



November 11, 2021

To: Board of Directors
Spanish Galleon Condominium Assoc., Inc.
300 Sombrero Blvd.
Marathon, FL 33050

Re: Building Damage Survey Report

ABSTRACT:

As per the Board's request, a damage survey Spanish Galleon Condominium building balconies, catwalks, columns, beams and walls was accomplished during the month of October 2021. The purpose of the survey was to determine the levels of damage to the balconies, catwalks, wall structures, columns and beams and to help determine a repair strategy and budgetary cost estimate of the buildings. Examinations were accomplished primarily visually and by acoustic soundings.

Please keep in mind that estimating these types of projects is not an exact science. The size, complexity, and numerous variables that affect costs on these repair projects means Board Members and Owners will have many questions as you review our findings. We look forward to addressing your concerns, encourage you to make notes as you review the data and bring your questions to our attention during our planned meetings. We would recommend a "working" meeting be held in person with the Board as soon as possible after receiving the report. Over the next few weeks, we will work with the Board to assure you understand our findings, explore your options, and begin to develop a plan by which the problems can be addressed as budgets allow.

CHLORIDE RELATED DAMAGE:

The primary mechanism for corrosion damage at the Spanish Galleon Condominium Association is that of chloride-based corrosion. Corrosion of reinforcement steel in concrete structures is a recurring and expensive form of damage prevalent along Florida's coastlines. The problem arises due to a combination of chlorides, moisture, and warm temperatures.

Initially, when reinforced concrete structures are first constructed, the presence of minor surface rust on the steel is a common occurrence. This minor covering of surface rust does



not present a problem to the building, however, because within weeks the corrosion is arrested by formation of a passivation layer on the steel's surface. This occurs due to a chemical reaction between the alkali concrete (pH 13-14) and the steel. Corrosion is therefore arrested, and the situation would remain such except for the presence of two primary mechanisms for change – sea salt and carbon oxides in the atmosphere.

The presence of chlorides in the form of salt is the primary mechanism that eventually leads to damage for most of the buildings we examine along the coast. Studies have shown that approximately 0.1 to 0.2 lbs. of chlorides, per square foot, deposit on building surfaces each year along the coastline. As the chlorides fall onto the decks, columns and beams, and are soaked into them by rains, they begin to accumulate in the porous concrete. When the level of chlorides reaches a threshold level of 1.25 to 1.50 lbs. / cubic yard in the concrete near the steel, the passivation layer breaks down and the steel begins to corrode again. The threshold value usually occurs within 8 to 12 years along our coastline for unprotected concrete.

Once initiated, the rate of corrosion will depend on the amount of moisture present and how much alternate drying and wetting occurs. In general, Florida's high humidity means sufficient moisture is always prevalent. Warm ambient temperatures also assist in maintaining corrosion levels. Left untreated, corrosion will continue to such a point that the steel is destroyed and the building's structural integrity is severely diminished.

Other factors which affect how quickly the chlorides reach the steel are the amount of concrete covering the steel and the density of the concrete. The water-cement ratio of the concrete mix is a big driver in affecting permeability and thus absorption rates. More water means the concrete has less strength and is more porous.

Once begun, corrosion tends to accelerate with time. As the steel corrodes, the rust, which forms on the surface of the steel, creates pressures within the concrete surrounding it because rust occupies 4 to 7 times the equivalent volume of steel. These resulting pressures eventually cause the concrete to crack. If the cracks are near the surface and occur in a plane parallel to such, chunks of concrete are loosened (spalls). The cracks allow more moisture to intrude, accelerating the corrosion rate. These cracks will usually occur 3 to 5 years after the threshold level has been reached – meaning we first observe cracking of structures at about 15 to 18 years of age, given common conditions.

The other mechanism encountered to a lesser extent is that of carbonation, briefly mentioned above. Carbonation is the reaction of concrete with carbon oxides in the atmosphere, causing the concrete to become more acidic (lowering the pH). This



mechanism is much slower and is not the prevalent mechanism on balconies and walkways. It tends to show up more in much older structures and especially in garage structures.

REPAIR METHODS:

The generally accepted method of repair is to remove the concrete surrounding the corroded steel, abrasively clean the steel, coat it with a corrosion-resistant material, replace the concrete, and apply a waterproofing membrane to the surface. Abrasively cleaning the steel (sand blasting) is extremely important to remove chlorides, which may be present in deeply corroded steel. Corroded steel more than a 15% cross-section loss requires that new steel be spliced into the structure. Repair mortars are specifically chosen to have low shrinkage and match the existing concrete. Water content is held to 0.40 water/cement ratios to provide dense, less permeable concrete. In addition, corrosion inhibitors such as WR Grace's DCI are added to the new mortar to resist chlorides for as long as 35 years. Finally, we recommend a waterproofing membrane, either urethane or cementitious, be applied over the entire deck to keep water out. The above recommendations are accepted standards of the American Concrete Repair Institute.

SPECIFIC FINDINGS:

The following summary details concrete damage as well as other observations. Generally, observations are summarized as follows:

Balcony Areas

- We inspected the exterior edges of the units. The balconies are either enclosed or have a screen railing system. The edges have started to corrode and some if not all the screen railing systems must be removed, if not up to code the city may dictate to replace any system that is removed. (See pictures).
- The catwalk deck shows minor edge damage, minor partial repairs, but the staircases have extensive cracking, these normally from our experience in the area means that the steel is in bad shape and most of the stairs will require to be repair.
- The columns on these areas are cracked and show signs of deterioration, columns could become expensive repairs if left unrepaired due to the cost of special shoring.



- The stucco on the ceiling of the catwalks has started to delaminate and fall apart. The metal sheathing (nonstructural) used has corroded and needs to be exposed and sandblasted to remove all the chlorides and prevent future stucco delamination.

COST ESTIMATES:

Because of the complexities in determining the exact amount of damage and corrosion present, variables in construction quality, concrete quality, and environmental conditions, it is impossible to exactly calculate the cost repairs for restoration projects. For this reason, most contractors will not consider a project of this type on a fixed price basis and if they do, the price is usually very high. Instead, repairs are accomplished on a unit price basis, meaning the owners pay for the repairs based on the number of repairs necessary. The engineer determines how much repair is necessary and acts as the owner's agent to assure the contractor only repairs and is paid for repairing that amount. Theoretically, given the same unit price, the choice of contractor should not change the cost of the project.

Finally, we know there are also unknowns for most projects – things we did not anticipate changes and change orders the owners may request, complications not expected and even mistakes in our estimates. Most of the time, our experience says our projects come in plus or minus 30% of our median estimate. However, we recommend the Board in this case a 20% contingency. This value is also shown as a recommended budget value.

CONCLUSIONS:

The levels of damage on the building are consistent with the age and location of the building. Owners have expended some resources to maintain the structural integrity of the building. However, corrosion of reinforcement steel has caused substantial damage nevertheless.

Many of the damaged areas we documented are primarily on the edges of the balconies.

The catwalk edges, columns and stairs show damage and should be addressed as soon as possible.

The stucco on the catwalk ceilings should be completely replaced.

The deck coating has failed, the Association has patched some areas but signs of new damage could be observed.



RECOMMENDATIONS:

The Board should consider initiating a repair project to address as many of the repairs as can be afforded. These repairs address the immediate damage and are aimed at taking preventive measures to slow the rates of corrosion. However, it is important to understand that chloride and carbonation damage will continue, and additional repairs will be needed, as the structures get older. Once repairs are complete, a reserve analysis and future maintenance plan should be completed to minimize the future repair cost and lessen the impact to the owners.

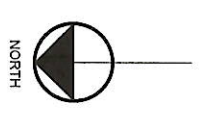
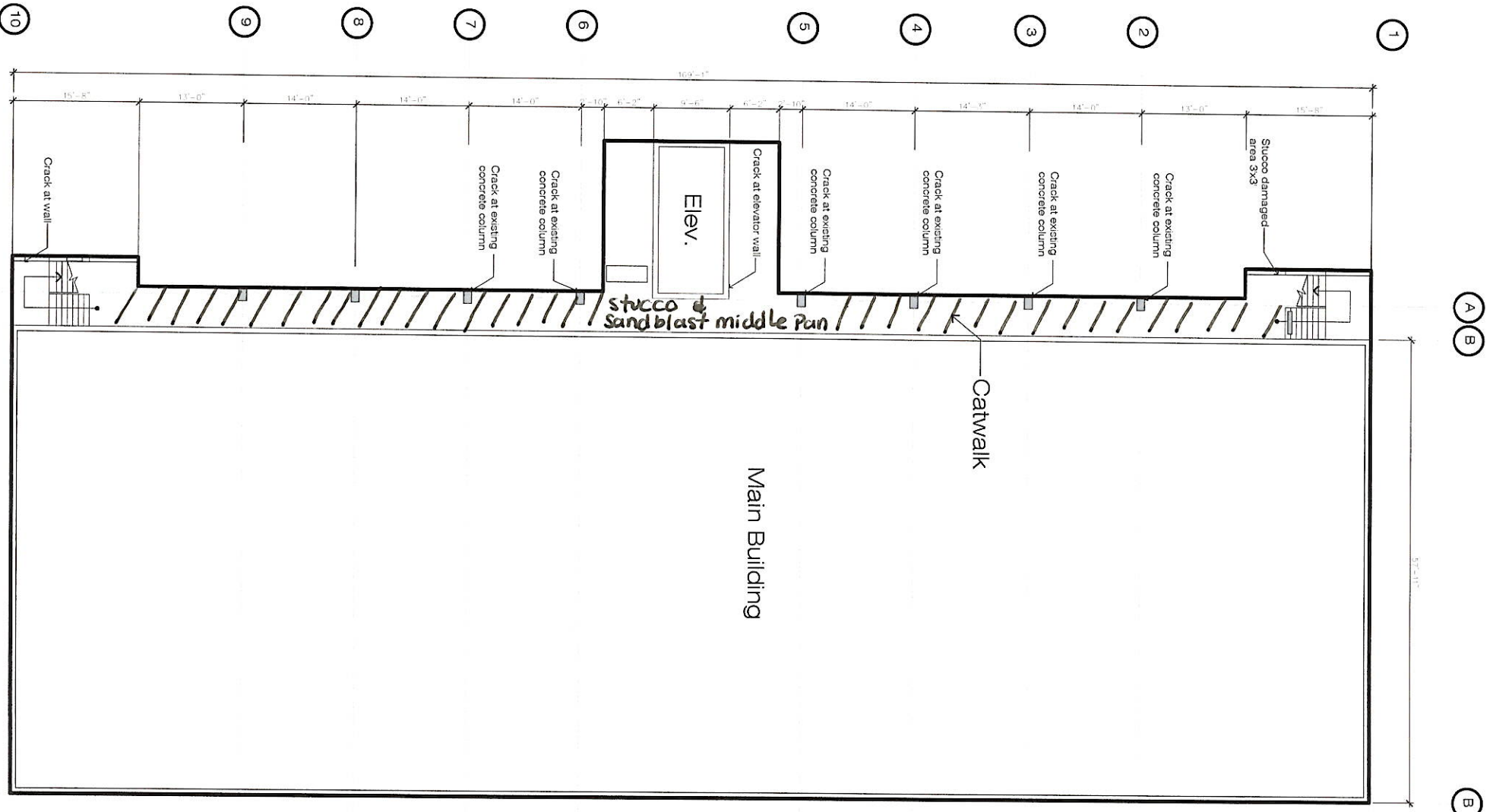
Based on the limits of the typical work schedule and large cost of the project, it is recommended to consider segmenting the repairs. Priorities can address based on relative damage by building stacks or other parameters depending on the Board's desires.

Please call me should you have any questions or require further clarification.

Respectfully,

Andres Caicedo
President
BN 5287

Henry Stephen Kreh
Vice President
FL P.E. #39539



2nd Floor

Legend

- Overhead damage
- Concrete spall



4064 NW 85TH DR., COOPER CITY, FL, 33024
 PH: 954.505.4274 - FAX: 754.9165664
 WWW.ACG-ENG.COM - COA #29940

Spanish Galleon
 11150 Sombrero Boulevard
 Marathon, Florida 33050

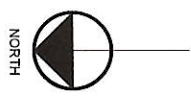
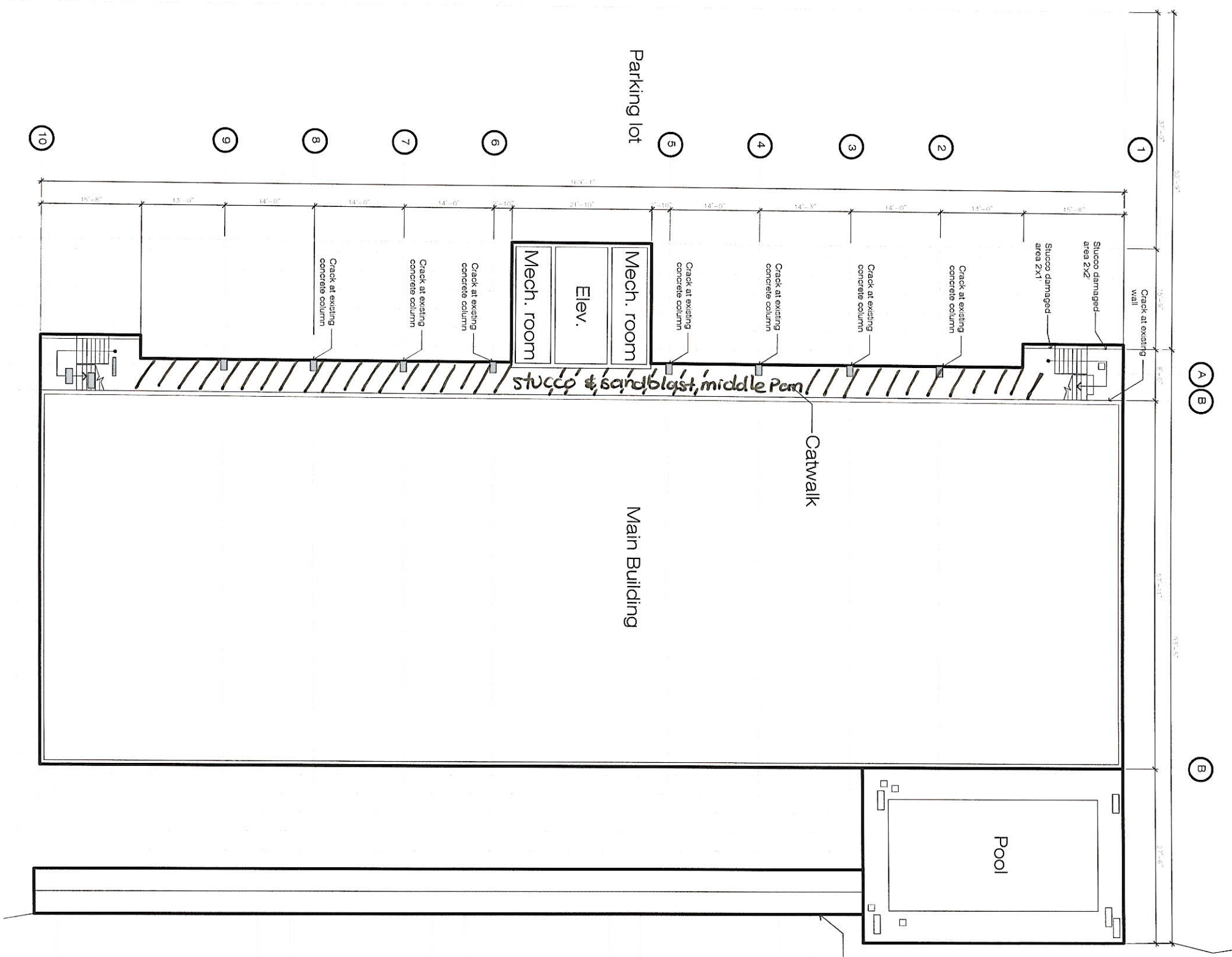
Structural Survey

REV	DESCRIPTION	DATE

PROJECT No.
 DRAWN JJ
 CHECK AC
 APPROVED AC
 DATE 11-21-16

S-2

HENRY'S ROSE
 P.L.L.C.



Ground Floor

Legend

- Overhead damage
- Concrete spall

Sea

Sea dock

Pool

Catwalk

Main Building

Mech. room

Elev.

Mech. room

Parking lot

stucco & sandblast, middle part

Crack at existing concrete column

Crack at existing concrete column

Crack at existing concrete column

Crack at existing concrete column

Crack at existing concrete column

Crack at existing concrete column

Crack at existing concrete column

Crack at existing concrete column

Crack at existing concrete column

Crack at existing concrete column

Crack at existing concrete column

Crack at existing concrete column

Crack at existing wall

Stucco damaged area 2x1

Stucco damaged area 2x2

S-1

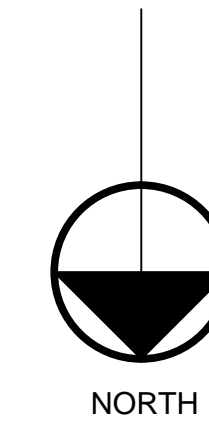
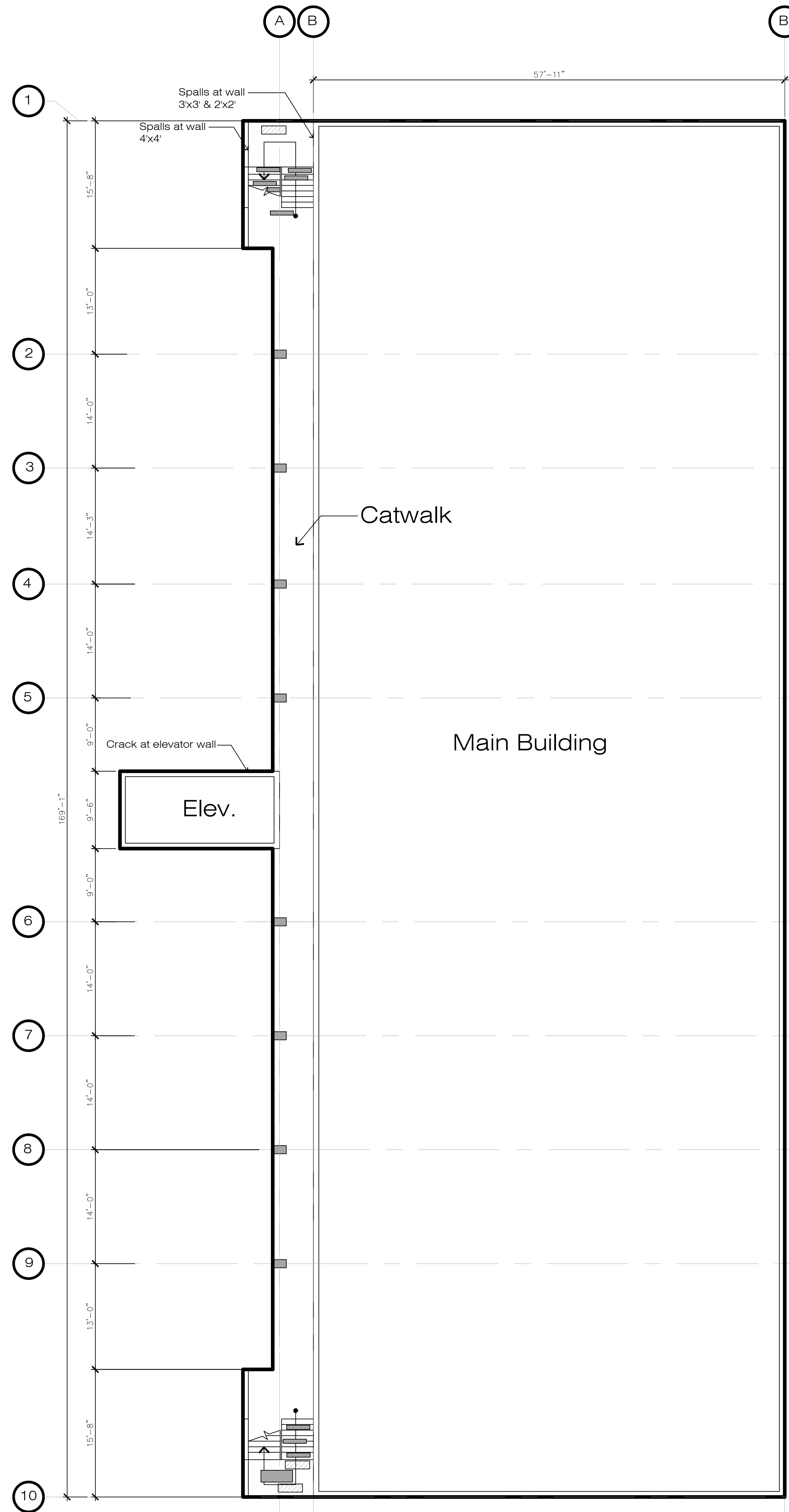
PROJECT No.	
DRAWN	JJ
CHECK	A.C.
APPROVED	A.C.
DATE	11-21-16

REV	DESCRIPTION	DATE

Spanish Galleon
11150 Sombrero Boulevard
Marathon, Florida 33050

Structural Survey

4064 NW 85TH DR., COOPER CITY, FL 33024
PH: 954-505-4274 • FAX: 754-8165564
WWW.ACG-ENG.COM • COA #29940



3rd Floor

Legend

- Overhead dar
- Concrete spa

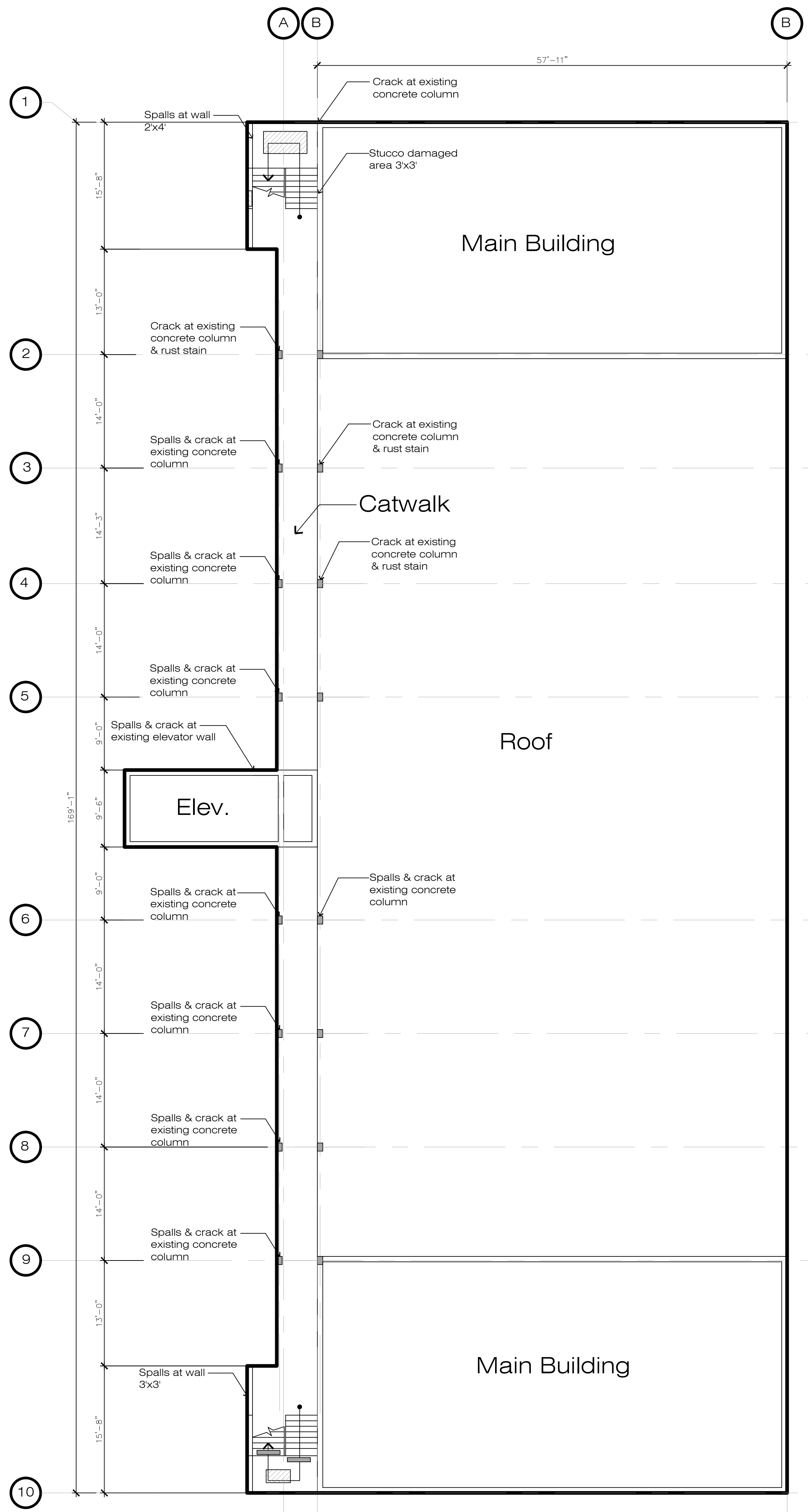


Spanish Galleon
11150 Sombroso Boulevard
Marathon, Florida 33050
Structural Survey

REV	DESCRIPTION	DATE

PROJECT No.:	DRAWN: J.J.	CHECK: A.C.	APPROVER: A.C.	DATE: 11-21-16
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S-3



Roof Floor Legend

- Overhead damage
- Concrete spall

3

REV	DESCRIPTION	DATE

PROJECT No.:
 DRAWN: J.J.
 CHECK: A.C.
 APPROVER: A.C.
 DATE: 11-21-16

S-4

Sponsored By: Zieg
City Council Public Hearing Date: August 10, 2021
September 14, 2021
Enactment Date: September 14, 2021

**CITY OF MARATHON, FLORIDA
ORDINANCE 2021-18**

AN ORDINANCE BY THE CITY OF MARATHON, FLORIDA, AMENDING CHAPTER 6, ARTICLE III (“UNSAFE STRUCTURES AND EQUIPMENT”) OF THE CODE OF ORDINANCES OF THE CITY OF MARATHON BY CREATING SECTION 6-95, WHICH SHALL PROVIDE FOR A CERTIFICATION AND RECERTIFICATION PROCESS FOR EXISTING AND FUTURE STRUCTURES; PROVIDING FOR THE REPEAL OF ALL ORDINANCES OR PARTS THEREOF FOUND TO BE IN CONFLICT; PROVIDING FOR SEVERABILITY; PROVIDING FOR INCLUSION IN THE CODE OF ORDINANCES AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the City of Marathon (“City”) is a municipal corporation of the State of Florida with such power and authority as has been conferred upon it by the Florida Constitution and Chapter 166, Florida Statutes, and

WHEREAS, Chapter 166, *Florida Statutes*, grants the City broad municipal home rule powers to provide for the health, safety and welfare of its residents, business owners and visitors by enacting regulations for the protection of the public; and

WHEREAS, in light of the recent deadly collapse of the Champlain Tower, it has become readily apparent that there is a significant danger posed by failing to more frequently review and inspect older structures; and

WHEREAS, municipalities across the State are taking action to strengthen their building inspection and certification protocols to help combat such dangers; and

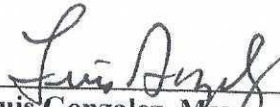
WHEREAS, in order to promote the health and safety of the citizens of Marathon and help prevent any similar such disasters that could be caused by a failing structure, a certification and re-certification process must be implemented; and

WHEREAS, the City Council of the City of Marathon wishes to enact such a process.

- (2) Inspections may only be performed by licensed, qualified professionals who have submitted written proof, accepted by the Building Official, of experience in the recertification of multiple story buildings.
- ii. (1) All buildings, except single-family residences, duplexes and minor structures as defined below, shall be recertified in the manner described below where such buildings or structures have been in existence for seventeen (17) years or longer, as determined by the Building Official, who shall at such time issue a Notice of Required Inspection to the building owner.
- (2) Subsequent recertification shall be required at ten (10) years interval.
- (3) In the event a building is determined to be structurally and electrically safe under the conditions set forth herein, and such building or structure is less than seventeen (17) years of age, recertification shall not be required for a minimum of ten (10) years from that time, or age seventeen (17), whichever is the longer period of time.
- iii. Minor buildings or structures shall, for the purpose of this subsection, be buildings or structures in any occupancy group having an occupant load of ten (10) or less, as determined by Table 1003.1 (FBC) Minimum Occupant Load of the Florida Building Code and having a gross area of 2,000 sq. ft. or less.
- iv. (1) The owner of a building or structure subject to recertification shall furnish, or cause to be furnished, within ninety (90) days of Notice of Required Inspection, a written report to the Building Official, prepared by a Professional Engineer or Architect registered in the State of Florida, certifying that each such building or structure is structurally and electrically safe, or has been made structurally and electrically safe for the specified use for continued occupancy.
- (2) Such written report shall bear the impressed seal and signature of the Responsible Engineer or Architect who has performed the inspection.
- (3) Such Engineer or Architect shall undertake such assignments only where qualified by training and experience in the specific technical field involved in the inspection and report.

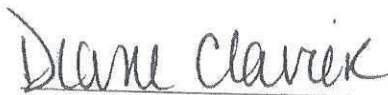
ENACTED BY THE CITY COUNCIL OF THE CITY OF MARATHON,
FLORIDA, THIS 14th DAY OF SEPTEMBER, 2021.

THE CITY OF MARATHON, FLORIDA


Luis Gonzalez, Mayor


AYES: Senmartin, Bartus, Cook, Zieg, Gonzalez
NOES: None
ABSENT: None
ABSTAIN: None

ATTEST:


Diane Clavier, City Clerk

(City Seal)

APPROVED AS TO FORM AND LEGALITY FOR THE USE AND RELIANCE OF THE
CITY OF MARATHON, FLORIDA ONLY:


Steven Williams, City Attorney



OCT. 9TH

CITY OF MARATHON, FLORIDA

9805 Overseas Highway, Marathon, Florida 33050
(305) 743-0033

NOTICE OF REQUIRED INSPECTION

September 29, 2021

Spanish Galleon Condominium Inc
1115 Sombrero Blvd #306
Marathon, FL 33050

RE: 00355370-001600

Property Address: 1115 Sombrero Blvd 101A-406B

Dear Property Owner:

The City of Marathon has received notification from the Property Appraiser's office that the building on the property located at 1115 Sombrero Blvd 101A-406B, is seventeen (17) years old or older.

Under Section 6-95 of the City of Marathon Code, the owner of a building which has been in existence for seventeen (17) years or longer is required to have the building inspected for the purpose of determining the general structural condition of the building and the general condition of its electrical systems. In accordance with Section 6-95(c), you must submit a written Recertification Report to the Building Official, prepared by a Florida registered professional engineer or architect*, certifying each building or structure is structurally and electrically safe for the specified use for continued occupancy. Each page of the electrical and structural report must be signed and sealed by the engineer or architect. In addition, if there is more than one building on the property, please submit a site plan or copy of a survey showing the location of each building. The building which is the subject of the Recertification report must be clearly identified on the site plan or survey submitted.

Enclosed is a copy of Section 6-95 of the City of Marathon Code. The Recommended Minimum Inspection Procedural Guidelines for Building Recertification to be utilized by your architect or engineer are available online at the following links:

- https://www.ci.marathon.fl.us/sites/default/files/fileattachments/building/page/31727/recertification_instruction_revised.pdf
- https://www.ci.marathon.fl.us/sites/default/files/fileattachments/building/page/31731/recertification_inspection_form_structural.pdf
- https://www.ci.marathon.fl.us/sites/default/files/fileattachments/building/page/31728/recertification_inspection_form_electrical.pdf

The forms which are in PDF (Portable Document Format) can be filled out by your architect or engineer and then printed. If you prefer, you can obtain a hard copy of the forms by contacting our office at (305)-743-0033.



CITY OF MARATHON, FLORIDA

9805 Overseas Highway, Marathon, Florida 33050
(305) 743-0033

You are required to submit the completed Recertification Report within ninety (90) days from the date of this notice.

Please note that single family homes, duplexes, and minor buildings are exempt from recertification requirements. Minor buildings or structures are buildings or structures in any occupancy group having an occupant load of ten (10) or less, as determined by Table 1003.1 (FBC) Minimum Occupant Load of the Florida Building Code and having a gross area of 2,000 sq. ft. or less. If the building which is the subject of this notice is exempt for any of the above reasons, the building is not seventeen (17) years old or older or the building has been demolished, please notify this office, and submit any available documentation. If you are claiming an exemption for an existing building, please submit dated pictures showing the front and rear of the building.

Failure to submit the required Recertification Report will result in the issuance of a Notice of Violation. Further, upon issuance of an unsafe structures Notice of Violation, the building must be vacated, and you may ultimately have to demolish the building.

For further information, please contact the Building Department at inspections@ci.marathon.fl.us or at (305) 289-5052.

Thank you for your cooperation in this matter.

Sincerely,

Noe Martinez
Building Official
City of Marathon

* Both architects and engineers must have proven qualifications by training and experience in the specific technical field covered in the inspection report (structural or electrical) as per Section 6-95 of the City of Marathon Code.