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Florida's Mandatory Structural Inspections

by

Peter J. Tavino, Jr. PE

Licensed in Florida since 1991





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Introduction:

The Florida Legislature passed Senate Bill 4D, and Governor Ron DeSantis signed into law on May 26, 2022, this statute requiring Licensed Engineers or Architects to perform structural inspections on all condos and co-ops that are three stories tall or higher. This has profound impact on the engineering business in Florida. It occurred before the devastating Hurricane Ian in September 2022. Section 553.899 as linked below (Mandatory structural inspections for condominium and cooperative buildings) was added to the Florida Building Code.

http://www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Statute&Search_String=&URL=0500-0599/0553/Sections/0553.899.html

I learned early in my career to put my textbooks on the shelf and refer to them only after I had followed the required regulations, codes or laws pertaining to my civil/structural engineering work.

The statute was passed with overwhelming support from state elected officials in response to the collapse of the Champlain Towers South residential condominium in Surfside, Florida. While intent is honorable, implementation is still unclear. This course seeks to provide guidelines going forth for Florida licensed professional engineers who will perform these inspections and for out of state engineers performing similar inspections for owners and insurance companies, etc.

Prior to writing this course for SUNCAM, I submitted an article to my local Florida newspaper that was published in the Commentary section as shown. This summary of the new law is provided below. For ease of reading, it is now part of this SUNCAM course: Link is here:

https://www.yoursun.com/venice/opinion/columnists/heres-how-condo-inspections-should-work/article_cf7854fa-7a59-11ed-9d5b-032d3b1c0909.html

Since Boards of Directors will be the ultimate client for Structural PE's, seeing their perspective in the article is worthwhile.

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COMMENTARY

Here's how condo inspections should work

The Nov. 13 60 Minutes television show was about Florida condos and co-ops. After the Surfside building collapse, our state legislature passed Statute 553.899 reducing the risk of further disasters.

Residential condo/co-op buildings three stories or higher must have a mandatory structural inspection every 30 years, and every 25 years if within three miles of the coast.

For buildings occupied "before July 1, 1992, the building's initial milestone inspection must be performed before December 31, 2024."

But those who wish to have the inspection done sooner than in two years may do so. The City of Venice Building Department will receive inspection reports soon.

Milestone inspection reports must be performed, sealed and signed by a Florida licensed engineer or architect. Phase One is a visual inspection.

If needed, phase two might involve destructive or nondestructive testing, plus repair recommendations. Some see this as a gold mine opportunity for qualified structural professionals.

All condo/co-op owners receive a copy, for which their association must pay.

Florida Attorney Eric Glazer was interviewed on 60 Minutes. He trains and certifies condo and HOA Board members like me at the Tampa condo shows.

Glazer has a call-in show on radio station 850 AM WFTL Sunday mornings, 11 a.m., from West Palm Beach called "Condo Craze and HOAs."

Our condo owners watched it this week in our clubhouse on its YouTube channel. Last week's topic was "Who would be crazy enough to be on a Condo Board?"

Glazer said last week that Florida building permits are issued to general contractors who are responsible for the work.

They hire whom they like, but the building departments hold only the licensed contractor accountable for the work done to code. Glazer noted that engineers/architects hire others to do the actual mandatory structural inspection of the condos/co-ops.



PETER TAVINO
Guest Columnist

I emailed Attorney Glazer that the statute is stricter, requiring the professional to "prepare" the report based on visual examination, not just issue it. We can expect the sealing person to be on the job and not just rubber stamp photos by employees or subcontractors.

The Florida Board of Professional Engineers requires us to pass ethics tests every two years when we renew our licenses. They can enforce abuse of clients by engineers who do not prepare the report as required.

Glazer discussed structural inspections this week. A caller spoke to several structural engineers who are busy with new construction.

They do not plan to offer inspection services, even though they are qualified. Liability insurance is the issue.

Normally, we engineers can seal a drawing and not worry about risk because we carry liability insurance. But the new law requiring mandatory structural inspections also requires fully funded repair reserves, with cost estimates prepared by the engineer/architect.

No longer can a board declare that the association has enough reserve for painting, roof, asphalt, etc. In two years, the condo/co-op needs reserve money for everything the engineer/architect determines, including electrical and plumbing.

If these cost estimates are off, the liability insurer will not happily pay. Liability insurance premiums are heading the way of homeowners' premiums, straight up.

This has nothing to do with hurricanes and needs common sense resolution. Offering \$50,000 financing to unit owners like Miami is now doing is not the solution.

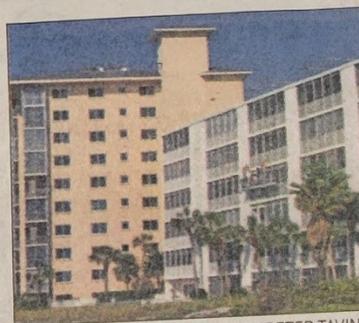


PHOTO BY PETER TAVINO

Residential condo/co-op buildings three stories or higher must have a mandatory structural inspection every 30 years, and every 25 years if within three miles of the coast.

While inspection may be a cost burden to condo/co-op owners, apartment owners have an advantage over single family homeowners with bank mortgages who must have homeowners' insurance.

My condo insurance cost is split through the association for exterior claims and personal for interior claims. It does not matter if we have a mortgage.

My exterior insurance premium share paid through my quarterly fees is \$1,000 per year. My personal interior insurance is \$500 a year. Condo/co-op insurance savings should offset inspection costs.

And future buyers of my condo know repair reserves are in place unlike a single-family home.

My condo had a structural inspection performed as requested by our insurance company. We need not get another inspection until 2032. But we must keep our reserves robust.

We remain vigilant that our structure stays in good repair. We fared okay after Hurricane Ian, and we look forward to enjoying our building in safety, with pleasant surroundings and happy neighbors going forward.

Peter Tavino PE is a Venice condo association board member and Florida licensed engineer.



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Mandatory Structural Inspections Newspaper Commentary

Column by Peter Tavino Professional Engineer

The November 13 *Sixty Minutes* television show was about Florida condos and co-ops. After the Surfside building collapse, our state legislature passed Statute 553.899 reducing the risk of further disasters. Residential condo/co-op buildings three stories or higher must have a Mandatory Structural Inspection every 30 years, and every 25 years if within three miles of the coast.

For buildings occupied “before July 1, 1992, the building’s initial milestone inspection must be performed before December 31, 2024.” But those who wish to have the inspection done sooner than in two years may do so. The City of Venice Building Department will receive Inspection Reports now. (Later revised to “soon” or “once the application process is implemented”.)

Milestone inspection reports must be performed, sealed and signed by a Florida Licensed Engineer or Architect. Phase One is a visual inspection. If needed, phase two might involve destructive or nondestructive testing, plus repair recommendations. Some see this as a gold mine opportunity for qualified structural professionals. All condo/co-op owners receive a copy, for which their Association must pay.

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Glazer said last week that Florida building permits are issued to General Contractors who are responsible for the work. They hire whom they like, but the Building Departments hold only the Licensed Contractor accountable for the work done to code. Glazer noted that Engineers/Architects hire others to do the actual Mandatory Structural Inspection of the condos/co-ops.

I emailed Attorney Glazer that the statute is stricter, requiring the professional to “prepare” the report based on visual examination, not just issue it. We can expect the sealing person to be on the job and not just rubber stamp photos by employees or subcontractors. The Florida Board of Professional Engineers requires us to pass ethics tests every two years when we renew our licenses. They can enforce abuse of clients by Engineers who do not prepare the report as required.



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Normally we Engineers can seal a drawing and not worry about risk because we carry liability insurance. But the new law requiring Mandatory Structural Inspections also requires fully funded Repair Reserves, with cost estimates prepared by the Engineer/Architect. No longer can a Board declare that the Association has enough Reserve for painting, roof, asphalt, etc. In two years, the condo/co-op needs Reserve money for everything the Engineer/Architect determines, including electrical and plumbing. If these cost estimates are off, the Liability Insurer will not happily pay. Liability insurance premiums are heading the way of homeowners' premiums, straight up. This has nothing to do with hurricanes and needs common sense resolution. Offering \$50,000 financing to unit owners like Miami is now doing is not the solution.

While inspection may be a cost burden to condo/co-op owners, apartment owners have an advantage over single family homeowners with bank mortgages who must have homeowners' insurance. My condo insurance cost is split through the Association for exterior claims and Personal for interior claims. It does not matter if we have a mortgage or not. My exterior insurance premium share paid through my quarterly fees is \$1000 per year. My Personal interior insurance is \$500 a year. Condo/co-op insurance savings should offset inspection costs. And future buyers of my condo know Repair Reserves are in place unlike a single-family home.

My condo had a structural inspection performed as requested by our insurance company. We need not get another inspection until 2032 per FS 553.899(3). But we must keep our Reserves robust. We remain vigilant that our structure stays in good repair. We fared okay after hurricane Ian, and we look forward to enjoying our building in safety, with pleasant surroundings and happy neighbors going forward.

Peter Tavino PE is a Venice Condo Association Board Member and Florida Licensed Engineer.

After publication I was contacted by readers who provided further insight for this course. Thank you.



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YourSun.com newspaper link

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Word Document

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Building Inspections History

The history of Structural Inspections dates back years. Formal structural inspection programs of bridges began in 1983 after the collapse of Connecticut's Mianus River Bridge over Interstate I-95 that was built in 1956. State Departments of Transportation implemented scheduled inspections by Professional Engineers.

Originally, the PE would attend state sponsored training and lead a crew that inspected bridges with photography documentation. We used handwritten forms before the conversion to digital input.

After these initial inspections, scheduled inspections occur year-round.

I was team leader for Manhattan (New York City) bridges including the beauties in Central Park and the old Willets Avenue Bridge connecting Manhattan to The Bronx. I am shown to the right.



The Port Authority later hired the firm where I was employed to inspect the 110 story North Twin Tower at the World Trade Center in 1990. As team leader PE we modified the bridge forms to be used as building forms. Of course, there was much less rust within weathertight building envelopes. Informal building inspections have also been a source of engineering business from owners, banks, insurance companies and government agencies.

Broward County 40-year Inspection Law

In Florida, because of Miami's location in a hurricane prone zone, one model for structural inspections is the 2006 Broward County 40-year inspection law based on Miami-Dade County's program :

<https://www.broward.org/CodeAppeals/Documents/40YBSI-INFO-Rev.6-15.pdf>

This has helpful forms such as this below and checklists for structural engineering firms to follow. Broward and Miami Dade also have additional regulations covering 2 story buildings. In early 2023, a new form (plus certification) is being considered by the Florida Building Commission as shown in the legal link at the end of this course.



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Broward County Board of Rules and Appeals Policy # 05- 05

Effective: 01/01/06

Building Safety Inspection Report Form Amended 03/15/12
STRUCTURAL



Building Information

Building / Structure address
Legal description
Folio # of Building /Structure
Owner's name
Owner's mailing address
Building Code Occupancy Classification
Type of Construction
Size (Square footage)
Number of Stories

Inspection Firm

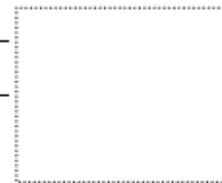
Inspection Firm or Individual
Address
Phone
Inspection Commencement Date
Inspection Completion Date
Inspection made by

In accordance with Section 110.15 of the Broward County Administrative provisions of the Florida Building Code and the Broward County Board of Rules and Appeals Policy # 05-05 the required safety inspection has been completed.

- No Repairs required
Repairs are required as outlined in the attached inspection report.

Licensed Professional Engineer / Architect
License #

" I am qualified to practice in the discipline in which I am hereby signing."



Seal

Signature and Date

As a routine matter, and in order to avoid possible misunderstanding, nothing in this inspection Report Form, attached Minimum Inspection Guideline and our Non-Destructive Observations, should be construed directly, or indirectly, as guaranteed or warranty for any portions of the structure.

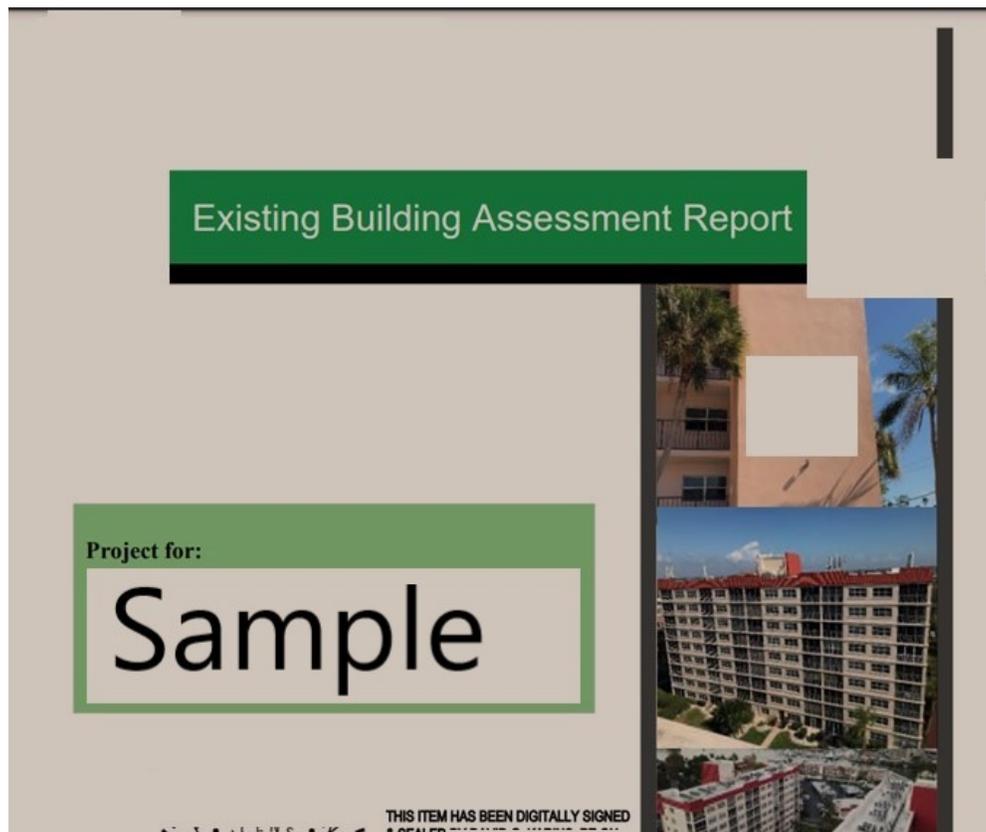


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Since there are so few cooperative buildings in Florida when this course uses the short cut term “**condo**”, it means condominium or cooperative. When it says “**PE**”, it refers to a licensed Professional Engineer in Florida with structural experience, (but not necessarily a structural license like in earthquake prone California or Maine, etc.) This also covers Architects licensed in Florida, but their work of structural analysis related to their design is still in question. SUNCAM is primarily for engineers, so the term PE will be used going forward. No test questions are based on links provided because they are for additional important knowledge.

Structural Inspection Analyses performed before Statute enactment

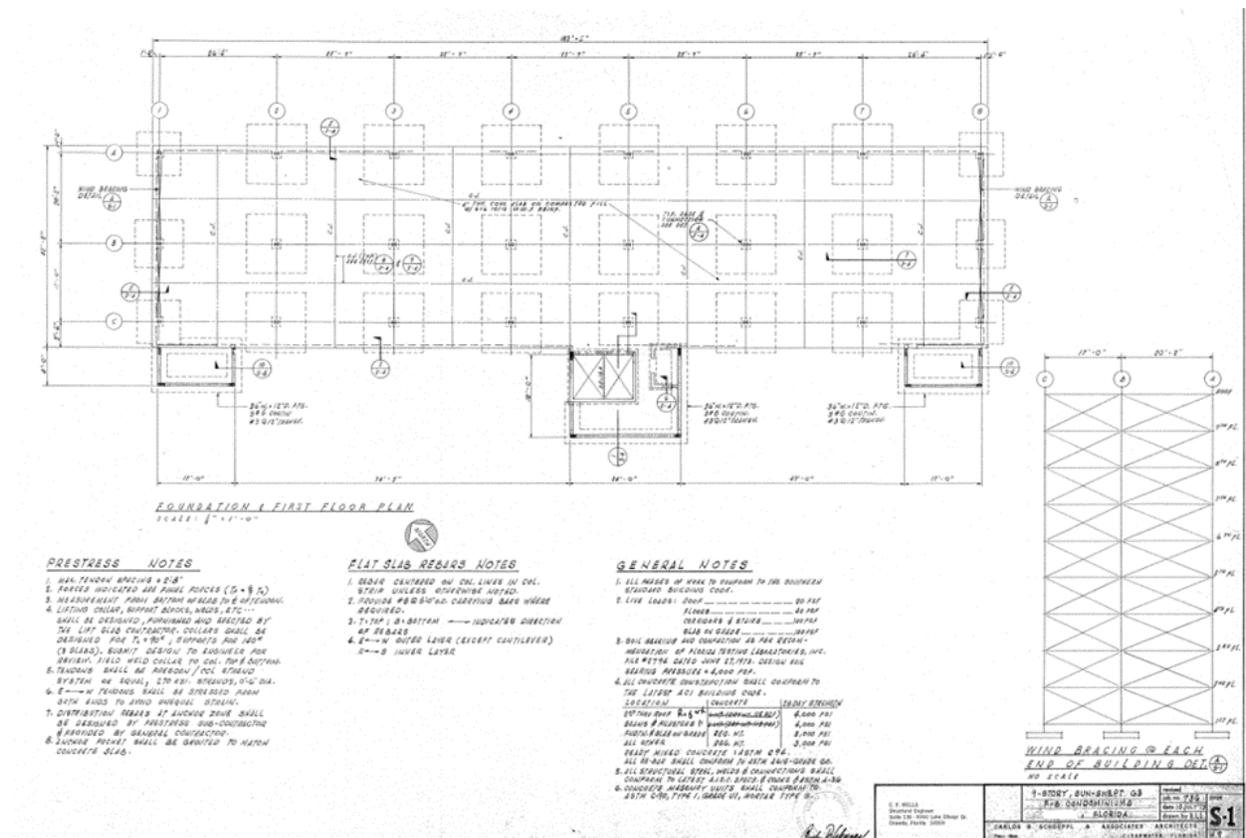
Before the Statute was passed, the condo where I serve on the Board of Directors was requested by our Insurance Company to have a structural inspection performed by a PE before they would renew our policy with very high deductible. A sample redacted cover sent to me is attached for SUNCAM readers to see a typical front page.



Report Sample Cover page before Statute enactment

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Based on this report as mentioned in the Commentary article, our Insurance Company renewed our policy before the Ian Hurricane. (But with a \$580,000 deductible per building, no claim was made for the approximately \$30,000 in storm damage to be covered by the condo owner quarterly fees.) This report for which our condo association paid the engineering firm showed that we have a good structure. (They used 4000 psi concrete with prestressed cable tendons in the 70's, and the parking garage structure is distant from the residential buildings. Foundations under each column line are on substantial spread footings. See Structural plan S-1 below.)



There were some minor stucco type caulk repairs etc. that were reported, but the structural integrity of the 45-year-old plus building towers are fine. There was no major hurricane damage months later and none structurally.

After the statute was passed, our management company attempted to submit this report to the Building Department after a discussion that was later shown to be unclear. The Building Official emailed he awaits “local language adopted to define local timelines, fees and penalties, as Senate Bill 4-D outlines is the local jurisdiction responsibility.”



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The city (or county) will develop an application means and review and accept and file the Mandatory Structural (Milestone) Inspection reports. Then the Building Department will request reports within 180 days with plenty of time to meet the 2024 deadlines. Whether the 40-year inspection modeled after Broward County is sufficient to meet Phase 1 requirements is to be determined.

Phase One - Visual Examination

Here are sample photographs and condition comment of structural members.





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Above is a deteriorated column, with substantial rust at the base floor level, where sand and water accumulate. The all-important flanges have been repaired with welded angle irons and have some structural strength. But the web has distress.

While the web might not count toward compressive strength, it does hold the flanges together and assists in shear. It cannot just be eliminated for design strength. After the rust was removed and rust inhibitor coats were applied, the column was white spray painted. The inspector's pocketknife can be placed through a half inch diameter hole in the steel web.

If this column was supporting habitable or non-habitable areas of a building, the PE (in my opinion) should recommend a phase two study. The statute (in blue font) requires the PE to

“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.”

Looking though photographs should not be enough, because photos can be deceiving compared to actual visual examination. Note the pocketknife penetrating the web. This indicates that surrounding web thickness and integrity are compromised. A column like this measuring 8” x 8” is surely load bearing and a primary structural member according to the Statute requiring:

inspection of load-bearing walls and the primary structural members and primary structural systems

This steel column is an example of substantial structural deterioration.

“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.

Fortunately, this column is located in a garage with a deck above and not a building. It is exposed to weather and drainage water on the concrete parking slab. It is not subject to Statute 553.899. If there was a building or habitable or non habitable (mechanical rooms and common halls, etc.) located above it, it would be subject to the new law. So open parking beneath two habitable floors above needs special attention. But from a practical standpoint, residents would have alerted their condo board and management company if such a condition existed beneath and supported their living space. If this was in a hidden closet not accessible to residents, the new law would discover it. A two or lower story building might also have support like this, but



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typically PE's can expect three and greater story high rises to have steel columns like this embedded in concrete.

Besides having substantial structural deterioration, the steel column shown above, if supporting a building above would be an example of a primary structural member and part of a primary structural system. These terms are defined by Statute 627.706.

“Milestone inspection” means a structural inspection of a building, including an inspection of load-bearing walls and the primary structural members and primary structural systems as those terms are defined in s. 627.706

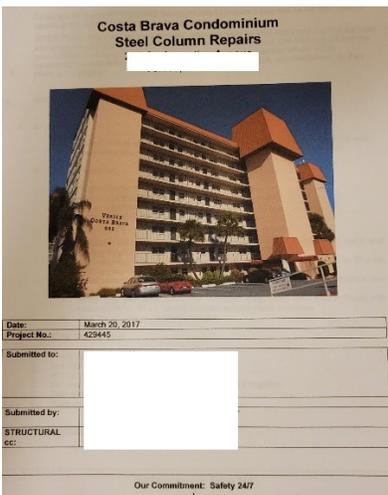
Florida Insurance Rates and Contracts statute 627.706 may be found here

http://www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Statute&URL=0600-0699/0627/Sections/0627.706.html

(3) (d) “Primary structural member” means a structural element designed to provide support and stability for the vertical or lateral loads of the overall structure.

(e) “Primary structural system” means an assemblage of primary structural members.

Following up on this case study, a proposal was received to blast all yellow paint off all the column lengths and repaint. It was not accepted because 95% of the typical column is fine. The bottom portion often covered in wet sandy mud and thus subject to paint failure and rust is what needs the attention. The rip everything out or off and start again approach is impractical.



The Proposal was for steel columns in the parking garage supporting the single overhead prestressed concrete slab deck. But the paperwork cover shown on the left included a picture of the residential tower, not the subject garage space.

The Board rightly rejected this expensive quote and focused on strengthening the column bases with welded angle irons.

But lack of maintenance for five years led to more rust as was shown above.



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Phase one continued:

Here is a steel column encased in concrete. The PE knows this because the building design plan below shows the detail.

	<p>This is located on the fourth floor and accessible through the condo unit at the lanai. The superficial stucco has cracked substantially, but this is cosmetic only and stucco is not a “primary structural member”.</p> <p>From a PE visual inspection, there is a hairline crack in the concrete encasement of the steel column.</p> <p>Referring to the Statute again, this only falls within the category of surface imperfections such as cracks. It has probably since been mortar caulked by the painter called in to repair and paint the stucco.</p> <p>In a phase one report, it is beyond the PE statute obligation to include this. But this is what PEs do to be thorough and informative beyond the scope of required work. The condo association paying for the phase one report must decide if this extra work is valuable or necessary.</p>
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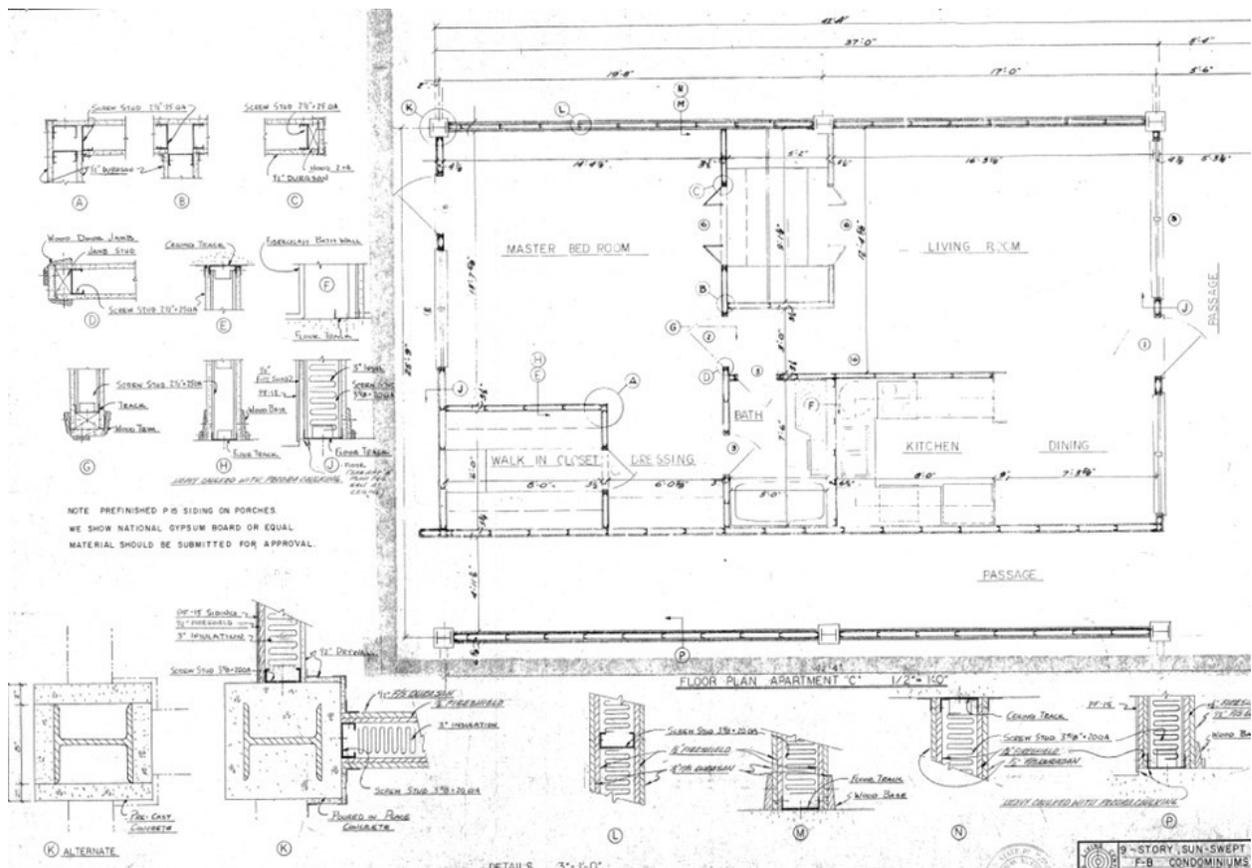
Below is the structural building plan from the 1970s associated with the column crack shown above. It is a typical design drawing for the 25- and 30-year-old structures being inspected. Note that AutoCAD was in its infancy when the subject plans were drawn manually. The complete set was obtained digitally from the City by written request. The image below is



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part of a 44 page 42 mb .tif file opened with the Windows Photo Viewer program. The blueprints were also available in paper copy in the condo files. No As Built drawings were available for this project.

Note that there were two options for concrete encasing the steel "H" columns. But they are structural steel and not rebar. See detail K below in lower left-hand corner.





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Timber trusses and roofing structure as seen from attic access

Experience and good communication are important as resolved in this case.

If this were a roof to a three-story condo building, the dark colored water stains on the 2 x 6 rafter could be of concern. Discussion with the board or maintenance manager revealed that it was indeed a failure of the plywood decking and roofing membrane above; but a report provided by the board showed that **the deck was replaced a few years earlier** and no further water intrusion was observed. The plywood above was found to be newer but the rafters needed no replacement. The old stains need not be considered occurring to a substantial structural member requiring Phase 2. Discussion in lieu of a Phase 2 should be considered.

If however the stains were substantial, and repairs were not made to plywood above, a phase two inspection could be ordered where a penknife could be used to see if there is substantial wood rot beneath the dark stain color surface. While the phase one PE might be tempted to probe the wood with a knife as is traditionally done, that is beyond the scope of the Statute.

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The visual inspection of the intact metal galvanized steel truss connector plates reveals no substantial structural deficiency. There are not extensive visible shiner nails that did not embed into the rafter. Remember that phase one inspection is not to enforce code compliance.

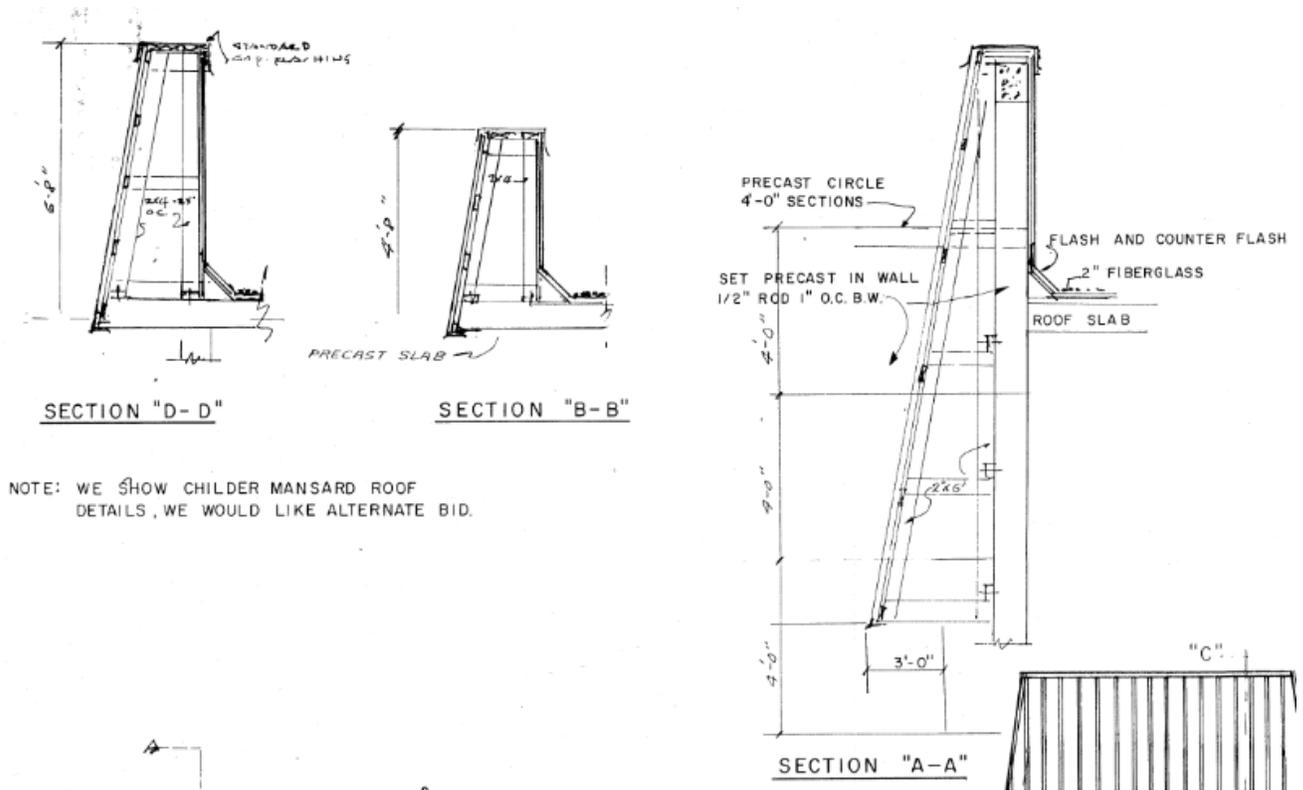
Hurricane Ian damaged the foam board protecting the plywood parapet rising above the flat roof.

Although this appears severe, the plywood is the structure, not the (fire rated?) one inch thick foam board with white acrylic elasometric roof coating. As long as the blue and brown roof tarps are applied to keep stormwater from deteriorating the plywood or 2" x 6" framing beneath it, this does not warrant a phase one report photo because it is not structural.

The structure is 2" x 6" not 2" x 4" by reading the drawing detail Section A-A shown below. The plywood if damaged is not a primary structural member either in the author's opinion. It's repair would fall outside this Inspection program jurisdiction.



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Roof Parapet Section Detail from Design Drawings

Whether a parapet is considered a major structural system is to be determined. The building would still stand if the entire parapet was blown off in a hurricane. Perhaps how it is connected by cantilever, etc., is relevant. Note the damage to the vertical surface caused by wind. Therefore, hip roofs comprising 90% or more of a residential roof see a reduced insurance premium rate. Vertical gable ends are more susceptible to wind damage than horizontal or mildly sloped roof surfaces. Understanding wind forces on structures is a critical skill inspecting PEs must have.



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Camera image looking almost straight up at a condo soffit

This picture shows that Hurricane Ian blew about 35 square feet of red metal soffit panels off the property from their 75-foot height. With binoculars, the PE can ascertain that the 2" x 6" or 2" x 4" framing (unlabeled in detail Section A-A) was not substantially distressed. The façade integrity that poses a danger to pedestrians below might be considered significant, but it is not a primary structural member. This Florida program is not similar to New York City's Façade Inspection & Safety Program (FISP), once known as Local Law 11/98 with scaffold issues repairing six story and higher sidings.

Again, this extensive damage would not warrant phase one attention. In general, hurricane wind damage is a separate issue. High rise condos built to stricter building codes with steel and concrete instead of wood frame will resist wind forces better, although fenestration and gable style roofs remain vulnerable. The legislation was written before the Ian Hurricane, and its implementation would probably not have affected property damage totals in the author's opinion.

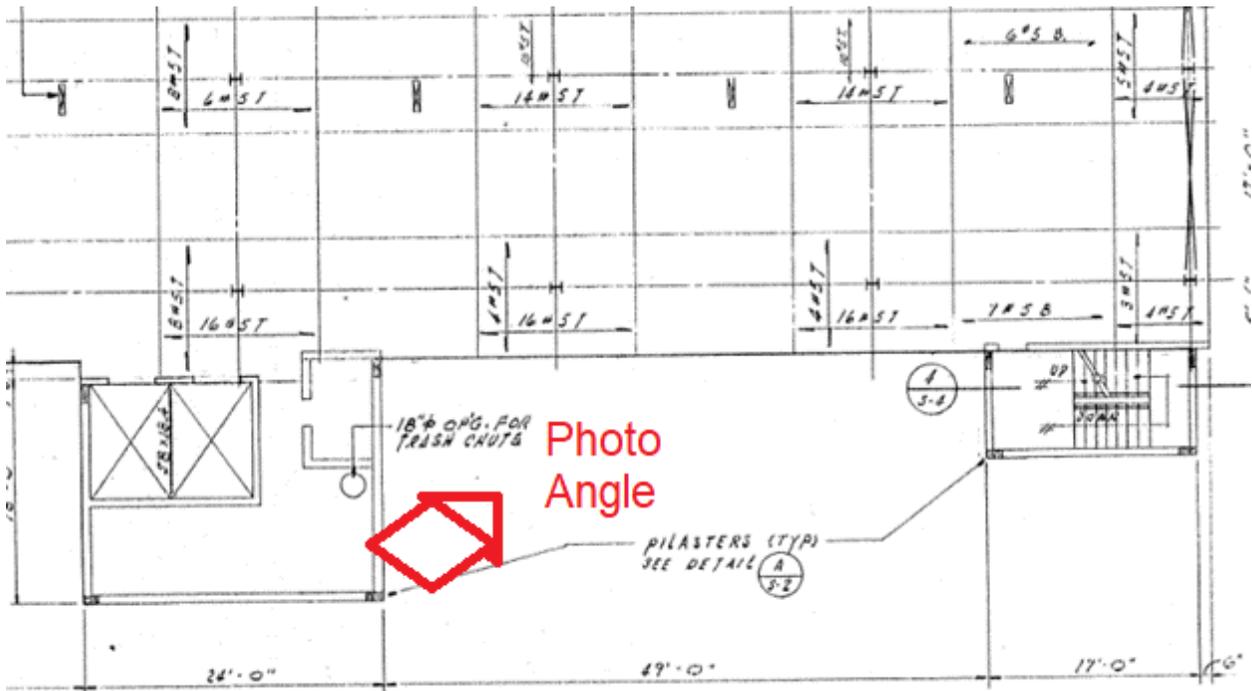
Walkways that structural engineers often check are addressed next.

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Walkways and balconies may or may not be integrated with the building structure as to be considered a primary structural member. See photo angle below. This example is primary.

Small balconies independent of the primary building structure. These balconies were constructed after the building was erected. They are not part of phase one.



From the plans above, the exterior reinforced concrete slab walkway passages are in a continuous cantilever pour with 16 number 5 rebars top running from the condo unit across the walkway. Certain failure here could affect the system, so these should be part of phase one. But with this strong design, failure risk is minimal.

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More examples of situations that do not affect phase one visual inspection:



The handrail to the left may need attention, especially if nearby supports are just as deteriorated.

But handrails are not “primary structural members” for “support and stability for the vertical or lateral loads of the overall structure”.



Similarly, **exempt** from this inspection are: condos under 3 stories, new construction of high-rise condos, single family homes, townhouses not meeting condo 3 story requirement, non-condo buildings like the shopping center below, etc.



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Surfside Building Collapse.

The twelve story Champlain Towers South building collapsed at about 1:20 am on June 24, 2021. Almost one hundred lives were lost. (May their souls rest in peace). Detail is here:

https://en.wikipedia.org/wiki/Surfside_condominium_collapse

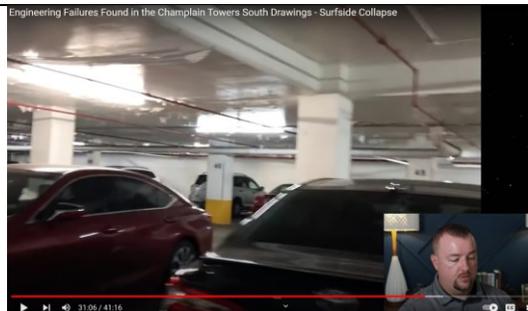
Insufficient reinforcing steel is one possible cause from the article. This last-minute construction change is described in a YouTube video by Building Integrity structural engineer Josh Porter – Saving time and starting at 25:40 will take only 15 minutes of time.

<https://www.youtube.com/watch?v=WaZcyq7YsNA>

In the author's opinion, agreeing with Josh Porter, the cause of collapse was not inadequate repair money but a time bomb waiting for a car to hit the under designed structure at 1:20 am. This delivered dynamic load to the two-way slab that lost its 1979 design support beams in a 1980 redesign to eliminate a 12" step. The shear load to the narrow columns was exceeded and started the domino effect. Snap shots from the publicly available video are shown. YouTube offers many more related videos for those interested.

	<p><i>The owner asked to remove the 12" step between the two levels. The step depths had reinforced concrete beams colored orange on the plan above. But the 1980 design omitted all beam rebar.</i></p>
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Josh Porter notes no beams existed in the garage level below, so the 1980 beam and rebar elimination occurred.





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Additional planter weight was added to the slab without beam support. The small column cross sections probably caused shear failure of the overloaded slab above, possibly when a car hit the planter at 1:20 am?

Engineering Failures Found in the Champlain Towers South Drawings - Surfside Collapse
LAST MINUTE CHANGE (01-17-1980)

36:16 / 41:16



<https://www.youtube.com/watch?v=WaZcyq7YsNA>

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Phase Two - substantial structural deterioration with possible testing Most buildings should not require phase two. If a more physical and in-depth inspection of a phase one defect is required, the PE may use traditional probing tools such as this MetalliScanner. This battery powered instrument locates nails that are not visible shiners. It can also be used to locate rebar and tendons if necessary for a non-destructive test.



Tavino's ZirconMetalliScanner MT6 finds ring shank nails. Exposed concrete floor.

If the PE requires concrete core cylinders be drilled and crush tested for compressive strength, a core drill from a concrete core drill services truck like below can be used especially in a unit whose floor is under construction if the unit owner allows. Such destructive methods need to be required by the PE only after special consideration.



Case study of phase two. This is not structural deterioration by time or natural cause. It was caused by the walkway painting contractor grinding old Marbelite and the concrete beneath it down to rebar. It shows the process to have a PE recommend, inspect & take responsibility for a permitted repair. A copy of the actual sealed report letter submitted is now presented below.



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Peter J. Tavino Jr., P.E. PC

Civil Engineering

P.O. Box xxxx

XXXXXXXXXX, FL XXXXX

xxxxxxxxxemail.com

xxxxxxxx cell

July 31, 2022

To: xxxxxxxxxxxx
Building Official
XXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXX

Re: xxxxxxxx, XXXXXXXXXXX FL Concrete Walkway Repair

Dear Mr. XXXXXXXX:

Please find the Engineering Design and Implementation report for your review.

BACKGROUND:

The XXXXXxxxxxx Condominium Complex comprises two buildings located at XXXXXXX. In April of 2022, the Condo Board hired a contractor to refinish two walkways, one in each of the two buildings. Specifically, the 8th floor in Xxxx building and the 5th floor in the Xxxxx building.

During the preparation (grinding) project phase, there were a few small areas where corroded rebar and prestressed tension cables were visible. Two minor nicks, less than 1” each, were observed in the tension cable sheathing. The structural cable was carefully examined at the areas where the nicks occurred and determined to be intact and in its original installed condition. The contractor was instructed by the Board to cease any further work until these areas could be properly repaired.



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After several months of weather exposure to the affected areas, work commenced to make the needed repairs. An assumption was made (in error) that a permit was not required as this work was not an alteration from the original 197X building plans on file. In later discussions with the City permitting department it was later learned that in fact the repair work did require a permit. .

This report outlines the size, location, and remediation process for the above affected areas. Please reference the Appendix below for additional details.

SUMMARY:

As Florida Professional Engineer # 44xxx with recent experience in concrete and rebar installation, I certify to the Xxxxxxx Condominium Association and to the City of Xxxxx that all work was performed properly and approved by me through my corporation Peter J. Tavino Jr. PEPC. The affected areas that were repaired are ready to receive pedestrian loads and protect the structural integrity of the reinforcing steel and concrete slab below.

Because I personally am a part owner of this Condominium Association, and in order to avoid a conflict of interest, I received no compensation from the Xxxxxxx Condominium complex for any engineering or labor work. I freely donate this service as is allowed in our regulations.

Thank you to the City of Xxxxxxx and Xxxxx Board of Directors for working through this unusual activity. Please don't hesitate to contact me if there are any questions.

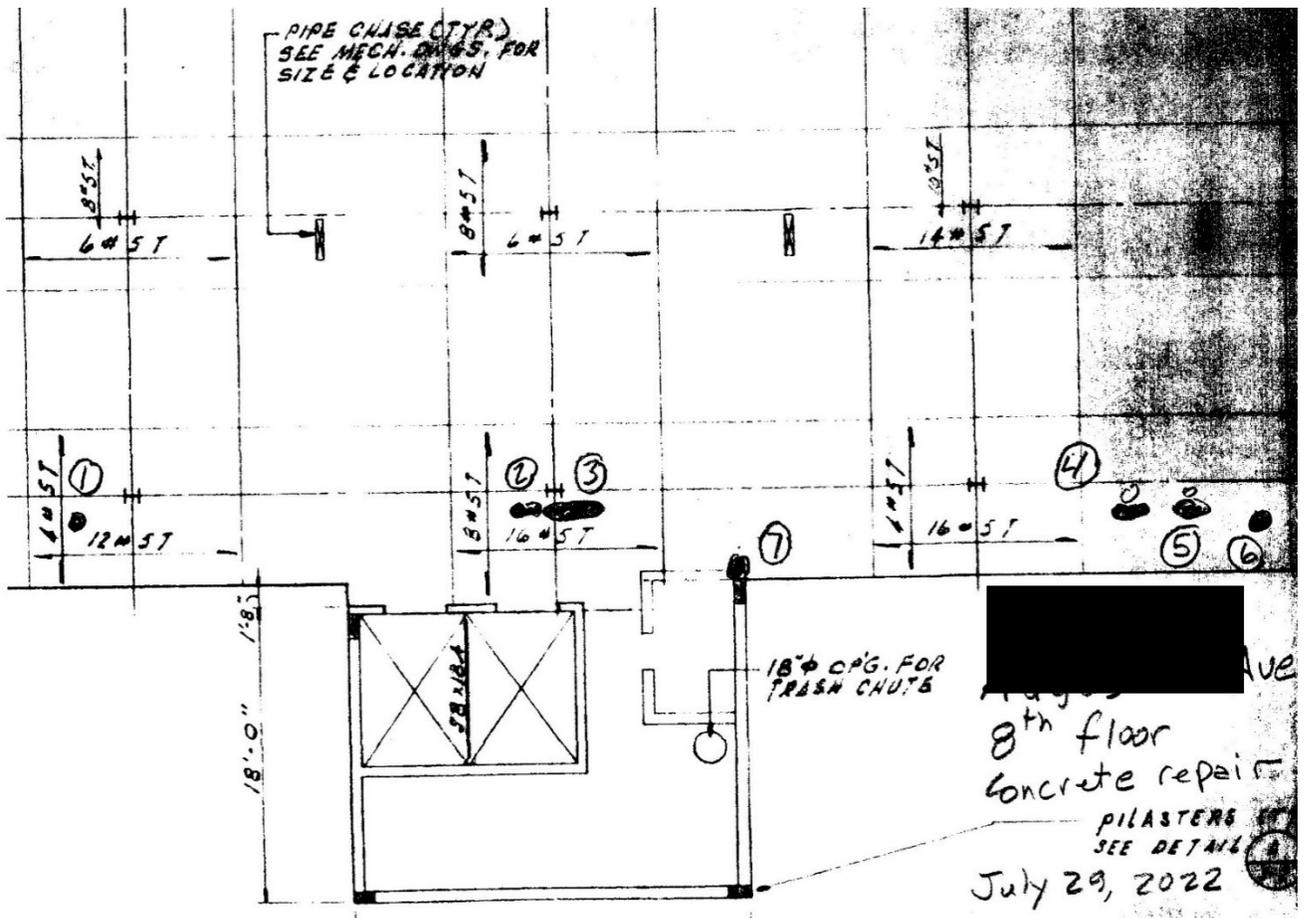
Sincerely,

Peter J. Tavino Jr. PE

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Appendix

Item#1 - The numbered locations of the repairs are as shown below for the Xx Building.



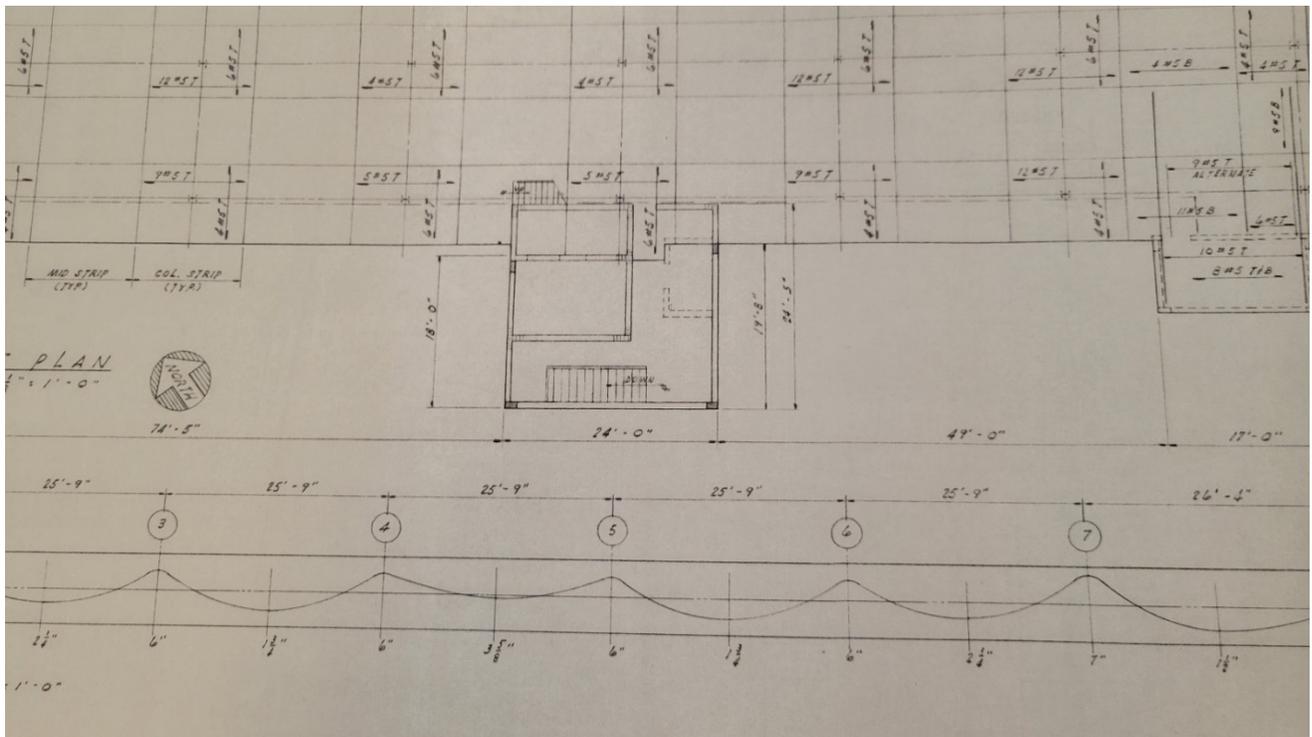
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Item#2 – repair areas (sq footage) for Xxxxx building.

1	0.3 sq ft.	5	2.3 sq.ft.
2	1.7	6	0.4
3	8.0	7	1.0
4	0.7	Total	14.4 sq. ft.

Item #3 – Xxxx building has only one square foot located between units 502 and 503.

Item #4 – Prestressed Tension Cable profile from construction drawings.



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Item #5 – Detail of largest repair area in Xxx Building (referenced as location 3).



Notes:

- a. This picture is before any remediation work began.
- b. These are 4-foot and 3-foot lengths of #5 top rebar with green Prestress Tension Cable sheathing between.
- c. The yellow is old epoxy from a previous repair.

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Item#6– Close up of largest repair area in Xxx Building.



Notes:

- a. nick in the green sheathing as shown close up and circled in Red.

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Item#7 – Preparing work on large repair area in 244 Building.



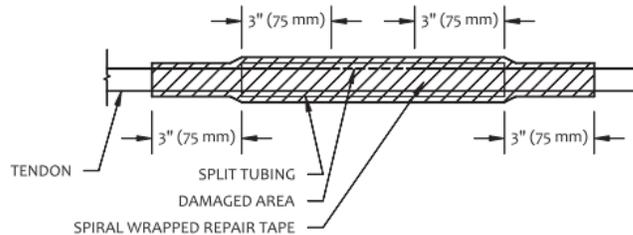
Notes:

- a. Conduct hammer tapping testing to identify any non-bonded concrete pieces. Use extreme caution in area located next to the Tension Cable.
- b. NOTE: there were no peripheral cracks emanating from this repair area and no spalling or cracking in the ceiling directly underneath.
- c. Hard cold small chisel used to carefully remove any unbounded/loose concrete and old epoxy located in the repair area.
- d. Wire wheel and soft wire and plastic brushes used to remove flaking rust from rebar. (Note: No flakes exceeding 1/16" inch were observed.)
- e. Verify that vast majority of #5 bar is intact. Note ribs where possible.
- f. Remove all dust caused by rebar rust remediation to prepare for epoxy.
- g. Mix two-part epoxy and apply over entire rebar area.

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Item#8 – Diagram from Post Tension Cable Institute showing recommended procedure

(b) Spirally wrap the entire length of the damaged sheathing area with repair tape and extend past tubing by 3 in. (75 mm). Tape repair should be smooth without folds.



Note: Material used should be of suitable quality to allow for seal of aforementioned tubing method to be watertight

If no significant portion of the original sheathing is missing (that is, nicks or cuts of 1/4 x 2 in. [6 x 51 mm] size), then taping can be used in place of the aforementioned method by spirally wrapping a minimum of two layers of repair tape extending a minimum of 3 in. (75 mm) past the damaged area in both directions.

Notes:

- a. Waterproof tape must extend at least 3 inches past the nick.
- b. Sheathing must be cleaned of any residue before tape applied.

Item#9 - Repaired Tension Cable sheathing with waterproof tape.



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Item #10 – Applying concrete patch in largest repair area in Xxxx Building. Shiny epoxy on rebar is shown.



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Notes:

- a. Wet surface area with potable water.
- b. Mix enough low aggregate concrete to fill the hole and entirely cover the rebar and tendon cables. Mix to conventional mortar smoothest in water content (to peanut butter consistency).
- c. Hand glove pack at rebar and then trowel to level top with rough surface to receive future base coat.
- d. Prevent foot traffic for 3-hour set time and 24-hour dried strength.

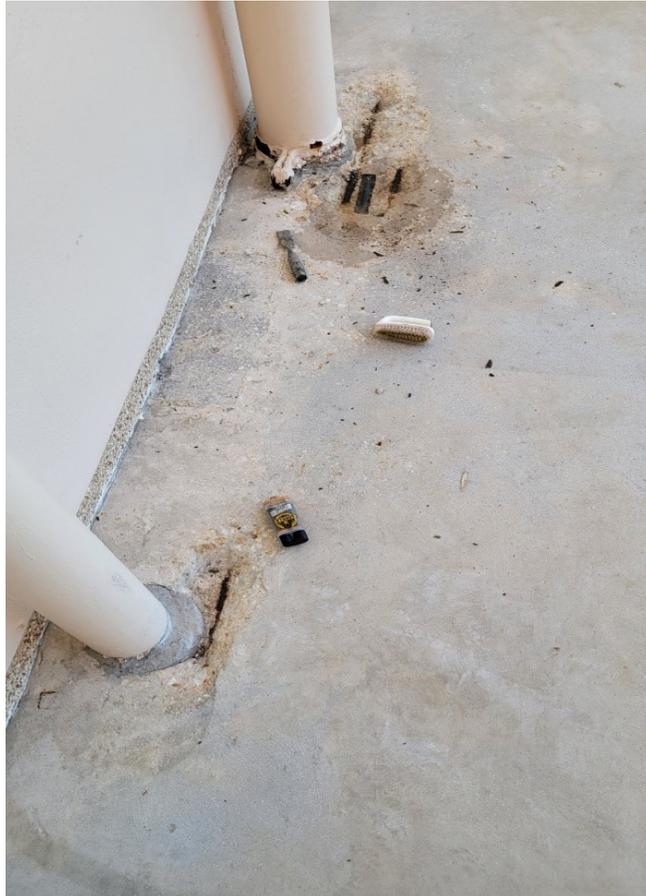
Item#11 - concrete patch in largest repair area in Xxxx Building curing process.





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Item#12 – other repair areas 4 and 5 utilizing same remediation process.



End Case Study Report

*All pages of the submitted report were reviewed and red stamped for Code Compliance.
A city inspector was requested to visit the job and he posted a notice of acceptance.*

Note that the PE must work with an approved General Contractor, who must file the permit and also take on project responsibility. Florida Cities or Counties probably use an on line portal that only the General Contractor can access to submit fees, designs, As-Builts and the PE report, etc. The PE cannot use this portal. Undertaking repairs through proper Building Permit requires meticulous planning and patience.



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Legal Opinion Guidance

The author was pleased to hear from a reputable Florida Firm of Attorneys at Law, who have done much to help PEs navigate through the Reform Bills. SUNCAM readers are welcome to watch or read transcripts of these informative presentations, with permission granted.

Here is Alan Tannenbaum's original email after the newspaper publication.

We all here at our office down the road here in Osprey enjoyed your article. _____
Check out the following _____ (five resource items):

From link 5 below:

Understanding Florida's New Condo and Safety Insurance Reform Bill

The Smart Board & Property Manager

Legal Guide:

Understanding Florida's New Condominium Safety and Insurance Reform Bills
For a Copy of This Presentation Email Mcolburn@TLKLEGAL.COM

Agenda

1. Instigation for Legislative Action – "Threat to public health, safety, or welfare."
2. Target: Aging condo and cooperative buildings three stories or more in height.
3. "Milestone inspection" – What is it?
4. Are architects licensed [and insured] to perform structural inspections?
5. "Substantial structural deterioration" – What does it include and ~~not~~ exclude?
6. Required notice by local enforcement agency to trigger inspect.
7. Phase one milestone inspection. What does it entail? Would a [redacted] inclined to pass an older building as not requiring a phase two inspection?
8. Phase two milestone inspection. What triggers it? What does it entail? Who determines the scope?
9. What reports are required to be prepared, and what must they contain?
10. Reports must be delivered to the unit owners and posted.
11. Engineer availability and liability concerns.
12. County Commissions may adopt ordinances requiring a repair schedule once a Phase Two report is issued, but repairs must commence within a year of report being issued. If condo does not meet the timeframe, local enforcing agency must determine if the building is unsafe for human occupancy.
13. Structural integrity reserve study. What is it?
14. What must the structural integrity reserve study include?
15. When must the structural reserve study be performed?
16. New reserve requirements for developer's pre-turnover, and for certain post-turnover Associations.
17. Fiduciary obligations regarding structural integrity reserve studies.
18. New roof replacement rules and insurance relief

Conclusion (Q&A)

Watch on YouTube

TANNENBAUM LEMOLE & KLEINBERG
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1. <https://www.tllegal.com/resources/firm-news/a-quick-reference-guide-to-complying-with-florida-s-new-condo-safety-and-reserve-funding-legislation>
2. <https://www.tllegal.com/resources/firm-news/why-waiting-to-implement-the-new-condo-repair-reserves-legislation-is-a-mistake>



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3. <https://www.tlhlegal.com/resources/firm-news/grappling-with-the-havoc-the-florida-legislature-has-wrought-on-condo-world>
4. <https://www.tlhlegal.com/resources/firm-news/understanding-florida-s-new-condominium-safety-insurance-bill-general-counsel-perspective>
5. <https://www.tlhlegal.com/resources/firm-news/understanding-florida-s-new-condo-and-safety-insurance-reform-bill>
6. <https://www.tlhlegal.com/resources/firm-news/new-insurance-laws-passed-by-the-florida-legislature-impact-on-condo-associations-and-hoas>

Next steps and The Florida Building Commission Report Findings can be downloaded from this public website.

<https://www.legalscoopswflre.com/construction/the-current-state-of-structural-engineering-in-florida/>

<https://www.legalscoopswflre.com/wp-content/uploads/sites/74/2023/02/Florida-Building-Commission-Dec-14-2022-Report-to-Governor-pages-1-9.pdf>

Reserves A sample Statement where Reserve Amounts were set by the Condo Board of Directors or Administration instead of a Licensed Engineer or Architect. (*Actual dollars blurred out for privacy.*)



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		Reserve Statement As of 02/28/22			
		BEGINNING	YTD	YTD	AVAILABLE
		OF YEAR	ALLOCATION	DISBURSEMENT	BALANCE
RESERVES:					
5080	Building Restoration-concrete	1,744.73	0.00	0.00	1,744.73
5100	Bldg Restoration 2 (Painting)	36,682.40	3,391.25	0.00	40,073.65
5200	Laundry Equipment	12,384.37	2,569.00	0.00	14,953.37
5320	Paving and Driveways	12,242.34	221.75	0.00	12,464.09
5340	Pool Reserve	6,464.96	842.75	0.00	7,307.71
5400	Roof	71,926.58	2,184.50	0.00	74,111.08
5410	Exterior Walkway	6,878.24	1,273.50	0.00	8,151.74
5420	Fire Sprinkler System	0.00	0.00	0.00	0.00
5490	Reserves Interest-Current	0.00	82.79	57.76	45.01
5491	Reserves Interest-Prior Years	3,000.00	0.00	0.00	3,000.00
Subtotal Reserves		113,939.27	7,362.25	67.76	121,311.76
TOTAL RESERVES		113,939.27	7,362.25	67.76	121,311.76



One development is that repairs need not be 100% paid for when accomplished. Lines of credit are being established with banks, so that Reserve Repair amounts can be funded over a period of perhaps the following 10 years, with creditworthy condo associations based on ability to assess.



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Update June, 2023

<https://www.flsenate.gov/Session/Bill/2023/154/BillText/er/HTML>

See comments on legislative changes after the Conclusion. No test questions involved but update presented.

Conclusion

This course is meant to help PEs who will perform the mandatory inspections. One goal is to be thorough and not let a major deficiency go undetected. The author urges PEs to refrain from the traditional extras of non-structural elements being reported to beef up a report and justify fees. Condo Associations would be wise to limit scope of work to only those defined in the Statute. Building Officials can provide required guidance.

It was interesting to see an online course in Building Inspection (not by SUNCAM) that included earthquake study. Florida has had very few earthquakes in its history. It is a low hazard state, even with the panhandle. Why would a PE waste time on such measures when there is so much more important work to do? Failures due to rare sinkholes would also not be detected in a phase one inspection.

PEs providing Reserve Study cost analyses will be the topic of another future SUNCAM course. With 2022 materials costs rising 20% as reported in the Miami area and inflation fluctuating wildly, these estimates can become highly inaccurate. Do not ask a structural/civil PE to estimate electrical or plumbing costs, unless the PE has rare expertise.

If the legislation was passed to prevent another Surfside type collapse, but the collapse was due to the design elimination of reinforced concrete beams supporting slabs, would a phase one inspection make a difference?

In the aftermath of Hurricane Ian, with PEs busy on repairs and insurance claim work, the Legislature might wish to offer more than two years for this unfunded implementation. Allowing Condo Boards to perform their own safety and fiduciary responsibilities might be good to continue instead of this mandated program that will probably not make a difference. Time will tell once corrected defects are reported and studied.

Senate Bill 154 update revision to Statute 553.899 follows with narrative in purple font for PEs to know and legislation changes in green and red font.



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Senate Bill 154 update revision to Statute 553.899

Comments to new statute revisions signed by Governor DeSantis June 9, 2023

<https://www.flsenate.gov/Session/Bill/2023/154/BillText/er/HTML>

The PE may have others inspect the building and need not see it personally if the report is signed and sealed by the PE or Architect. Note that there was discussion from the Florida Building Commission to allow Concrete General Contractors or Building Inspectors to perform this work, but that did not make it into law (as those two professions are kept busy with this statute.) Using the term “design” is irregular since inspection and not design is involved.

157 compliance with the Florida Building Code or the firesafety
158 code. The milestone inspection services may be provided by a
159 team of professionals with an architect or engineer acting as a
160 registered design professional in responsible charge with all
161 work and reports signed and sealed by the appropriate qualified
162 team member.

163 (b) “Substantial structural deterioration” means
164 substantial structural distress or substantial structural
165 weakness that negatively affects a building’s general structural

Substantial structural weakness was added, but cracks, etc. remain.

163 (b) “Substantial structural deterioration” means
164 substantial structural distress or substantial structural
165 weakness that negatively affects a building’s general structural
166 condition and integrity. The term does not include surface
167 imperfections such as cracks, distortion, sagging, deflections,
168 misalignment, signs of leakage, or peeling of finishes unless
169 the licensed engineer or architect performing the phase one or
170 phase two inspection determines that such surface imperfections
171 are a sign of substantial structural deterioration.



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The three-story threshold for buildings to be inspected is defined by The Florida Building Code, which does not include a loft in certain cases. It is up to the Building Departments to determine three story buildings or not, and issue notice if inspection is required.

171 are a sign of substantial structural deterioration.

172 (3)(a) An owner or owners of a building that is three
 173 stories or more in height as determined by the Florida Building
 174 Code and that is subject, in whole or in part, to the
 175 condominium or cooperative form of ownership as a residential
 176 condominium ~~association~~ under chapter 718 ~~or and~~ a residential
 177 cooperative ~~association~~ under chapter 719 must have a milestone
 178 inspection performed ~~for each building that is three stories or~~
 179 ~~more in height~~ by December 31 of the year in which the building

The 25-year requirement for buildings close to the salt water coast was revised to allow Building Departments to decide. The three-mile limit is eliminated.



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192 (b) The local enforcement agency may determine that local
193 circumstances, including environmental conditions such as
194 proximity to salt water as defined in s. 379.101, require that
195 ~~If the building is located within 3 miles of a coastline as~~
196 ~~defined in s. 376.031, the condominium association or~~
197 ~~cooperative association must have~~ a milestone inspection must be
198 performed by December 31 of the year in which the building
199 reaches 25 years of age, based on the date the certificate of
200 occupancy for the building was issued, and every 10 years
201 thereafter.

More time is allowed beyond December 31, 2024 under certain circumstances.

202 (c) The local enforcement agency may extend the date by
203 which a building's initial milestone inspection must be
204 completed upon a showing of good cause by the owner or owners of
205 the building that the inspection cannot be timely completed if
206 the owner or owners have entered into a contract with an
207 architect or engineer to perform the milestone inspection and
208 the inspection cannot reasonably be completed before the
209 deadline or other circumstance to justify an extension.

If a structural inspection report (sometimes required by an insurance company) was performed and met the intent of the Mandatory Inspection, it can be used. Further ten year milestone inspections occur after that acceptance date.



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210 (d) The local enforcement agency may accept an inspection
 211 report prepared by a licensed engineer or architect for a
 212 structural integrity and condition inspection of a building
 213 performed before July 1, 2022, if the inspection and report
 214 substantially comply with the requirements of this section.
 215 Notwithstanding when such inspection was completed, the
 216 condominium or cooperative association must comply with the unit
 217 owner notice requirements in subsection (9). The inspection for
 218 which an inspection report is accepted by the local enforcement
 219 agency under this paragraph is deemed a milestone inspection for
 220 the applicable requirements in chapters 718 and 719. If a
 221 previous inspection and report is accepted by the local
 222 enforcement agency under this paragraph, the deadline for the
 223 building's subsequent 10-year milestone inspection is based on
 224 the date of the accepted previous inspection.

Phase two progress reports are required.

286 structure. If a phase two inspection is required, within 180
 287 days after submitting a phase one inspection report the
 288 architect or engineer performing the phase two inspection must
 289 submit a phase two progress report to the local enforcement
 290 agency with a timeline for completion of the phase two
 291 inspection. An inspector who completes a phase two milestone
 292 inspection shall prepare and submit an inspection report
 293 pursuant to subsection (8).

Phase one issue involving recommendations continues to go beyond a visual inspection and involves the Florida Building Code per line 315 at variance with lines 155 to 158 saying no code.

155 of the building. The purpose of such inspection is not to
 156 determine if the condition of an existing building is in
 157 compliance with the Florida Building Code or the firesafety
 158 code. The milestone inspection services may be provided by a



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Lines 316, 317 and 318 involving repair should involve phase two not phase one.

294 (8) Upon completion of a phase one or phase two milestone
295 inspection, the architect or engineer who performed the
296 inspection must submit a sealed copy of the inspection report
297 with a separate summary of, at minimum, the material findings
298 and recommendations in the inspection report to the condominium
299 association or cooperative association, to any other owner of
300 any portion of the building which is not subject to the
301 condominium or cooperative form of ownership, and to the
302 building official of the local government which has
303 jurisdiction. The inspection report must, at a minimum, meet all
304 of the following criteria:

305 (a) Bear the seal and signature, or the electronic
306 signature, of the licensed engineer or architect who performed
307 the inspection.

308 (b) Indicate the manner and type of inspection forming the
309 basis for the inspection report.

310 (c) Identify any substantial structural deterioration,
311 within a reasonable professional probability based on the scope
312 of the inspection, describe the extent of such deterioration,
313 and identify any recommended repairs for such deterioration.

314 (d) State whether unsafe or dangerous conditions, as those
315 terms are defined in the Florida Building Code, were observed.

316 (e) Recommend any remedial or preventive repair for any
317 items that are damaged but are not substantial structural
318 deterioration.

319 (f) Identify and describe any items requiring further
320 inspection.



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Inspectors who are not PE's can follow adopted procedures on what to observe and report. And PE's have forms and formats to submit usually on line to a Building Department.

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

Structural Integrity Reserve Study (SIRS) is another topic not covered in this course. For reserve studies, inspections from five years past may be used.

788 milestone inspection. In no event may the structural integrity
789 reserve study be completed after December 31, 2026.
790 7. If the milestone inspection required by s. 553.899, or
791 an inspection completed for a similar local requirement, was
792 performed within the past 5 years and meets the requirements of
793 this paragraph, such inspection may be used in place of the
794 visual inspection portion of the structural integrity reserve
795 study.
796 ~~8.4.~~ If the officers or directors of an association
797 willfully and knowingly fail ~~fails~~ to complete a structural
798 integrity reserve study pursuant to this paragraph, such failure
799 shall constitute a violation of the provisions of this chapter.

Course end