From: Gascon, Jaime (RER) [mailto:Jaime.Gascon@miamidade.gov]
Sent: Thursday, July 28, 2022 3:17 PM
To: Madani, Mo
Cc: Clarke, Lundy J. (RER)
Subject: RE: Upcoming meeting EBIWG

Good afternoon Mo,

I will be available to attend the meeting, and I am providing you the following list of recommendations for consideration by the Existing Building Inspection Workgroup.

1. When the building is a threshold building as defined in the FBC, the engineer or architect conducting the inspection and preparing the report must also be qualified as a Special Inspector by the State of Florida DBPR.

2. Use Miami-Dade County's General Considerations and Guidelines and the Structural Report Template (except the electrical guidelines and template) as the minimum reporting for compliance with the reports described in ss. 553.899. See guideline and templates attached.

3. Use the 22-point inspection procedure listed in FBPE October 2021 Newsletter article – A Look at Building Recertification… by John C. Pistorino, P.E., S.I. See: https://fbpe.org/a-look-at-building-recertification-in-south-florida/ or more specifically use the following:

   Engineers who inspect a building for the purpose of recertification should observe, as a minimum, the following procedures. (These are recommended procedures, and under no circumstances are these minimum recommendations intended to supplant proper professional engineering judgement.)
   1. Undertake an initial, cursory inspection for the purpose of becoming familiar with the general condition of the structure. Photographs may be taken at this time.
   2. Obtain the permit plans (original design) for the building if they are available.
   3. Research the permit history of the building, and become familiar with the previous work undertaken on the building, including concrete repairs, additions, modification to the main structure, reroofing, window and door replacement, painting, guard-rail repair or replacement, waterproofing, expansion joints, and all items that could affect the structural frame of the building.
   4. Obtain a list of observations or reports previously made by the management company or residents.
   5. Identify persons most familiar with the condition of the building, such as building maintenance engineers who may have extended experience with many aspects of the building.
   6. Obtain information on previous claims made to insurance companies, such as for hurricane damage, pool leaks, and water intrusion.

7. Obtain documentation on all service contracts, such as roofing.
8. Become familiar with the structural system and the main load-transfer components.
9. Create a check list of adjacent improvements that will be inspected, such as pool deck, seawall, retaining wall, rooftop equipment, etc.
10. Create a plan identifying and locating each structural component inspected, such as columns, soffit beams, and transfer beams. This will provide a documented history for each item to be included in follow-up inspections, including future 10-year recertifications.
11. Begin inspecting and evaluating at locations where the initial inspection documented deterioration and determined the failure mechanism.
12. Starting with the lower foundation or garage area, focus on the main supporting-load-bearing systems of the building (columns, pile caps, structural slabs, cast in place transfer beams and framing beams and joists. Observe and make note of each element observed.
13. For reinforced concrete, begin by using the traditional sounding technique of a tapping hammer. This method will provide a strong ping for solid concrete and a dull sound for hollow concrete that may have internal spalling, delamination of concrete cover, and void areas. The use of simple equipment, such as tape measures, depth gauges, keel markers, and caliper gauges, is recommended. Information is noted together with sketches, photographs, and even video. This is referred to as nondestructive testing (NDT) and allows for a quick determination of the overall condition. Soundings, as they are called, are the first of the NDT methods.
14. Observe all cracks, and denote their configuration with sketches. Pay particular attention to those that are subject or exposed to water intrusion. Determine the cause of such cracks if possible. Strain gauges may be installed on cracks that are not caused by corroding steel but may be the result of settlement, overstressing, or movement. Such strain gauges can be electrically monitored if desired. In addition, elevations of critical members may be established to monitor movement using benchmarks from a licensed land surveyor. The use of feeler gauges and crack-width meters will document the size of the cracks at the time of inspection.
15. Observe and note any corrosion stains and their sources.
16. If spalling is evident at the surface of concrete members, it may be removed with a handheld non-mechanical chipping hammer to expose the steel. A photograph of the condition should be made first. Such spalled concrete is no longer providing strength or support to the member and may be removed. Ensure that a maintenance person or assistant is available to collect and preserve the removed pieces. Spalled, damaged concrete is usually removed to expose sound concrete. The removed concrete may be tested for chloride ion, strength, sulfates, and carbonation.
17. Observe the condition of the embedded steel behind the removed spalled concrete, and measure its diameter. Compare the existing diameter with the original size as constructed.
18. Observe the bond of concrete behind the exposed embedded steel.
19. Evaluate the surrounding concrete for strength and consistency by observing and probing with a handheld tool. If the evaluation indicates low or significantly reduced characteristics, a core sampling location must be determined so that a laboratory can test the in-place concrete for strength, carbonation, sulfates, PH, and chloride ion content. Refer to ACI PRC-214.4-21 as a guide to obtain cores and interpret compressive strength results in accordance with ACI 301. The inspector can assess the issue of poor

consolidation in the concrete by using nondestructive techniques of ACI 228.2R-13, *Report on Nondestructive Test Methods for the Evaluation of Concrete in Structures.*

20. In-place strength values including sample size and locations can be selected using ASTM E122-17 and ASTM C823/C823M. Obviously as sample size increases, accuracy improves, but do not risk weakening the structure.
21. Other methods for NDT testing include the use of Ferroscan magnetic equipment and Profometer to locate embedded steel. Such equipment will establish the presence of steel and the concrete cover if the size of the steel is known. Ground penetrating radar (GPR) is another useful method to be used with a consultant that offers those services.
22. Review and become familiar with the *ACI SP-2 Manual of Concrete Inspection* by ACI Committee 311**.** In particular, Chapter 11 has detailed recommendations about using NDT methods and destructive sampling testing (DST) methods in Tables 11.1 and 11.2 of that Standard. Methods include Windsor Probe, pulse-echo, impact-echo testing, short-pulse radar, infrared wave, x-ray, and petrographic testing.

4. Use the Coastal Construction Control Line (CCCL) as the line from which to measure the three-miles in from the coast; see line 229 of SB 4-D.

Thank you for the opportunity to participate in this process. Contact me with any questions.

Sincerely,

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