analysis (*)
- (17) Integrated Sensors (*)
- (18) X-ray (*)
- (19) Core Sampling of Concrete (*)
- (20) In-situ Strength Testing Methods (*)
- (21) Corrosion Detection and Monitoring Techniques (*)
- (22) Analysis of Ingress and Transport Properties (*)

(*) For background information regarding building inspection technology see research project “Assessment of Inspection Reporting and Building Conditions in South Florida: (Miami-Dade and Broward Counties) – Phase II” as available from the following link:

https://www.floridabuilding.org/fbc/publications/Technical_Research_FY2022-2023.html