

Bayou State Inspections

Infrared Building Envelope Scan Report

For the Property Located At:

2415 Quail Drive
Baton Rouge, LA 70808

Report Prepared For:

Juon Wilson



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Project Information

OWNER INFORMATION		-	
Company / POC	Louisiana Housing Corporation	Juon Wilson	Oscar
Property Address	2415 Quail Drive		
City, State, ZIP	Baton Rouge, LA 70808		
Standards of IR Building Envelope Scan	Standard Operating Procedure for Louisiana Housing Corporation "Quail Drive" Infrared Building Envelope Scan Version 1.0		
BUILDING INFORMATION		INSPECTION INFORMATION	
Type of Exterior Cladding	Concrete & Plaster	Date of Inspection	07-18-2019 to 07-21-2019
Doors	Metal & Glass	Level III Thermographer	James Yaeger #10991
Windows	Metal & Glass	Present at Inspection	Tammy Yaeger & Solomon Falgout
Underlying Substrate	Insulation Board	Temperature / Humidity	79°F / 58%RH to 100°F / 88%RH
Age of Property	19+yrs	Weather	Clear to Overcast
HVAC SYSTEM	Chilled water and VAV's	Inspection Camera's & Meters	Fotric 228, FLIR B-400, Protimeter MMS2, & Tramex RWS
Number of Stories	3	Last Rain	Within past week

Window Data		
Type of Windows	Location	Comments
Metal and Glass	North Wall	Leaking is noted at the windows at either side of the back entrance; Repair
Metal and Glass	East Wall	Leaking is noted at the South window of Workspace 209J at th
Metal and Glass	West Wall	No leaking noted
Metal and Glass	South Wall	Leaking is noted at the windows at either side of the front entr
	South Wall	Leaking is noted at the first level windows along the left side side hall

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Summary Checklist

Sealant / Rubber Gasket	Functioning	Issue	N/A	Comments
Window / Frame		X		Re-seal the gaskets that are separating at the windows. Re-seal / flash at the bottom of the frames. Seal / flash at the window to expansion joint intersections. Seal the windows at the fasteners and behind the metal flashing. Design and install window flashing at the bottom of the windows to prevent wind driven rain entry and to redirect the water shed off the upper windows.
Door / Frame		X		Re-weather seal at all exits doors; outside light can be viewed from the interior at many of the thresholds.
Utility Building Penetrations	X			
Accents or Decorative Quoins	X			
Soffit, Frieze & Facia Transitions	X			
Flashings / Diverters	Good	Improper	N/A	Comments
Kickout Flashings / Roof / Wall			X	
Deck Flashings			X	
Other Attachment Flashings			X	
Chimney Cap			X	
Chimney Cricket			X	
Window Head Flashing			X	
Door Head Flashing			X	
Column Flashing			X	
Terminations	Yes	No	N/A	Comments
Cladding is Terminated Above Grade	X			
Cladding is Sealed At Bottom	X			

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Summary Checklist Continued

Miscellaneous	Functioning	Issue	N/A	Comments
Evidence Of Sprinkler Overspray		X		Move the sprinklers or change the type of Heads to prevent water from reaching the windows.
Gutters Clean & Functioning		X		The gutters are dirty and need to be cleaned / maintained.
Down Spout Fasteners Sealed	X			
Cracks Or Impact Damage	X			Minor cracking is noted at the system.
Delaminating At Foam / Substrate			X	
Exterior Evidence Of Pest Infestation			X	
Adequate Slope Of Grade Away From Foundation	X			
Crawlspace Inspection Made			X	
Property Located Near Body of Water If Yes, Describe			X	

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Moisture Inspection Summary

SCOPE:

Bayou State Inspections was contracted to perform a IR Building Envelope Scan to determine the source of the building leaks in accordance with the Standard Operating Procedure for Louisiana Housing Corporation “Quail Drive” Infrared Building Envelope Scan Version 1.0.

FUNCTION:

The basic requirement for buildings is to create an indoor environment different from the outdoor. In this regard, buildings are environmental separators. They allow the regulation of: air movement, humidity, rain, snow, light, dust, odors, noise, insects, vermin, and temperature. The basic factors controlling the physical, chemical, and biological reactions are: 1-Heat flow, 2-Air flow, and 3- Moisture flow. The three main factors that degrade buildings are: 1-Moisture, 2-Heat, and 3- Ultra-violet radiation; all of which add energy to a building. Water causes the majority of all building degradation; controlling water / moisture entry is the most critical function of all buildings.

OVERVIEW:

Bayou State Inspections performed an Infrared Thermal scan of the interior and the exterior perimeter walls using the FLIR B-400 S/N 345000959 and the FOTRIC 228 S/N T3S2IXU3002 IR Thermal Cameras. The moisture meters used were a Protimeter MMS2, a Tramex RWS, and a Delhorst Total Check.

OBSERVATIONS & CONCLUSION:

Building Envelope and Moisture Survey

First Floor Front Entrance:

1. Leaking with water damage is noted at all of the windows. A leak at the front window was noted at the (east) most vertical trim at the lower section as noted in the scanned drawing. Seal the window at the tracks by removing the metal trim. Replace the metal trim and any failed rubber gasket material used at the track to window intersection.

2. Leaking of the East and West tall upper windows was noted at the bottom track, the expansion joints at the bottom corner junctions, and at the framework (behind the trim) of the windows. Seal the window at the tracks by removing the metal trim and sealing at the window fasteners and brace bars. Replace the metal trim and any failed rubber gasket material used at the track to window intersection. Clean and seal at the expansion joints as well as under the windows. Design flashing to prevent wind driven rain from entering under the windows. Once the leaking of these windows can be documented and proved to be inactive, the large plaster window sills will require repair as well as some of the sheetrock walls. Salt deposits are noted as a result of this

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Moisture Inspection Summary

leaking along with gaps at the side of the wall to window intersection.

3. The front windows have condensation that also causes water damage due to the location of the HVAC supply ducts. Move the supply ducts from the outer section of the ceiling to the interior section to stop the cold supply air from cooling the metal window trim, which is allowing condensation to form and drip down to the bottom of the windows.

First Floor Left (West) Side:

4. Leaking of the front left side (West) second floor upper windows is noted; and, the resulting water damage can be seen at the upper portions of the windows along the front left hall. Seal the window at the tracks by removing the metal trim and sealing at the window fasteners and brace bars. Replace the metal trim and any failed rubber gasket material used at the track to window intersection. Replace the missing trim at the window noted in the photo section and secure the window with the loose trim as noted in the photo section of this report. Clean and seal at the expansion joints as well as under the windows. Design flashing to prevent wind driven rain from entering under the windows. Once the leaking of these windows can be documented and proved to be inactive the sheetrock damaged areas can then be replaced / repaired.

First Floor Back Entrance:

5. Leaking of the East and West tall upper windows was noted at the bottom track, the expansion joints at the bottom corner junctions, and at the framework (behind the trim) of the windows. Seal the window at the tracks by removing the metal trim and sealing at the window fasteners and brace bars. Replace the metal trim and any failed rubber gasket material used at the track to window intersection. Clean and seal at the expansion joints as well as under the windows. Design flashing to prevent wind driven rain from entering under the windows. Once the leaking of these windows can be documented and proved to be inactive the Lower walls and trim will require repair / replacement.

First Floor Doors:

6. The bottoms of almost every exterior door has gaps at the weather stripping. Re-weatherseal the entry doors to prevent water intrusion.

Second Floor Leaks:

7. A leak at a second floor window was noted in the Work Space 209J on the East wall. This is a window leak that enters into the building envelope at the bottom right corner (southeast corner) of the south most window section. The only other area on the second floor with moisture intrusion is a leak of the back entrance East wall upper window at the break room 205. This has caused minor water damage with light microbial growth at the bottom right corner. Water stains and damaged ceiling tile are noted from a A/C condensation leak in Office 218. Seal the window at the tracks by removing the metal trim and sealing at the

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window fasteners and brace bars. Replace the metal trim and any failed rubber gasket material used at the track to window intersection. Design flashing to prevent wind driven rain from entering under the windows. Once the leaking of these windows can be documented and proved to be inactive the damaged wall will require repair / replacement. Seal the A/C Units and supply ducts using mastic to prevent air leaks that result in condensation and water damage to the ceiling tile.

Third Floor Leaks:

8. The third floor windows are not actively leaking at this time. The only signs of water entry are in the stairwell areas at the ceilings on both the East and West sides as well as the Break Room 350. These leaks are due to condensation of the A/C units and ducts. The Northeast corner office 359 has water stains as well as at the ceiling tile from condensation of a pipe in the plenum. This pipe has been repaired and re-insulated and was not active at the time of this evaluation. Seal the A/C units and supply ducts using mastic to prevent air leaks that result in condensation and water damage to the ceiling tile.

FACILITY MAINTENANCE RECOMMENDATIONS:

1. The lead building mechanic must be trained in Infrared Thermography to be the On-site entity that can provide crucial documentation in real time of the building performance between annual IR Scans. This training can be provided by a Certified Level III Thermographer. The best practice would allow this employee to attain a Level I Certification. To attain the Level I Certification, the employee would go through Infrasppection Training and pass a proctored exam. Once gained, this person would maintain the certification forever more with no additional classes or training.

2. Purchase a hand held Infrared Camera to be used as the buildings thermal "eyes". A number of different choices are available. For versatile all around use, a camera that attaches to a cell phone makes a very good and economical choice. The phones pictures are clear and you do not need the sensitivity of a \$20,000.00 unit to find latent moisture on the interior drywall of ceiling tile in a building. Our recommendation would be the SEEK Thermal Imaging Camera 15 Hz 320X240 Sensor Compact Pro Series For IOS. The cost of this unit is \$499.00.

3. Once the lead building mechanic is trained with this camera and in the basics of Infrared Thermal Imaging, the interior of the building can be scanned at anytime to either find or verify active leaking from rain / weather events, HVAC condensation, pipe leaks, and much more. The ROI for this is tremendous because the day to day or weather event scans can be conducted "in house" saving thousands each year. The only outsourcing of IR Scans would then be the annual scan which would have detailed documented records that will result in less time for the annual survey, saving even more facility dollars.

4. The building's Chiller Units are aged and in poor maintenance condition from years of poor maintenance. These units are also not as "technically smart" as newer units. When bad weather or power surges / sags occur, these units cannot automatically start and or transfer over to continue to functioning. These units

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will require replacement in the near future and should, therefore, be budgeted for in the next five to ten years. The units may be able to be retrofitted with devices that will automatically re-start the unit after a "power event"; however, this should be researched to confirm the ROI is feasible prior to the replacement that is inevitable. The chiller in the poorest condition should be replaced first so as to be able to run the new chiller and cycle the old chiller until such time that the budget could allow for a second chiller system.

5. The Generator currently in use is in poor condition and will need to be assessed further to determine the best course of action to correct its issues and shortcomings. The first is to identify its required system load and its function within the building's use, what critical systems does it cover, and are any additional systems or loads needed for the future of the building's success. Second is to determine if a newer unit will provide a positive ROI and how long will it take to recover the cost of a newer unit. Once this is determined a system can be designed and purchased that will provide many years of useful and adequate service for the building's critical loads.

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Photo Observations

Photo5.1



South Side

Photo5.2



Front Left (West) Side

Loose and missing trim at the upper sections of the windows

Leaking noted at the bottom of the large second and third floor windows causing water damage at the top and sides of the windows on the inside along this interior hallway.

Photo5.3



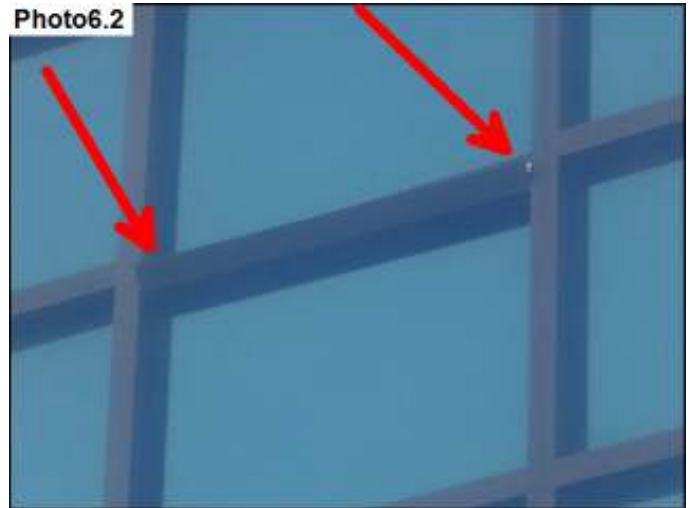
The large front entrance windows on the East and West Sides leak allowing water damage inside the building at the large plaster sills. These windows leak at the trim / rubber gasket areas as well as at the bottom corners.

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Missing trim flashing at the front left wall upper window

Loose trim at the front left side upper window



Front left side wall IR photo taken after sunset. The wall is not leaking; however, the windows are allowing moisture behind them to the inside drywall walls along the front left hall.



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Salt deposits (water damage) from the elevated moisture in the plaster of the front entrance windows



Salt deposits (water damage) from the elevated moisture in the plaster of the front entrance windows.



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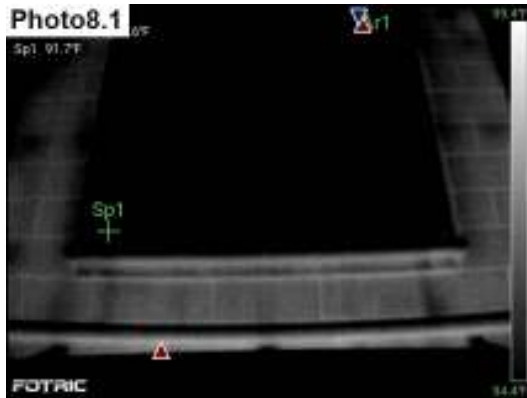
Large crack at the bottom of the front entrance windows; repair after the leaking is corrected.



The vent at the ceiling is cooling the window frame, which allows condensation at the window.

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Photo Observations



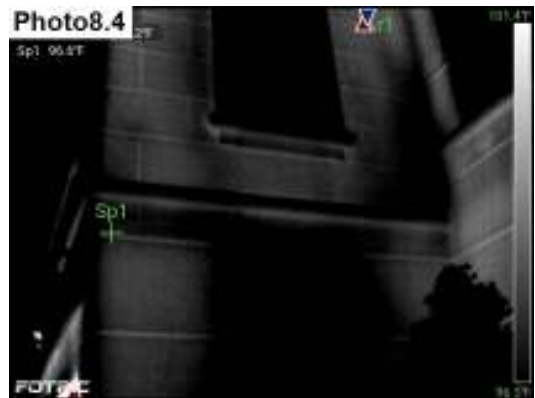
Front Entrance IR



Front Entrance



Front Right Side Entrance



IR Front Right Side Entrance IR



Front Left Entrance IR



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Photo9.1



Back (North) Elevation

Photo9.2



Back (North) Elevation
Arrow marks area of leak.

Photo9.3



Back (North) Elevation
Arrow marks area of leak.

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Photo Observations



Back Entrance right side upper window leaks at the base



Back wall Lower Right Side Windows



Back wall Upper Right Side Windows



Back Entrance left side upper window leaks at the base.



Back wall Upper Left Windows



Back wall Lower Left Windows

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Photo Observations



Leaking at the bottom of the Back Entrance East facing window
Bottom of window photo



Leaking at the bottom of the Back Entrance East facing window.
Bottom of window photo.



Leaking at the bottom of the Back Entrance East facing window.
Sealant Joint photo.



Leaking at the bottom of the Back Entrance East facing window.
Sealant Joint photo.



Leaking at the bottom of the Back Entrance East facing window.
Sealant Joint photo.



Leaking at the bottom of the Back Entrance East facing window.
Sealant Joint photo.

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Photo Observations

Photo12.1



Repairs noted at the windows from the outside or exterior of the trim. Repairs must be made under the trim at the windows to be effective.

Photo12.2



The sides/corners of the windows channel water at the expansion joints at the front and back entrances (East and West sides) directly onto the joint causing water entry into the building envelope.

Photo12.3



Water damage from leaking at the left upper (West) side window headers along the hall

Photo12.4



Water damage from leaking at the front wall left (West) side windows along the hall.

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Photo Observations



Water stains and damage noted at the back (East) right side upper wall in attic from window leak



Water stains and damage noted at the back (East) right side upper wall in attic from window leak.



Water stains noted at the front (West) left side upper wall in plenum space from window leaks.



Water stains noted at the front (West) left side upper wall in plenum space from window leaks.



Sealant Failure Repair.



Gasket failure at the exterior side of the windows.

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Photo Observations

Photo14.1



The only leak noted on the East side of the building was at the inside corner of office 209J.

Right (East) elevation

Photo14.2



The West side windows did not have any actively leaking windows or walls.

Photo14.3



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Photo Observations



Minor water damage at the lower Back entrance windows



Office Space 209J interior view. No water damage at the sill or drywall noted at this time.



Small area of water damage at the side wall of the second floor office space 212F (Alex Calomb).



Upstairs break room water damaged wall with apparent microbial growth; correct and repair



Water stains and damage is noted at the second floor window likely due to condensation.



Water stains and damage is noted at the second floor window likely due to condensation.