

# STRUCTURAL ASSESSMENT



230606-FL

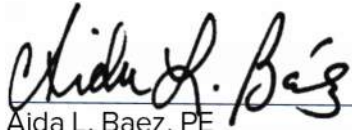
918 Park Avenue

**ac**cord  
ENGINEERING

# SIGNATURES

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## PREPARED BY



Aida L. Baez, PE

*Co-Owner / Senior Structural Engineer*

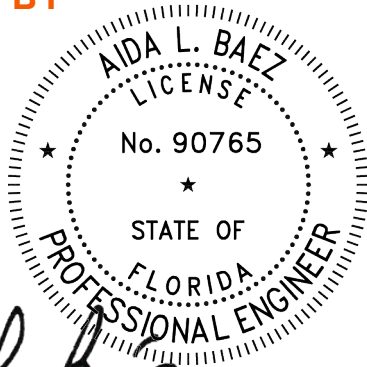
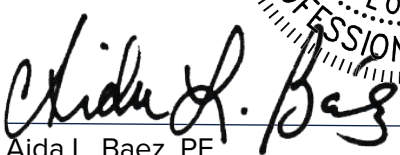
## REVIEWED BY



Clifton Newkirk, PE

*Co-Owner / Senior Structural Engineer*

## APPROVED BY



2023.08.07 16:57:09-04'00'

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Professional Engineer No. 90765

State of Florida

This report was prepared by ACcord Engineering for Kelsey on Park, in accordance with the approved professional services agreement. The material in it reflects ACcord Engineering best judgement in light of the information available to it at the time of preparation

The original of the technology-based document sent herewith has been authenticated and will be retained by ACcord Engineering for a minimum of seven years. Since the file transmitted is now out of ACcord Engineering's control and its integrity can no longer be ensured, no guarantee may be given with regards to any modifications made to this document.

# INTRODUCTION

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## General Description

This structural assessment report is for the building located in the downtown retail district of the Town of Lake Park at 918 Park Avenue, Lake Park, Florida. The original building was constructed in 1925 as a mixed-use commercial building. The 2-story building structure is composed of wood vertical and horizontal framing, with steel interior columns, and concrete slab-on-grade. The foundation was not identified during the field investigation but is presumed to be shallow concrete. The exterior walls are finished with stucco and are sheathed with diagonal or batten boards (see photos 005 and 028), consisting with the framing method preferred before World War II, instead of plywood panel sheathing, which is the recommended method in today's Florida Building Code (FBC), the National Design Specifications (NDS) for wood construction, and the APA – Engineered Wood Association, especially for High Wind Resistance wood construction.

ACcord Engineering was hired by The Kelsey on Park Group to perform a structural assessment of the existing structure. The field evaluation was performed during the afternoon of July 10, 2023, by Aida Baez, PE and Roshaun Wisdom, both from ACCord Engineering. The weather was Fair, with temperature at 95° F.

## Purpose and Scope

This report gives overall representative observations and preliminary assessment on the condition of the easily visible areas of the building envelope and structure with details on the types of deteriorations noted, possible causes, the effects of the deterioration, suggested remedies, if applicable, and any noticeable safety concerns.

The observation was limited to the readily accessible and easily visible portions of the building envelope and structural members. The condition assessment is not technically exhaustive and additional field observations, measurements, or testing are likely required to determine the total scope of repairs required, if applicable, and the cost associated with them. As such, this document is not to be used for bidding or execution of repairs and should only serve as a guide in determining the building's structural conditions and assessing the probability for repairs.

## General Physical Condition

The exterior of the building needs extensive repairs. For example, delaminated and buckling stucco, shattered windows, inappropriately boarded storefronts with open gaps, leaving the interior of the structure exposed to the elements and susceptible to water intrusion. Also, the exterior door frames display gaps and reveal sealant cohesion failure around the door openings. The exterior stairs and railings are fastened with toe nails which is not allowed in the building code and would need to be analyzed to verify if they're able to sustain the live load requirements for a commercial building, per the FBC minimum requirements.

**The interior walls of the building do not have sheathing, leaving the structure susceptible to collapse for lack of lateral resistance, due to the reduction in shear wall capacity. Blocking was not observed preventing continuity at bearing walls, limiting the transfer of lateral loads from the roof and floor diaphragms to the shear walls and down to the foundation. It is critical that these conditions be repaired immediately and without reservations, since the building as it stands may not be able to resist a major hurricane, and do not meet any fire-rating requirements per the FBC and the ASTM E119 or UL 263.**

Evident and substantial mold and water damage was noticed in the rear portion of the building, where wood decay is prominent and requires complete replacement.

The bottom of the interior stair is immediately adjacent to the exterior door, and does not provide the necessary landing space as required by the FBC and the American with Disabilities Act (ADA). The stairs are not properly supported and fastened at the top bearing condition to meet the minimum requirements of the FBC. These conditions would require code analysis to determine if redesigning the stairs would be deemed necessary.

The second floor was found to be extremely hot, since it's not properly sheathed nor insulated. Prolonged exposure to such temperatures is not adequate for wood framing since it can cause a permanent loss in strength when cooled and loaded at normal temperatures. A significant amount of the framing seems to be decaying and would require replacement.

The second floor and roof framing display numerous inappropriate and insufficient conditions, causing some to demand temporary shoring, refer to the roof portion of the Observations section below. These framing anomalies warrant immediate repair, since some of the conditions are critically unsafe.

## OBSERVATIONS

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### Exterior Facade

The exterior stucco is delaminating and spalling (see photos 002 and 009), loss of bonding to the structural frame, damage from water penetration, failed lath attachments, or damage to the wood framing from termites or dry rot. Significant exterior finish damage was observed by the entrance of the building, where pieces of stucco were severely damaged and cracked, or completely missing (see photos 005, 006 and 007). A significant indentation on the West side of the building was observed on the wall (see photo 010). This may have been caused by a vehicle crashing into the wall since parking stalls are noted perpendicular to the wall. The stucco finish at this location has been improperly patched and would require repair and further assessment of the existing wall framing.

The storefronts are missing, and their openings are boarded up, but do not provide proper enclosure since there are significant gaps allowing for pest and water intrusion into the interior of the building (see photo 004).

The windows seem to have been installed in recent times, but some are shattered (see photo 011) indicating that they are not impact resistant. Some exterior door frames show a large gap around the opening which allows for pest and water intrusion (see photos 013 and 024).

### Interior Structural Framing

From the inside of the building, the exterior walls are noticed to be sheathed with diagonal or batten boards (see photos 005 and 028). Along the East/West direction of the building, the diagonal boards are seemed spaced at  $\pm 16"$  OC (see photo 029) and not directly abutting each other as were noted along the North/South direction exterior walls. This framing condition does not provide continuous lateral resistance to the exterior shear walls, making them inadequate to sustain the lateral forces produced by a major hurricane. Figure 1 shows the proper assembly for diagonal lumber shear wall sheathing, to be able to resist in-plane lateral forces.

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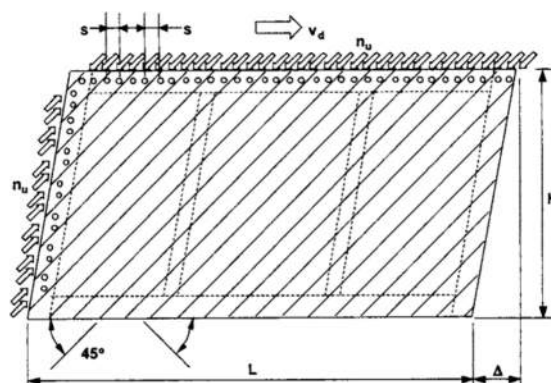


Figure 1 - Diagonal Lumber Shear Wall Sheathing Diagram

The interior bearing/shear wall is not sheathed, the bearing studs are completely exposed (see photo 027). In its current condition, this wall is subjected to combined bending and in-plane structural failure, since it's missing the wall sheathing, which provides lateral resistance and out-of-plane bracing. A continuously anchored bottom sill was not noticed on the interior bearing/shear wall, leaving the structure vulnerable and undermined. Also, it was observed that in some locations the bottom and top plate of the wall had been cut to allow for plumbing. Without proper splicing of the top and bottom plates the shear wall is deemed structurally inadequate.

The front and back interior walls are missing headers above the openings (see photos 025 and 029). This condition renders the wall inadequate for proper door/window framing, gravity support, and for lateral resistance, since there is no transfer of the in-plane forces along the North and South walls.

Significant mold and water damage is present at the rear/South area of the building (see photos 019 and 020). This area of the structure seems to be an addition to the original building. The structural framing elements are substantially rotted and damaged; they are viewed as unsafe and will require complete demolition and replacement.

Partial slab demolition was noted towards the back of the interior space. The partial slab demo seems to be for utility repair reasons. The concrete slab will need to be properly repaired.

The interior stair does not seem to comply with today's FBC and ADA requirements/standards. The stringers top bearing end is be notched more than  $\frac{1}{4}$  the depth of the stringer, which is not permitted by the NDS. The wall adjacent to the stair is a bearing wall, supporting the floor joists (see photo 030). It was observed that the wall ends near the top 3<sup>rd</sup> of the staircase, and two of the floor joists are supported by a 2x8 girder, which is supported on top of the bearing wall by less than 1 inch. This bearing condition of the girder seems insufficient and would require further investigation to validate if it allows for the proper transfer of lateral forces distributed by the floor diaphragm. A small lateral force applied to the building may cause the girder to move and lose its bearing, prompting a collapse of the floor joists. It is imperative that this condition is repaired as soon as possible, since a tropical storm or hurricane can apply enough lateral force to the building that could potentially cause this failure.

The second-floor deck diaphragm was observed to have different types of materials and changes in span direction, without proper fastening to allow for lateral load transfer (see photos 034 and 035). At the back portion of the building the floor was covered with a green rug. The floor deflected a lot as one walked on it, indicating probable water damage due or deficient deck/joist spans. In this area mold was very noticeable on the walls, and bathroom shower.

Near the Northwest corner of the roof framing, a temporary steel-shoring-column has been placed to support a joist bearing line (see photo 031). It is presumed that the joists were bearing over a wall, that since then has been



removed and the top plate of the wall is too shallow to span the unsupported distance. Also, near this area a post installed roof girder has been added and it is improperly supported by a 2x ledge nailed to the face of a timber column (see photo 032). In general, the roof framing does not present a proper load path to transfer the roof diaphragm forces down to the shear walls (see photo 033).

## RECOMMENDATIONS

It must be noted that the recommendations that follow are general in nature and are not to be utilized during repairs except as a guide for specification of repair processes and materials. Repair details and material specification shall be done by a licensed Florida professional engineer in accordance with local building codes, the Florida Building Code (FBC), and other professionally accepted standards such as those from the American Wood Council (AWC), the National Design Specification (NDS) for Wood Construction and the American Society of Testing Materials (ASTM) International among others.

The recommendations set forth in the following sections are to be evaluated on a case-by-case basis as further investigation is conducted during the repair process. Some of the recommendations may be deemed unnecessary or other forms of remediation may be required dependent on the findings of during repair.

The following is a list of structural items we recommend be repaired and their urgency level, for the structural integrity of the structure and for human safety.

NO	STRUCTURAL ITEM	REPAIR RECOMMENDATION	URGENCY LEVEL
1	Assess all existing wood vertical and horizontal structural members for lack of strength capacity, decay, or defectiveness (studs, columns, floor and roof joists and girders, headers, etc.)	Remove and replace all structural members compromised	Immediate
2	Missing or compromised framing around openings (doors and windows)	Remove and replace opening wood framing	Immediate
3	Mold and decayed wood member	Remove and replace wood members	Immediate
4	Provide structural sheathing to the North, South, and interior shear walls	Remove all exterior stucco finishes. Remove diagonal (spaced) boards, replace with new sheathing.	Immediate
5	Exterior stairs	Remove, redesign and replace	Immediate
6	Interior stairs	Remove, redesign, reframe support, and replace	Immediate
7	Shattered windows	Remove and replace shattered windows with impact resistant and Miami Dade NOA or Florida Product Approval windows	Immediate
8	Storefronts	Install new impact resistant Miami Dade NOA or Florida Product Approval storefronts	Immediate
9	Repair exterior stucco finish	Remove and replace existing stucco, lath and fasteners	Immediate
10	Waterproofing	Recommend application of elastomeric waterproofing surface coating. This will provide a water-tight seal on the surface, expand and contract with the stucco and concrete surfaces.	Immediate

<p>11 Sealants around fenestrations should be evaluated and if replacement is necessary. Any indication of adhesive failure, cohesive failure, substrate failure, or loss of sealant properties would require replacement of fenestration sealant.</p>	<p>Complete removal of the sealant around door and window openings and a thorough cleaning with a chemical cleaner as approved by the manufacturer of the new sealant would be required. Once the surface has been cleaned of all existing sealant and debris, it is recommended that a structural silicone sealant be applied. The use of a backer rod and bond breaker might be necessary depending on the requirements of the sealant manufacturer.</p> <p>Immediate</p>
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Due to the assessed conditions of the structural elements, the building is deemed unsafe and extensive structural repairs or complete demolition and reconstruction are eminent prior to occupancy. We anticipate the cost for repairs as outlined herein to be cost prohibitive, given the quantity of the repairs and the distressed condition of the existing building. We recommend the client obtains an estimate of the outlined repairs necessary to bring the existing structure up to code and performs a cost analysis comparison for a complete demolition and construction of a new building.

## QUALIFICATIONS

Aida Baez, PE is a licensed Professional Engineer in the state of Florida, with more than two decades of structural design experience in multiple regions of the country and worldwide. Her experience includes structural assessment of existing structures and inspections during construction. Assessment of mild-steel reinforced cast-in-place, post-tensioned, and pre-cast concrete for low and high-rise residential buildings, and commercial buildings, including parking garages, has been common throughout her 23-year career span. Conducting structural assessment, documenting existing conditions and implementing construction specifications and repair procedures has been customary throughout her career.

## APPENDIX A – FIELD PHOTOGRAPHS

Photo No. 001  
Date Taken: 07/10/2023  
File Name: 20230710\_173023225  
Description: Exterior front façade

Comments: Overall front view of building



Photo No. 002  
Date Taken: 07/10/2023  
File Name: 20230710\_173333447  
Description: Cracked stucco at top of Northeast corner of building

Comments: Cracked stucco allows for water infiltration, allowing for structural water damage to wood framing members





Photo No. 003  
Date Taken: 07/10/2023  
File Name: 20230710\_173546857  
Description: Entrance doorway

Comments: Exposed electrical wires on the exterior of the building should be capped.



Photo No. 004  
Date Taken: 07/10/2023  
File Name: 20230710\_173527910  
Description: Boarded storefront openings.

Comments: Boards do not fully enclose the openings allowing for water and pest infiltration into the building.



Photo No. 005  
Date Taken: 07/10/2023  
File Name: 20230710\_173640515  
Description: Front entrance vestibule with spalled stucco and exposed framing

Comments: Spalled stucco finish allows for water and pest infiltration into the building.



Photo No. 006  
Date Taken: 07/10/2023  
File Name: 20230710\_173848196  
Description: Front entrance vestibule with cracked stucco

Comments: Full horizontal stucco crack may indicate in-plane lateral distress



Photo No. 007  
Date Taken: 07/10/2023  
File Name: 20230710\_173938121  
Description: Front entrance vestibule with spalled stucco and exposed framing

Comments: Spalled stucco finish allows for water and pest infiltration into the building.



Photo No. 008  
Date Taken: 07/10/2023  
File Name: 20230710\_173954446  
Description: Detached faux column

Comments: Susceptible to falling and injuring a pedestrian.





Photo No. 009  
Date Taken: 07/10/2023  
File Name: 20230710\_174418143  
Description: Exterior overall West elevation  
  
Comments: Overall view of West elevation of the building



Photo No. 010  
Date Taken: 07/10/2023  
File Name: 20230710\_174453683  
Description: Large indentation on stucco finish  
  
Comments: Presumed vehicle impact. Wall framing needs to be inspected for damage.



Photo No. 011  
Date Taken: 07/10/2023  
File Name: 20230710\_174515638  
Description: Broken window on West side of building

Comments: Broken glass window allows for water and pest infiltration into the building



Photo No. 012  
Date Taken: 07/10/2023  
File Name: 20230710\_174714749  
Description: Overall West elevation of rear expansion area

Comments:





Photo No. 013  
Date Taken: 07/10/2023  
File Name: IMG\_7937  
Description: Broken screen door and exposed door frame at Southwest corner of building  
  
Comments: Dangerous debris needs to be removed



Photo No. 014  
Date Taken: 07/10/2023  
File Name: 20230710\_174904543  
Description: Overall South elevation of rear expansion area  
  
Comments:



Photo No. 015  
Date Taken: 07/10/2023  
File Name: 20230710\_174932538  
Description: Underside of exterior wood-framed stairs

Comments: Toenailing of threads and stringers is not acceptable per the FBC. Railing does not meet FBC height and spacing requirements

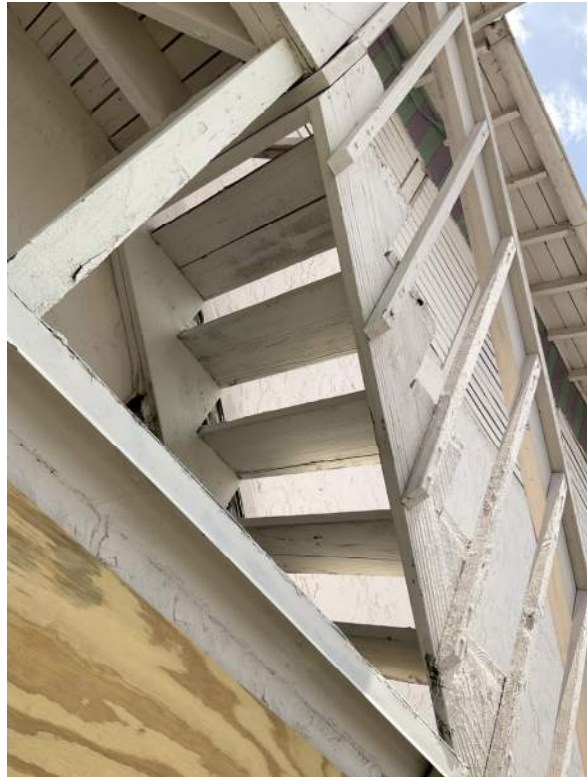


Photo No. 016  
Date Taken: 07/10/2023  
File Name: 20230710\_175010839  
Description: Exterior wood-framed stairs

Comments:



Photo No. 017  
Date Taken: 07/10/2023  
File Name: 20230710\_175053193  
Description: Overall East elevation of rear expansion area

Comments:



Photo No. 018  
Date Taken: 07/10/2023  
File Name: 20230710\_175225471  
Description: Exterior overall East elevation

Comments:





Photo No. 019  
Date Taken: 07/10/2023  
File Name: 20230710\_175620887  
Description: Interior of rear expansion framing

Comments: Extensive water damage and mold



Photo No. 020  
Date Taken: 07/10/2023  
File Name: 20230710\_175943565  
Description: Interior of rear expansion framing

Comments: Extensive water damage and mold



Photo No. 021  
Date Taken: 07/10/2023  
File Name: IMG\_7961  
Description: Interior of rear expansion -  
uncapped drain hole and  
unfinished floor

Comments: Extensive water damage,  
mold, paint delamination  
and loose debris



Photo No. 022  
Date Taken: 07/10/2023  
File Name: 20230710\_180136250  
Description: Interior of rear expansion –  
Opening

Comments: Infill framing and finish  
required in existing  
opening





Photo No. 023  
Date Taken: 07/10/2023  
File Name: 20230710\_180047399  
Description: Interior of rear expansion –  
Un-blocked roof framing  
over masonry wall

Comments: An unblocked gap allows  
for water and pest  
infiltration into the building.  
There is not lateral load  
transfer from the roof  
framing onto the wall.



Photo No. 024  
Date Taken: 07/10/2023  
File Name: 20230710\_180212710  
Description: Southwest corner of  
building – Gapped door  
frame, unsheathed walls,  
missing door headers,  
water damage, debris

Comments:



Photo No. 025  
Date Taken: 07/10/2023  
File Name: 20230710\_180559152  
Description: Original building rear wall

Comments: Missing door header,  
exposed stucco lath,  
spaced diagonal exterior  
sheathing, missing interior  
wall finish

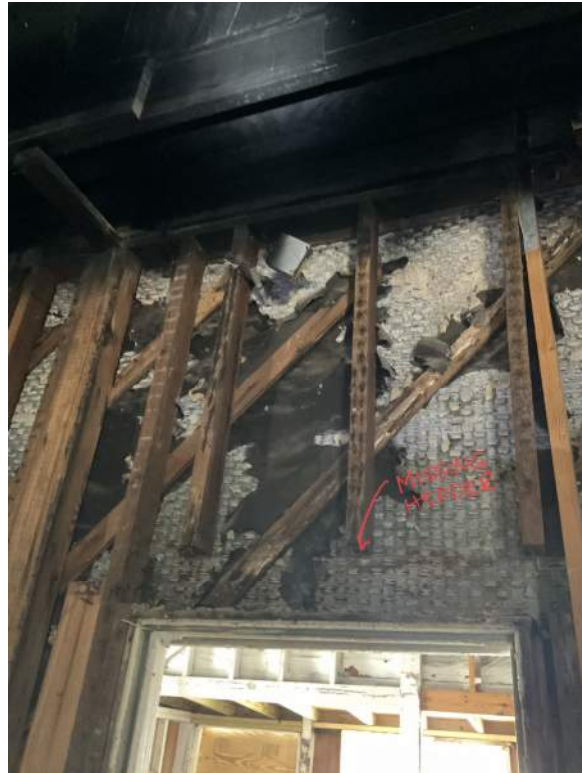


Photo No. 026  
Date Taken: 07/10/2023  
File Name: IMG\_7970  
Description: Slab demolition at rear of building

Comments: Exposed utilities should be capped. Sill plate for interior shear wall should not be cut



Photo No. 027  
Date Taken: 07/10/2023  
File Name: 20230710\_180253426  
Description: Interior wall framing

Comments: Unsheathed bearing shear wall. Interrupted sill plate, and missing hold-downs.



Photo No. 028  
Date Taken: 07/10/2023  
File Name: 20230710\_180913972  
Description: Interior Southeast corner

Comments:





Photo No. 029  
Date Taken: 07/10/2023  
File Name: IMG\_7974  
Description: Interior front wall at  
Northeast side of building

Comments: Missing sheathing, missing  
headers over arched  
openings



Photo No. 030  
Date Taken: 07/10/2023  
File Name: 20230710\_181856779  
Description: Floor girder by top of stairs

Comments: Bearing of girder is less  
than 1 inch.



Photo No. 031  
Date Taken: 07/10/2023  
File Name: 20230710\_183906548  
Description: Roof framing temporarily shored

Comments: Near the Northwest corner of the 2nd floor a shallow roof girder is temporarily shored



Photo No. 032  
Date Taken: 07/10/2023  
File Name: 20230710\_182541168  
Description: Roof framing girder bearing over nailed stub

Comments: Framing of girder is unconventional and needs to be analyzed. Water stains on roof deck sheathing.





Photo No. 033  
Date Taken: 07/10/2023  
File Name: 20230710\_183444030  
Description: Northeast corner of building

Comments: Diagonal board sheathing spaced, exposed stucco lath, unconventional framing at top of wall to be analyzed



Photo No. 034  
Date Taken: 07/10/2023  
File Name: 20230710\_183718585  
Description: Window vertical framing at West side of building

Comments: Roof and 2<sup>nd</sup> floor wall framing bearing over unblocked floor joists



Photo No. 035  
Date Taken: 07/10/2023  
File Name: 20230710\_183145784  
Description: Decayed wood framing and discontinuous deck framing  
Comments:



Photo No. 036  
Date Taken: 07/10/2023  
File Name: 20230710\_184057412  
Description: Interior stair – Bottom door is immediately adjacent to bottom step  
Comments:



Photo No. 037  
Date Taken: 07/10/2023  
File Name: 20230710\_183316911  
Description: Rear expansion – Mold at shower

Comments:



Photo No. 038  
Date Taken: 07/10/2023  
File Name: IMG\_8018  
Description: Rear expansion – Mold at wall top corner

Comments:





Photo No. 039  
Date Taken: 07/10/2023  
File Name: IMG\_8025  
Description: Threshold at rear  
expansion

Comments:



## Additional Photos



Finish separation  
PHOTO NO. IMG\_7919



Awning framing  
PHOTO NO. IMG\_7920



Boarded opening  
PHOTO NO. IMG\_7926



Stucco finish indentation  
PHOTO NO. IMG\_7931





Unfastened board at wall opening  
PHOTO NO. IMG\_7946



Stucco repair transition around window  
PHOTO NO. 20230710\_175305873



Rear expansion floor framing from underside  
PHOTO NO. 20230710\_175601186



Rear expansion masonry wall  
PHOTO NO. 20230710\_180038560



Rear expansion masonry wall  
PHOTO NO. 20230710\_180036624



Broken top of bearing wall, joist not supported  
PHOTO NO. 20230710\_180056949



Original back wall, water damage, unfastened stucco finished  
PHOTO NO. 20230710\_180139050



1<sup>st</sup> floor interior Northwest side wall framing  
PHOTO NO. 20230710\_180225366





Underside of 2<sup>nd</sup> floor framing  
PHOTO NO. 20230710\_180258452



Underside of 2<sup>nd</sup> floor framing, discontinued top plate  
PHOTO NO. 20230710\_180448544



Original rear wall framing, exposed stucco lath, unfinished  
PHOTO NO. 20230710\_180812979



Original rear wall framing, exposed stucco lath, unfinished  
PHOTO NO. 20230710\_180851909





Spalled stucco finish  
PHOTO NO. 20230710\_181632154



Missing header over arched openings  
PHOTO NO. 20230710\_181658453



2<sup>nd</sup> Floor interior wall framing  
PHOTO NO. 20230710\_182257563



2<sup>nd</sup> Floor wall framing  
PHOTO NO. 20230710\_182322393





Unconventional top of wall framing  
PHOTO NO. 20230710\_182333863



Unconventional roof framing by the North wall  
PHOTO NO. 20230710\_182644649



Spliced roof joist framing at bearing ends  
PHOTO NO. 20230710\_182352450



Unconventional roof framing  
PHOTO NO. IMG\_7993





Roof framing and water stains at roof deck sheathing  
PHOTO NO. IMG\_7999



Discontinuous floor deck sheathing  
PHOTO NO. IMG\_8002



Interior wall framing at 2<sup>nd</sup> floor  
PHOTO NO. IMG\_8003



Discontinuous floor deck sheathing  
PHOTO NO. IMG\_8011