220913 EBIWG Assignment 1 Recommendations
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Relevant EBIWG Option Section: Section V. Inspection Options

Proposed: Section V, Option H (revised 9/13/22)

SB-4D & FBC Relevant Sections, as currently written in Law & Code (https://www.floridabuilding.org/fbc/links_to_code_resources.html)

SB-4D Sections 553.899: (2)(a), (2)(b), (6), (7)(a), (7)(b), and (8)

FBCB 2020 Supp 2 Sections 110.9: 2(a), 2(b), 6, 7.1, 7.2, and 8

Relative definitions, provided for convenience:

> FBCB 2020 S2 Section 110.9.2(b) states that ""Substantial structural deterioration" means substantial structural distress that negatively affects a building's general structural condition and integrity. 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."

Need for Recommendation: (See end of document for Relevant Background Information)

As currently written within SB-4D and FBCB, the Phase 1 Inspection is a visual, qualitative inspection, and the Phase 2 Inspection involves nondestructive and destructive testing, exploratory investigation, and a full assessment of the state of the building. This is a clear, concise program as written, but there is one issue that needs to be addressed in order to safeguard the public, as described below.

The current SB-4D and FBCB language only requires buildings to undergo a Phase 2 Inspection if the Phase 1 Inspection finds Substantial Structural Deterioration. In this regard, only those buildings which can be properly inspected by a visual, qualitative inspection are able to be evaluated sufficiently under the current Phase 1 & 2 process described in SB-4D & FBCB.

The current SB-4D and FBCB language does not adequately trigger the Phase 2 inspection in such cases where the building conditions inherently prevent or obstruct an Inspector from reasonably assessing if there is Substantial Structural Deterioration during a Phase 1 visual, qualitative inspection.

There are common existing building conditions that will inherently prevent a visual, qualitative Phase 1 inspection from determining if there is Substantial Structural Deterioration. In these cases, the Florida Statute and Building Code language must automatically trigger a Phase 2 inspection in these special cases, in order to ensure building safety and preserve the original purpose Phase 1.

Specifically, in cases where a building

- has insufficient/missing structural plans,
- has undocumented prior repairs,
- has undocumented, recent application of paint/patching/cladding which would cover signs of distress, or
- significantly differs from the original structural intent (extra stories, removed columns, changes in use [live load], high dead loads from flooring or planters, discontinuous load path, etc),

a visual, qualitative Phase 1 inspection **will likely not be sufficient/reliable** for determining Substantial Structural Deterioration without the Phase 2 scope of exploration, analysis, and/or testing (such as GPR and/or removal of drywall). For such cases, as currently written, the Phase 2 Inspection would need to be performed, and as such, such conditions must automatically trigger a Phase 2 Inspection.

This recommendation will adequately address this important issue without causing burden or major revision to the Phase 1 or 2 process. Addressing this recommendation will safeguard the public, preserve the autonomy of the milestone inspector, and ensure that the milestone inspections are sufficient to determine the structural integrity of a building.

Recommendation: (FBCB 2020 S2 passages provided below and mirror the updates to SB-4D)

Below is a copy/paste of the existing FBC 110.9 Language, the SB-4D language would mirror the below recommendation. Underlined text represents proposed updates to the text. ~~Strikethrough text~~ represents proposed removed text. ***Bold text*** *indicates the differences between the options. Italicized text indicates notes from the Author.*

To ensure that the milestone inspections sufficiently determine the structural integrity of a building, the current wording of SB-4D 553.899(7)(a)&(b) and FBCB 2020 S2 110.9.7.1 and 110.9.7.2 need to be updated to trigger a Phase 2 inspection when there are building conditions which will inherently prevent or obstruct an Inspector from reasonably assessing if there is Substantial Structural Deterioration utilizing the Phase 1 visual, qualitative inspection, as described below. Sections 553.899(8) and 110.9.8 then need to be updated to require a concise description of such trigger conditions.

Below are FIVE options for how to include this important Phase 2 Trigger, listed in order from most specific to most broad. *If the below five options are not amenable to the group, we need to encourage the Commission or Legislature to provide its own recommendation for a Phase 2 Trigger.*

Option 1 – SPECIFIC, LOAD & CONTEXT -BASED TRIGGERS:

110.9.7. A milestone inspection consists of two phases:

110.9.7.1. 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 110.9.7.2, is not required. In cases where during phase one, the Milestone Inspector determines **that any of the following conditions are present, and that such condition(s) prevent** a visual, qualitative examination of the building for signs of substantial structural deterioration, then a phase two inspection per Section 110.9.7.2 is required in order for the Milestone Inspector to further conduct exploration, analysis, and/or testing as needed (e.g. GPR, removal of drywall, computational analysis, load testing, etc).

a. **Absence of construction documents**
b. **Existing Structural Conditions which differ from and/or overload the original Structural Design Intent**
c. **Undocumented, Unsealed, and/or Unpermitted Prior Repairs and/or Renovations**
d. **Undocumented interior/exterior cladding/paint conditions prior to most recent application/installation**
e. **Inadequate load path of lateral and/or vertical system**
f. **Need for repairs which will require substantial shoring**

An architect or engineer who completes a phase one milestone inspection shall prepare and submit an inspection report pursuant to Section 110.9.8.

See the "Relevant Background Material" section at the end of this Recommendation for descriptions of each condition listed above.

Option 2 – SPECIFIC, LOAD TRIGGER:

110.9.7. A milestone inspection consists of two phases:

110.9.7.1. 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 110.9.7.2, is not required. In cases where during phase one, the Milestone Inspector determines that **there are undocumented prior repairs and/or renovations which create existing conditions that differ from and/or overload the original structural design intent,** then a phase two inspection per Section 110.9.7.2 is required in order for the Milestone Inspector to further conduct exploration, analysis, and/or testing as needed (e.g. GPR, removal of drywall, computational analysis, load testing, etc). An architect or engineer who completes a phase one milestone inspection shall prepare and submit an inspection report pursuant to Section 110.9.8.

Option 3 – BROAD, CONDITION TRIGGER:

110.9.7. A milestone inspection consists of two phases:

110.9.7.1. 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 110.9.7.2, is not required. In cases where during phase one, the Milestone Inspector determines that **there are conditions which prevent** a visual, qualitative examination of the building for signs of substantial structural deterioration**, such as the presence of undocumented prior repairs and/or renovations, and/or inadequate building historical information,** then a phase two inspection per Section 110.9.7.2 is required in order for the Milestone Inspector to further conduct exploration, analysis, and/or testing as needed (e.g. GPR, removal of drywall, computational analysis, load testing, etc). An architect or engineer who completes a phase one milestone inspection shall prepare and submit an inspection report pursuant to Section 110.9.8.

Option 4 – BROAD, CONTEXT TRIGGER:

110.9.7. A milestone inspection consists of two phases:

110.9.7.1. 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 110.9.7.2, is not required. In cases where during phase one, the Milestone Inspector determines that **the building's condition, history, or layout prevent** a visual, qualitative examination of the building for signs of substantial structural deterioration, then a phase two inspection per Section 110.9.7.2 is required in order for the Milestone Inspector to further conduct exploration, analysis, and/or testing as needed (e.g. GPR,

removal of drywall, computational analysis, load testing, etc). An architect or engineer who completes a phase one milestone inspection shall prepare and submit an inspection report pursuant to Section 110.9.8.

Option 5 – BROAD TRIGGER:

110.9.7. A milestone inspection consists of two phases:

110.9.7.1. 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 110.9.7.2, is not required. In cases where during phase one, the Milestone Inspector determines that a visual, qualitative examination of the building **is not sufficient** to determine signs of substantial structural deterioration, then a phase two inspection per Section 110.9.7.2 is required in order for the Milestone Inspector to further conduct exploration, analysis, and/or testing as needed (e.g. GPR, removal of drywall, computational analysis, load testing, etc). An architect or engineer who completes a phase one milestone inspection shall prepare and submit an inspection report pursuant to Section 110.9.8.

***ADDITIONALLY**, regardless of which Trigger Option above is selected, the below items need to be updated to reflect the changes in 110.9.7.1:*

110.9.7.2. A phase two of the milestone inspection must be performed if any substantial structural deterioration is identified during phase one and/or when triggered by the conditions described within Section 110.9.7.1 are present. 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. An inspector who completes a phase two milestone inspection shall prepare and submit an inspection report pursuant to Section 110.9.8.

110.9.8. Upon completion of a phase one or phase two milestone inspection, the architect or engineer who performed 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, 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 who performed 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.

(g) When applicable, identify the items which triggered a phase two inspection (phase one report), and how each item was addressed and/or remedied (phase two report).

Relevant Background Material:

The below information is provided for the convenience of the EBIWG Members.

The below descriptions are examples of how the conditions listed in Option 1 can prevent a visual examination from identifying substantial structural deterioration within phase one, thereby requiring Phase 2:

1. **Absence of construction documents**
    a. The building does not have accessible, complete, or legible structural, architectural, and civil as-built plans (including the delegated design plans) and/or construction documents which are adequate for the Licensed Professional to evaluate the original design intent in a qualitative/conceptual manner. Further exploration, calculation, and/or testing is necessary to determine the layout and original design intent of the building, thereby requiring a Phase 2.
2. **Existing Conditions which differ from and/or overload the original Structural Design Intent**
    a. The building is found to have been constructed in a manner that is not in accordance with the construction documents, such as the presence of additional levels, changes to column grids and/or heights, and or renovations on any elevated level, interior or exterior, with a material that exceeds the original design load of that level, to include flooring, wall cladding, planters, decking, pavers, equipment, storage, and/or decorative elements. Such items may overload the structure and/or conceal signs of distress, requiring further exploration and/or calculation. Calculations, exploration, and/or testing are necessary to determine if the structure has been weakened or overloaded by the existing conditions, thereby requiring a Phase 2.
3. **Undocumented, Unsealed, and/or Unpermitted Prior Repairs and/or Renovations**
    a. The building has undocumented prior repairs (no photographs of conditions prior to repairs), unsealed prior repairs (no signed and sealed structural plans for repairs), and/or unpermitted prior repairs (no building permit and/or inspections of work for repairs). Such “repairs” include repairs of cracks, spalls, corrosion, exploratory work, and the building envelope, and effectively erase the obvious signs of building distress, rendering a visual inspection ineffective. Additionally, unpermitted or unsealed repairs or renovations may have been done incorrectly, thereby inadvertently weakening or overloading the structure. Calculations, exploration, and/or testing are necessary to determine if the structure has been weakened or overloaded by the undocumented repairs/renovations, thereby requiring a Phase 2.
4. **Undocumented interior/exterior cladding/paint conditions prior to most recent application/installation**
    a. The building has undergone interior or exterior cladding and/or paint application or renovation in the recent past of the milestone inspection, without photo/video documentation of the interior/exterior conditions during and prior to such

application/renovation. Undocumented interior/exterior coating applications inadvertently conceal signs of substantial structural deterioration prior to milestone inspections. Further exploration, calculations, and/or testing may be necessary to determine the condition of the building following the discovery activities, thereby requiring Phase 2.

5. **Inadequate load path of lateral and/or vertical system**
    a. **Discovery of Structural Design Issues**
        i. The review of the structural as-built plans reveals that there is no lateral system in each orthogonal direction of the building and/or its isolated frames, there is no designed or specified load path for the lateral system(s), and/or the structural design features obvious deficiencies based on the inspector's experience and knowledge. Calculations and exploration are necessary to determine the magnitude of the issues, thereby requiring a Phase 2.
    b. **Discontinuity of Load Path**
        i. The building is found to have visible and/or plan-based discontinuity of load path of the main lateral and/or vertical system, including the connections, exterior walls, interior diaphragms, and/or foundations. Such "discontinuity" could be the result of damage, construction defects, and/or deterioration. Calculations and exploration are necessary to determine the magnitude of the issues, thereby requiring a Phase 2.
6. **Need for repairs which will require substantial shoring**
    a. The repair of any "less than SSDet" resultant from Phase 1 which will require the use of vertical gravity shoring supporting a transfer level and/or more than one level of load, lateral shoring, and/or vertical tension shoring. Such a repair and shoring effort indicates that there is potential for isolated or progressive collapse during the repair work. Further calculations and exploration may be necessary to determine the extent of the progressive collapse area.