AGENDA
CODE ENFORCEMENT & APPEALS BOARD HEARING
JUNE 7, 2018
5:30 PM
CITY HALL COMMISSION CHAMBERS
204 ASH STREET
FERNANDINA BEACH, FL 32034

1. CALL TO ORDER / ROLL CALL / DETERMINATION OF A QUORUM

2. APPROVAL OF MINUTES

2.1 *Minutes from the May 2, 2018, Regular Hearing*

3. OLD BUSINESS

3.1 **MARK R. O'BRIEN, 400 S. 8TH STREET, CASES 15-0058 & 17-0007.** *Property owner to provide update.*

3.2 **RICHARD GOODSELL, FRONT STREET PROPERTY LLC, 101 NORTH 2ND STREET, CASE 18-00044.** Violation(s) of the City of Fernandina Beach Code of Ordinances exist: Section 42-116 (a & b), cleaning of lots; maintenance of structures. *Requesting Board determination of the case.*

3.3 **DAVID EMMETT COOK, JR, 500 FRONT STREET, CASE 07-00080.** *Property Owner requests a reduction of fines assessed.*

3.4 **DALE HAIR & STEVEN HAIR & LARISSA KWIATKOWSKI ET AL, 818 SAN FERNANDO STREET, CASE 17-00069.** Violation(s) of the City of Fernandina Beach Code of Ordinances exist: Section 42-116 (a&b), cleaning of lots; maintenance of structures; 42-173 wrecked or inoperable motor vehicles on private property declared a nuisance and prohibited; and LDC 7.01.05 C & D, Specific Parking Restrictions of Commercial Vehicles, Recreation Vehicles, Boats and Trailers. *Property owner requests a reduction of fines assessed.*

4. NEW BUSINESS

4.1 **BESSIE M. LAWYER, 223 N. 8TH STREET, CASE 18-00039.** Violation(s) of the City of Fernandina Beach Code of Ordinances exist: 42-173 Wrecked or Inoperable Motor Vehicles on Private Property Declared a Nuisance and Prohibited. *Requesting Board determination of the case.*

4.2 **MEMEORIA QUARTERMAN, 517 S. 12TH STREET, CASE 18-00057.** Violation(s) of the City of Fernandina Beach Code of Ordinances exist: 42-173 Wrecked or Inoperable Motor Vehicles on Private Property Declared a Nuisance and Prohibited. *Requesting Board determination of the case.*

4.3 **SCOTT A. RIVENBARK & MARY BETH JONES (JT/RS), 1504 BROOME STREET, CASE 18-00043.** Violation(s) of the City of Fernandina Beach Land Development Code exist: 7.01.05 Specific Parking Restrictions for Commercial Vehicles, Recreational Vehicles, Boats, and Trailers. *Requesting Board determination of the case.*

4.4 **JANICE A. O'CONNELL, TRUSTEE OF JANICE O'CONNELL REVOCABLE LIVING TRUST, 2727 OCEAN DRIVE,** Violation(s) of the City of Fernandina Beach Code of Ordinances exist: 42-173 Wrecked or Inoperable Motor Vehicles On Private Property Declared a Nuisance and Prohibited. *Requesting Board determination of the case.*

5. BOARD BUSINESS

6. ADJOURNMENT

Quasi-Judicial – Denotes that the item must be conducted as a Quasi-Judicial hearing in accordance with City Commission established procedure and Florida Statutes.

All members of the public are invited to be present and be heard. Non-English speaking individuals may request a language or sign interpreter at least ten (10) working days prior to this meeting. Persons with disabilities requiring accommodations in order to participate should contact the City Clerk at (904) 310 - 3115 or TTY/TDD 711 (for the hearing or speech impaired).

For information regarding this matter, please contact the Community Development Department (904) 310-3135. If any person decides to appeal any decision made by the Code Enforcement & Appeals Board with respect to any matter considered at such meeting he/she will need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be made.

1. Call to Order/ Roll Call/Determination of Quorum – The meeting was called to order at 5:32 pm.

Council Members Present

Chair Buddy Boyd
Cynthia Crow
Marlene Chapman
Adam Kaufman
Vice Chair Scott Steffen
Henry Byrd
Gail Schults

Others Present

Tammi Bach, City Attorney
Valerie Faltemier, acting Board Attorney
Michelle Forstrom, Code Enforcement Manager
Sal Cumella, City Planner
Katie Newton, Recording Secretary

2. Approval of Minutes – According to the agenda support documents, the Minutes for the February 1, 2018, Regular Hearing were presented for approval. **A motion was made by Member Kaufman, seconded by Member Chapman, to approve the Minutes. Vote upon passage of the motion was taken by voice vote being all ayes, carried.**

Board Attorney Faltemier explained the quasi-judicial process. Chair Boyd asked if there had been any ex-parte communications regarding the cases on the agenda. Member Kaufman read a statement that he is involved with a community organization for historic preservation, and that the architect retained by Mr. Goodsell, Jose Miranda, is part of the same organization. Member Kaufman had information regarding the property via conversations with other members of the preservation board. He asked Board Attorney Faltemier if he should recuse himself from the case, and Ms. Faltemier advised that he could participate in board discussion and voting. Ms. Newton swore in witnesses.

3. New Business

3.1 **RICHARD GOODSELL, FRONT STREET PROPERTY LLC, 101 NORTH 2ND STREET, CASE 18-00044.** Violation(s) of the City of Fernandina Beach Code of Ordinances exist: Section 42-116 (a&b) Cleaning of lots, maintenance of structures. *Requesting Board determination of the case*.

Chair Boyd read the case and opened the public hearing. Ms. Forstrom presented the case for City and submitted evidence for the record. The property has been on the City's radar for a long time, and the Historic District Council recently referred the property to Code Enforcement to determine violations. Ms. Forstrom had spoken several times to the property owner, including a meeting with Sal Cumella and a representative of Mr. Goodsell, Mr. Porter, and another meeting with Mr. Goodsell, his attorney, Mr. Cumella, and City Attorney Bach. On April 26, she went to the property, took pictures, and found it still in violation.

She called Sal Cumella to be a witness. Mr. Cumella stated that the property does not fall within the Historic District, but the building is historic. To be considered historic, it has to be 50 years or older and be a contributing structure to the character of the period of historic significance. He gave a presentation that he previously gave to the Historic District Council on February 15. He discussed the evaluation he and Ms. Forstrom did in February, which showed disrepair, broken windows, signs of water intrusion. He stated the HDC was looking at the provision of demolition by neglect, but that only applies to buildings within the historic district.

Member Crow asked for clarification on the building's historic significance and why the case went to the HDC. Mr. Cumella explained that the building is historic, but that the property falls outside of the downtown Historic District and the building itself is not on the registry of historic places. He stated that the HDC had requested to look at the case as demolition by neglect, but as it is not part of the district it was referred to Code Enforcement.

Member Chapman asked if the building had to be restored according to HDC standards if it wasn't in the historic district. Mr. Cumella stated that the building was in the CRA so it would have to come before the HDC for alterations, additions, and demolition under CRA guidelines.

Ms. Forstrom recommended $250 fine per day per violation and administrative fees; from her perspective, there are two options moving forward: demolition or restoration.

City Attorney Tammi Bach spoke, representing City staff. She stated that during the meeting in her office, she told Mr. Goodsell that if he could show progress by making efforts to clean up parts of the property, like boarding up windows, the Board could possibly show leniency, but as of today, no progress had been made. She is aware Mr. Goodsell is inclined to sell.

Chair Boyd wanted to know specifically what needed to be done to get the property in compliance, if that included boarding up windows, cleaning vegetation and the yard, and fixing the roof. Ms. Forstrom stated that staff wanted the property to no longer be an eyesore, so painting, the fixing the scuppers and downspouts, stabilizing the roof, windows, can be done without a full rehab.

Member Crow thought that sounded different from Ms. Forstrom's earlier remark about demolishing or restoring the building. Ms. Forstrom clarified that the owner could do minor things to bring it into compliance. Member Kaufman asked if there was a list of items agreed to at the meeting to bring into compliance. Ms. Forstrom said yes, and referred to the list in the staff report. Member Crow asked why the landscape wasn't included in the presentation but on the report, and Ms. Forstrom stated that the Shrimp Festival cleans the lot up to use during the festival, and so it was taken care of prior to the meeting. Member Crow asked if it was both a violation for cleaning of lots and one for maintenance of structures and Ms. Forstrom replied yes.

Vice Chair Steffen asked whether she was concerned with the inside of the building, and Ms. Forstrom stated that her purview is what it looks like on the outside.

Mr. Harrison Poole, representing the property owner, stated that Mr. Goodsell was having surgery and therefore was unable to attend the hearing. Mr. Goodsell had expressed disappointment that his on-site manager, Bruce Porter, had not started taking care of the items on the list. Mr. Goodsell is a unique individual and would like to save the building, it survived Hurricane Irma so that speaks for its structural integrity. Mr. Goodsell purchased the property in 2014 and knew it was in the CRA. When purchased, he realized it was being used by squatters and was full of junk. He spent time and money to clean up and secure the building, and hired someone to determine if the building was structurally sound in 2016. Mr. Poole stated that the building needs work, but as per a study recently done, it is structurally sound. Mr. Goodsell hired Mr. Miranda to do a feasibility study to see what it would take to repair the roof and make repairs to the outside of the building. Cost estimate for the repairs is between $400,000-$500,000.

Mr. Poole stated that Mr. Goodsell is interested in selling the property, although it is not listed for sale. He has been approached by buyers but he has turned them down because they were only interested in the land and wanted to tear down the building. He has spoken with the museum and historic preservation society and would consider donating if they can fundraise for the restoration. He wants to be a good steward of the building. Mr. Poole stated that the City has not done a lot to help the area, and the Alachua Street opening would be crucial to new opportunities in the building. Mr. Poole pointed out that the Standard Marine building has studies that show it is structurally sound and the City is demanding repairs, while the City owns the Vuturo property that is on the verge of collapse. The City has given themselves a year to determine how to handle that building. Mr. Poole stated that they just want a little more time to find a buyer or make a plan to restore the building.

Mr. Poole stated that the value of the property is in the land. Certainly, there are some easy fixes, but disagrees with City staff on some points as to how feasible the fixes are. Mr. Miranda's report shows that the paint costs could be $60,000. They would like more time to make short-term fixes and a lien would make it harder to do what he wants to do to clean up the property and sell it.

Member Crow stated that it seemed as though they are were talking apples to oranges – the City is asking for cleanup, not full restoration, and Mr. Miranda's report shows costs for restoration. Having costs for just cleaning up would be helpful. Mr. Poole said that some of the things on the City's list could be done with minimal cost, but items like the roof and anything involving scaffolding would be more expensive. That is why they got the report and wanted more time to formulate a plan.

Vice Chair Steffen asked if the City asked for painting, and the City stated that there is paint failure that needs to be addressed. Mr. Poole stated that to do it properly, it would be expensive. Vice Chair Steffen asked if Mr. Goodsell had given a time frame to hire someone to address some of the issues. Mr. Poole stated that he did not know immediately but had offered to use his resources to assist Mr. Goodsell in finding someone. Mr. Miranda stated he could address it further.

Member Kaufman stated that on page 8 of Mr. Miranda's report, there is a recommendation to incorporate the property into the downtown Historic District. He asked if Mr. Goodsell had thoughts on that. Mr. Poole stated that in the long-term, the plan would be to move it to the historic district if an appropriate buyer was found to restore the building. Member Kaufman pointed out that there was nothing that prevented Mr. Goodsell from moving the property into the historic district, and Mr. Poole stated that would subject it to the demolition by neglect before the Historic District Council, and he thinks that inclusion into the Historic District would benefit the building as long as it was allowed to survive. Member Kaufman asked how long it would take to start taking steps to get the building into the Historic District, and Mr. Poole wasn't sure. Member Kaufman stated moving the property into the Historic District would go a long way to rehabilitating the property.

Member Chapman asked if Mr. Goodsell had any interest in keeping the property and rehabbing it himself.

Mr. Jose Miranda, architect, had been contracted by Mr, Goodsell to assess the building. There are two methods to deal with a situation like the building is in: "mothballing" to prevent future deterioration or a full restoration. Mr. Goodsell wanted to see the costs for exterior restoration for marketability. Because this is not a certified historic building, there are some problems for restoring it related to the building codes and flood zone areas. It would be very difficult and costly to meet these codes and so they recommend incorporation into the historic district. The problem Mr. Goodsell has been facing is that investors are interested in the property, but only in the land. Mr. Miranda spoke to his recent experience with a restoration project of the school house, which cost $2.5 million and was in better shape than this property. There is a lot of construction work available right now, and there are not many professional restoration specialists available, so the process is 10-14 months long. He will discuss the report with Mr. Goodsell to decide the path forward.

Member Kaufman stated that one of the first steps would be incorporation into the Historic District. Mr. Miranda agreed, and stated that they were advising Mr. Goodsell to make that step, but Mr. Goodsell had not made a decision yet. Mr. Miranda stated that it took a long time to get a permit.

Member Crow asked about the costs for "mothballing" coming in at around $70,000-$80,000, and Mr. Miranda clarified what those repairs would include, including patching roof and one coat of paint, as well as securing the openings. Vice Chair Steffen asked how long that would take and Mr. Miranda said it was 3-4 month process.

Chair Boyd asked if there were any more questions or witnesses, and Mr. Poole stated that he didn't have any more, but wanted to reiterate that they were requesting time to get a plan and make progress. Member Kaufman asked if it would be evidence of good faith to apply for the historic district, as it has been said that restoration is only feasible if the property is incorporated into the historic district. Mr. Miranda stated it was a double-edged sword, that joining the Historic District might open them up to higher HDC standards and a timeline that can't be met.

Member Crow asked to have the timeline clarified. Ms. Forstrom stated that the case came before the HDC on March 15, and from there was referred to CEAB. The City has been talking about the property for a long time. Mr. Poole stated that Mr. Goodsell had not been invited to or notified about the Historic District Council meeting where his property was discussed.

Member Shults asked how long it would to take to clean up the property. Ms. Forstrom stated that when she began talking with Mr. Goodsell, she shared that she believed that if an effort was made to clean the property, the Board might be inclined to give more time to him before imposing fines. Member Shults thinks it would be horrible to be the building demolished. Ms. Forstrom stated that she was disappointed in the lack of progress so far, but she wished to change her recommendation to allow Mr. Goodsell more time, but to require a monthly update to provide accountability.

Chair Boyd asked why Shrimp Festival cleaned up the yard. Ms. Forstrom stated that they use it every year as a staging area. Chair Boyd stated that the Board is here to determine violations, not make decisions on what Mr. Goodsell is planning on doing with it in the future. Member Kaufman stated that if we are discussing the property, all aspects are on the table, and while he agrees that the only thing the Board can decide is related to the violations, but he doesn't want to do something that might harm restoration efforts.

Ms. Rhonda Shaw, 1011 South Fletcher Avenue, was sworn in as a witness. She is a downtown business owner and is a potential buyer for the building. She described her current and past businesses in the downtown area. She stated that when the economy went down, she couldn't keep her import business, but now that the economy is back, she is interested in that building to start her business again. She said she wrote a letter a few years ago to Mr. Goodsell explaining her feelings and interest in the building, and that she would like to restore it and put in a family business. Mr. Goodsell was receptive, but then the hurricanes hit the area and things did not progress. She has been in the building several times with contractors and believes the building is sound, and the roof is causing most of the problems. She stated that from a buyer's standpoint, there is nothing to entice someone to come down that way from Centre Street, and thinks the City should invest in sidewalks and opening Alachua Street to encourage business. She stated the Mr. Goodsell does care for the building, and if she is the one to get it, she would want to restore it and put it in the Historic District.

City Attorney Bach stated that the City's recommendation to the Board is that the owner be given 30 days to do the basic items: cleaning vegetation, boarding broken windows, and remove or fix downspouts and scuppers. She said that this building has the attention of citizens. Staff would like to see something done with paint, whether it is removing graffiti, or applying a single coat of paint, or full restoration, and a solution for the roof leaks, and would like the owner to report back a plan for those items at the next meeting.

Member Crow asked if the recommendation was to board up windows and if that would address the frame deterioration. City Attorney Bach said that the main thing is for the windows to be boarded up properly so that the frames were covered. Vice Chair Steffen asked if all windows should be boarded up, and Ms. Forstrom stated that it was all windows as a preventative measure, because the building could be a target for vandalism. Ms. Shaw stated there was a lot of glass blown out during the hurricanes. Chair Boyd stated the code which says that the building should be safe, and Ms. Forstrom stated that also includes security.

Mr. Poole stated that he thought it might be unnecessary to board up all windows, and might be more unsightly than the window itself. Chair Boyd stated that boarding the windows will help secure the building.

Chair Boyd closed the public hearing and asked for Board discussion. Member Kaufman proposed that the Board adopt the staff recommendation.

A motion was made by Member Crow, seconded by Member Chapman, to find the property in violation of 42-116 (a&b), and to assess administrative fees. Vote upon passage of the motion was taken by ayes and nays, and all ayes, carried.

A motion was made by Member Kaufman, seconded by Member Chapman, allow the property owner until the next meeting, June 7, to board the windows, clean vegetation on lot and building, and to remove or fix downspouts and scuppers and report back to the Board at the June meeting on other items on the staff report; and to assess $250.00 per day per violation beginning June 8, if the report to the Board is unsatisfactory, until the property came into compliance. Vote upon passage of the motion was taken by ayes and nays, and being all ayes, carried.

Mr. Miranda wanted clarification on whether the items on the list required a permit from the City. Ms. Forstrom and Mr. Cumella stated that the items on the list did not require either Certificate of Approval or permit.

4. Old Business

4.1 **WALTER L. CHAMPION ESTATE, 221 SOUTH 5TH STREET, CASE 18-00037.**
Violation(s) of the City of Fernandina Beach Code of Ordinances exist: Section 22-26 (12) Adoption of codes by reference, Internal Maintenance Code 2012 edition, Chapter 5, Section 505 Water System; and 506 Sanitary Drainage System.
Requesting Board determination of the case.

Chair Boyd read the case. Ms. Forstrom presented the case for the City. As of April 6, 2018, Dennis Champion had vacated the property. The yard has been cut and there is a for sale sign on the property. Staff does not recommend any fines other than $177.19 in administrative fees as determined at the last hearing.

Chair Boyd opened and closed the public hearing.

No motion was made to determine any additional fines at this time.

5. STAFF REPORT

5.1 Board Application – Alternate #1: Ms. Christine Harmon

Ms. Newton stated that Ms. Harmon's information was in the Board packet, and that she was present and available to answer questions. Ms. Harmon addressed the Board, saying that she found the meeting fascinating and wanted the opportunity to become active in the community.

City Attorney Bach stated that the Board could make a recommendation to appoint, be silent, or recommend that the Commission not appoint.

A motion was made by Member Kaufman, seconded by Member Shults, to recommend appointment of Ms. Harmon to the City Commission. Vote was taken by voice, and passed, all in favor.

5.2 City Commission Presentation May 15, 2018

Ms. Forstrom stated that Chair Boyd and she would be making a presentation about the Code Enforcement and Appeals Board per the request of City Commission. She asked that any Board members available and interested attend the meeting.

Other Business:

Member Crow requested that an itemized list be put together to track progress for the following meeting with Mr. Goodsell. City Attorney Bach stated that they could show pictures of progress.

City Attorney Bach gave an update on Taylor Rental: the property is on the market, listed at $785,000 and that time of property takes an average of 4-6 months to get a buyer. The attorney for Mr. O'Brien has spoken to him to liquidate equipment. Additionally, there are two nuisance houses in Fernandina Beach to be aware of: one in Nature's Gate, and one on Division Street.

Member Kaufman asked the status of a blue house on Date Street with a dumpster. Ms. Forstrom stated that she would get an update on that.

Chair Boyd asked whether the Board had to make time extensions, or whether City Attorney Bach could make decisions. It is scheduled for an update next meeting and the Board would have to make any decisions on changes to the fines if they ask for it.

Member Shults asked about abandoned cars in the right-of-way on First Avenue. Ms. Forstrom stated that if it is in the right-of-way it is police, but if it next to a property with a code violation, sometimes Code Enforcement will try to handle it so the police don't have to.

6. Adjournment - There being no further business to come before the Code Enforcement and Appeals Board, the meeting was adjourned at 7:30 p.m.

_____
Katie Newton, Recording Secretary

_____
Carlton "Buddy" Boyd, Chair

INSTR # 201714913, Book 2121, Page 505 Doc Type LN, Pages 1, Recorded 05/19/2017 at 08:56 AM, John A Crawford, Nassau County Clerk of Circuit Court, Rec. Fee $10.00

City of Fernandina Beach

FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER OF ENFORCEMENT

Date: October 1, 2015
Case Number: 15-00058
IN THE MATTER OF: Respondent Name: Mark O'Brien
Respondent Address: 400 South 8th Street, Fernandina Beach, FL 32034

This case having come before the Code Enforcement & Appeals Board of the City of Fernandina Beach on October 1, 2015, a violation hearing having been held, and the Board having heard testimony, does hereby make the following finding of facts, and conclusions of law therefore imposing the following order and penalty:

SECTION 1 - FINDINGS OF FACT

1. The Respondent was properly served notice of these proceedings as required by law on September 14, 2015 and the Respondent was not present at the hearing.

2. The real property on which the continued violations are occurring at 400 South 8th Street, Fernandina Beach, FL and a brief legal description being **Block 134 Lots 1 2 3 & 7 IN OR 411/427 City of Fernandina Beach, FL 32034.**

3. The Respondent is the owner of record of the aforementioned real property.

4. The Respondent violated sections of the Fernandina Beach Code of Ordinances: Section 42-116 (b) Cleaning of lots; Maintenance of Structures; and Chapters 5.03.04 (c), Inspection of signs, (d) Unsafe signs and sign violating the Land Development Code (LDC), and (f) Maintenance of signs.

SECTION 2 - CONCLUSION OF LAW & IMPOSITION OF FINE

1. Based on the foregoing findings of fact, the Board voted to find the respondent in violation of Violation(s) of the City of Fernandina Beach Code of Ordinances: Section 42-116 (b) Cleaning of lots; Maintenance of Structures; and Chapters 5.03.04 (c), Inspection of signs, (d) Unsafe signs and sign violating the Land Development Code (LDC), (f) Maintenance of signs; and to start accessing a fine of $100.00 a day starting October 2, 2015 until the property is brought into compliance and to recover administrative fees incurred.

2. The City of Fernandina Beach shall record a certified copy of this order in the public records and this Order shall constitute a lien against the real property on which the violations exist and upon any other real or personal property owned by the Respondent if fines are not paid within thirty (30) days.

3. If the lien remains unpaid for a period of three (3) months from the date of the filing of the lien, the City of Fernandina Beach may foreclose on the lien or sue to recover a money judgment for the amount of the lien plus accrued interest.

SECTION 3 - CERTIFICATION OF VOTE

Done and ordered October 1, 2015 at the City of Fernandina Beach, Nassau County, Florida Code Enforcement & Appeals Board Hearing.

By: _____
Chair Adam Kaufman

ATTEST:
By: Caroline Best
Printed Name: Caroline Best
Title: City Clerk
Date: May 16, 2017

*Florida Statute 162.11 Appeals.—An aggrieved party, including the local governing body, may appeal a final administrative order of an enforcement board to the circuit court. Such an appeal shall not be a hearing de novo but shall be limited to appellate review of the record created before the enforcement board. An appeal shall be filed within 30 days of the execution of the order to be appealed.

INSTR # 201715467, Book 2122, Page 400 Doc Type LN, Pages 1, Recorded 05/25/2017 at 09:59 AM, John A Crawford, Nassau County Clerk of Circuit Court, Rec. Fee $10.00

City of Fernandina Beach

FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER OF ENFORCEMENT

Date: May 4, 2017
Case Number: 17-0007

PARCEL ID#
00-00-31-1800-0134-0010

IN THE MATTER OF. Respondent Name: Mark O'Brien, Taylor Rental Center
Respondent Address. 400 S. 8th Street, Fernandina Beach, FL 32034

This case having come before the Code Enforcement & Appeals Board of the City of Fernandina Beach on May 3, 2017, a violation hearing having been held, and the Board having heard testimony, does hereby make the following finding of facts, and conclusions of law therefore imposing the following order and penalty.

SECTION 1 - FINDINGS OF FACT

1 The Respondent was properly served notice of these proceedings as required by law on March 13, 2017 and the Respondent was not present at the hearing

2. The real property on which the violations occurred at 400 S. 8th Street, Fernandina Beach, FL and a brief legal description being **Block 134 LOTS 1 2 3 & 7 IN OR 411/427, City of Fernandina Beach, FL 32034.**

3 The Respondent is the owner of record of the aforementioned real property

4. The Respondent violated sections of the Fernandina Beach Code of Ordinances Section 42-116 (a & b), Cleaning of lots, Maintenance of Structures, of the City of Fernandina Beach Land Development Code.

SECTION 2 - CONCLUSION OF LAW & IMPOSITION OF FINE

1. Based on the foregoing findings of fact, the Board voted to find the property in violation of 42-116 (a), cleaning of lots and 42-116 (b) maintenance of structures Fees to be accessed at $250.00 per day per violation beginning May 4, 2017 continuing until such time as it is bought into compliance; and that the respondent pay the administrative fees incurred.

2 The City of Fernandina Beach shall record a certified copy of this order in the public records and this Order shall constitute a lien against the real property on which the violations exist and upon any other real or personal property owned by the Respondent if fines are not paid within thirty (30) days.

3. If the lien remains unpaid for a period of three (3) months from the date of the filing of the lien, the City of Fernandina Beach may foreclose on the lien or sue to recover a money judgment for the amount of the lien plus accrued interest.

SECTION 3 - CERTIFICATION OF VOTE

Done and ordered May 3, 2017 at the City of Fernandina Beach, Nassau County, Florida Code Enforcement & Appeals Board Hearing.

By. _____
Chair, Buddy Boyd

A Certified True Copy

ATTEST:
By: _____
Printed Name: _____
Title: _____
Date: _____

*Florida Statute 162 11 Appeals --An aggrieved party including the local governing body, may appeal a final administrative order of an enforcement board to the circuit court Such an appeal shall not be a hearing de novo but shall be limited to appellate review of the record created before the enforcement board An appeal shall be filed within 30 days of the execution of the order to be appealed

ADMINISTRATIVE FEES INCURRED FROM
400 SOUTH 8TH STREET
AS OF 5/31/18
CODE CASE #15-00064

STAFF PERSONNEL	# OF UNITS OR HOURS	RATE PER HOUR	TOTAL
Michelle Forstrom, Code Compliance Officer	4	$18.69	**$74.76**
Michelle Forstrom, Code Enforcement Manager	4	$21.17	**$84.68**
Michelle Forstrom, Code Enforcement Manager	2	$23.13	**$46.26**
Cathy Sabattini, Board Secretary & Staff Assistant	2.2	$15.25	**$33.55**
Katie Newton, Board Secretary/Legal Assistant	4.5	$21.63	**$97.34**
Record Findings of Facts with the Clerk of Circuit Court of Nassau County	1	$10.00	**$10.00**
Certified letters mailed	1	$6.48	**$6.48**
First Class letters mailed	2	$0.48	**$0.96**
TOTAL			**$354.03**

FINES AND FEES INCURRED FROM
400 SOUTH 8TH STREET
AS OF 5/31/18
CODE CASE #15-00058

DATES	# OF DAYS	FINE PER DAY	TOTAL
OCTOBER 2 THROUGH 31, 2015	29	$100.00	**$2,900.00**
NOVEMBER 2015	30	$100.00	**$3,000.00**
DECEMBER 2015	31	$100.00	**$3,100.00**
JANUARY 2016	31	$100.00	**$3,100.00**
FEBRUARY 2016	29	$100.00	**$2,900.00**
MARCH 2016	31	$100.00	**$3,100.00**
APRIL 2016	30	$100.00	**$3,000.00**
MAY 2016	31	$100.00	**$3,100.00**
JUNE 2016	30	$100.00	**$3,000.00**
JULY 2016	31	$100.00	**$3,100.00**
AUGUST 2016	31	$100.00	**$3,100.00**
SEPTEMBER 2016	30	$100.00	**$3,000.00**
OCTOBER 2016	31	$100.00	**$3,100.00**
NOVEMBER 2016	30	$100.00	**$3,000.00**
DECEMBER 2016	31	$100.00	**$3,100.00**
JANUARY 2017	31	$100.00	**$3,100.00**
FEBRUARY 2017	28	$100.00	**$2,800.00**
MARCH 2017	31	$100.00	**$3,100.00**
APRIL 2017	30	$100.00	**$3,000.00**
MAY 2017	31	$100.00	**$3,100.00**
JUNE 2017	30	$100.00	**$3,000.00**
JULY 2017	31	$100.00	**$3,100.00**
AUGUST 2017	31	$100.00	**$3,100.00**

FINES AND FEES INCURRED FROM
400 SOUTH 8TH STREET
AS OF 5/31/18
CODE CASE #15-00058

SEPTEMBER 2017	30	$100.00	**$3,000.00**
OCTOBER 2017	31	$100.00	**$3,100.00**
NOVEMBER 2017	30	$100.00	**$3,000.00**
DECEMBER 2017	31	$100.00	**$3,100.00**
JANUARY 2018	31	$100.00	**$3,100.00**
FEBRUARY 2018	28	$100.00	**$2,800.00**
MARCH 2018	31	$100.00	**$3,100.00**
APRIL 2018	30	$100.00	**$3,000.00**
MAY 2018	31	$100.00	**$3,100.00**

TOTAL FINES **$97,200.00**

TOTAL FEES **$354.03**

GRAND TOTAL DUE AS OF MAY 3, 2017 **$97,554.03**

FINES AND FEES INCURRED FROM
400 SOUTH 8TH STREET
AS OF 5/31/18
CODE CASE #17-00007

DATES	# OF DAYS	FINE PER DAY	TOTAL
MAY 3 THROUGH 31 2017	28	$250.00	**$7,000.00**
JUNE 2017	30	$250.00	**$7,500.00**
JULY 2017	31	$250.00	**$7,750.00**
AUGUST 2017	31	$250.00	**$7,750.00**
SEPTEMBER 2017	30	$250.00	**$7,500.00**
OCTOBER 2017	31	$250.00	**$7,750.00**
NOVEMBER 2017	30	$250.00	**$7,500.00**
DECEMBER 2017	31	$250.00	**$7,750.00**
JANUARY 2018	31	$250.00	**$7,750.00**
FEBRUARY 2018	28	$250.00	**$7,000.00**
MARCH 2018	31	$250.00	**$7,750.00**
APRIL 2018	30	$250.00	**$7,500.00**
MAY 2018	31	$250.00	**$7,750.00**

TOTAL FINES **$98,250.00**

TOTAL FEES **$249.41**

GRAND TOTAL DUE AS OF MAY 3, 2017 **$98,499.41**

ADMINISTRATIVE FEES INCURRED FROM
400 SOUTH 8TH STREET
AS OF 5/31/18
CODE CASE #17-00007

STAFF PERSONNEL	# OF UNITS OR HOURS	RATE PER HOUR	TOTAL
Michelle Forstrom, Code Enforcement Manager	6	$21.17	**$127.02**
Michelle Forstrom, Code Enforcement Manager	1	$23.13	**$23.13**
Angela Lester, Board Secretary/Administrator Coordinato	2	$19.28	**$38.56**
Katie Newton, Board Secretary/Legal Assistant	2	$21.63	**$43.26**
Record Findings of Facts with the Clerk of Circuit Court of Nassau County	1	$10.00	**$10.00**
Certified letters mailed	1	$6.48	**$6.48**
First Class letters mailed	2	$0.48	**$0.96**
TOTAL			**$249.41**

STAFF REPORT
Case 18-00044
City of Fernandina Beach Code Enforcement & Appeals Board
May 2, 2018

Violation Information

Owner	Richard Goodsell, Front Street Property, LLC, 2970 New Paces Ferry Road, Atlanta, GA 30339
Violation	City of Fernandina Beach Code of Ordinances, Section 42-116 (a & b), cleaning of lots; maintenance of structures.
Location:	101 North 2nd Street, Fernandina Beach FL 32034

Summary and Background Information

This property has been on the City's radar for quite some time, years. Many conversations have transpired between the City and Mr. Goodsell over the last few years about the condition of the building and the future of this property.

Over time the building has gone into disrepair, with broken window panes, window frame deterioration, missing downspouts and scuppers and /or in disrepair, paint failure, graffiti, water intrusion, and holes in the roof. The fences have vegetation growing on them and there is debris that has fallen off the north side of the addition on the ground.

On March 15, 2018, The Historic District Council found this property to be suffering severe deterioration due to deferred maintenance.

March 21, 2018, I sent a Notice of Violation/Notice of Hearing letter for both Demolition by Neglect and 42-116 (a & b), cleaning of lots; maintenance of structures.

I have had several conversations with Mr. Goodsell about what the bare minimum requirements would be to bring this property into compliance. I told him that everything that I just mentioned, plus cutting the lot would need to be addressed. He told me that he would start getting some estimates. He continued to keep me updated with his progress.

April 10, 2018, Sal Cumella, Historic Preservation Planner for the City of Fernandina Beach and I met with Bruce Porter, Mr. Goodsell's property manager, of sorts, at Standard Marine. We went over everything that I have mentioned with the exception of the roof and the cutting of the lot. The Shrimp Festival Committee had someone take care of cutting the lot. Mr. Porter said that he would get started on the list right of way.

April 10, 2018, A meeting took place at the City Attorney's office. The following were in attendance to discuss this case: Mr. Goodsell and his two attorneys; Ms. Bach, City Attorney; Sal Cumella, and myself. We discussed that while this property is historic in nature, it does not fall within the Downtown Historic District boundaries and is not subject to that section of the Land Development Code. I explained that I would proceed with the case as a violation of 42-116 (a & b), cleaning of lots; maintenance of structures. I left there with the understanding that Mr. Porter was going to start working on the laundry list.

I continued ongoing conversations with Mr. Goodsell on the progress that he was making. He had hired Mr. Jose Miranda, Architect, specializing in historic preservation. Mr. Miranda was working on getting us a report of what needed to be done and a probable timeline.

April 17, 2018, I talked to Mr. Miranda. He told me that he would have the report by May 2, 2018 for the hearing.

April 26, 2018, I re-inspected the property. No progress had been made. I took pictures.

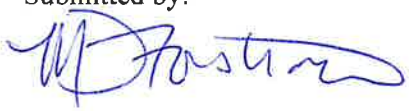
Conclusion

The property is still in violation.

Recommendation

Staff recommends assessing a $250.00 fine per violation per day and administrative fees incurred until compliance is achieved.

Submitted by:



Michelle D. Forstrom
Code Enforcement Manager

10/19/2015 10:28 AM

10/19/2015 10:31 AM

10/19/2015 10:27 AM

10/19/2015 10:30 AM

04/07/2016 11:22 AM

04/07/2016 11:22 AM

04/07/2016 11:22 AM

04/07/2016 11:22 AM

04/07/2016 11:23 AM

04/07/2016 11:25 AM

04/07/2016 11:23 AM

04/07/2016 11:24 AM

04/07/2016 11:25 AM

04/07/2016 11:25 AM

FINDINGS OF FACT
CERTIFICATE OF APPROVAL
HISTORIC DISTRICT COUNCIL
FERNANDINA BEACH, FLORIDA

Whereas, the Fernandina Beach Historic District Council shall in all cases heard by the Council make written findings of fact and conclusions of law that support the Council's decisions in accordance with Section 8.01.01 of the Land Development Code, STANDARDS FOR DEVELOPMENT IN THE HISTORIC DISTRICT OVERLAYS;

Whereas, the **FERNANDINA BEACH HISTORIC DISTRICT COUNCIL** has held a public hearing on **March 15, 2018** and has given consideration to the following application:

Case Number:	**Presentation: 101 N. 2nd Street (C.H. Huot 1882 Building) Demolition By Neglect**
Property Location:	**101 N. 2nd Street**
Requested Action:	**Evaluate structure for demolition by neglect**

Whereas, the Fernandina Beach Historic District Council, having given consideration to the application as per Section 8.03.03 of the Land Development Code, makes the following findings of fact and conclusions of law based on the following:

1. **CITY OF FERNANDINA BEACH COMPREHENSIVE PLAN**

OBJECTIVE 11.04. Historic Structures
The City shall actively encourage maintenance and preservation of historic structures.

Policy 11.04.01. The City's historic preservation ordinance shall continue to include a demolition by neglect provision, and the City shall regularly evaluate such provision to ensure that it is effectively preventing or reducing demolition by neglect in the historic districts.

2. **CITY OF FERNANDINA BEACH LAND DEVELOPMENT CODE**

8.02.02 Historic District Council Roles and Responsibilities
The HDC shall have the duty and responsibility to:
C. Review and approve or deny applications for a certificate of Approval for construction, alteration, demolition, or removal of historic landmarks, historic sites, archaeological sites, properties in historic districts, or properties in the CRA Overlay.

8.03.07 Demolition by Neglect
A. The following shall apply to maintenance and repair to structures in the locally designated historic districts, as well as any structure or property in the City that has been listed individually or deemed eligible for individual listing in the National Register:
1. The owner, lessee, or other person in physical control of the structure shall comply with all applicable codes, laws and regulations governing the maintenance and safety of property including but not limited to City Codes, as applicable. It is the intent of this section to preserve from deliberate or inadvertent neglect of the exterior features of a building designated as a contributing structure to a historic district, and the interior portions therefore when such maintenance is necessary to prevent deterioration and decay of the exterior. All such buildings shall be preserved against such decay and

deterioration and shall be free from structural defects through prompt correction of any of the following defects:

a. Facades which may fall and injure members of the public or property;

b. Deteriorated or inadequate foundation, defective or deteriorated flooring or floor supports, deteriorated walls or other vertical structural supports;

c. Members of ceilings, roofs, ceiling and roof supports or other horizontal members which sag, split, or buckle due to defective material or deterioration;

d. Deteriorated or ineffective waterproofing of exterior walls, roofs, foundations or floors, including broken windows or doors;

e. Defective or insufficient weather protection for exterior wall covering, including lack of paint or weathering due to lack of paint or other protective covering.;

f. Any fault or defect in the building which renders it not properly watertight or structurally unsafe; and

g. Any fault or defect in the building rendering such structure an unsafe structure as defined under the provisions of Chapter 22, City Code of Ordinances.

2. Where the property is an archaeological site, the owner shall be required to maintain his property in such a manner so as not to adversely affect the archaeological integrity of the site.

3. It shall be the joint responsibility of the Building Department, Planning Department, and Code Enforcement staff to enforce the provisions of this section, and the divisions may refer violations to the Code Enforcement and Appeals Board for enforcement proceedings pursuant to Chapter 2, City Code of Ordinances.

3. APPLICABLE CITY DESIGN GUIDELINES

CRA ☒ Downtown Historic District ☐ Old Town ☐

WHEREAS after closing the public hearing and additional discussion, a motion was made:

Made by Board Member Spino and

Seconded by Board Member Erickson that:

The Historic District Council make a finding of demolition by neglect, and that the property be referred to the Code Enforcement and Appeals Board for further action.

Voting Record

Member	For	Against
Michael Harrison (Chair)	X	
William Tilson (Vice-Chair)		
Robert Erickson	X	
Angela Conway	X	
Michael Spino	X	
James Pozzetta, Alternate #1	X	
Benjamin Morrison, Alternate #2	--	--
TOTALS	**5**	**0**

The Motion **[PASSED]** **[FAILED]**

Michael Harrison, Chair

Date

Historic District Council

February 15, 2018
5:00 PM
City Hall Commission Chambers
204 Ash Street

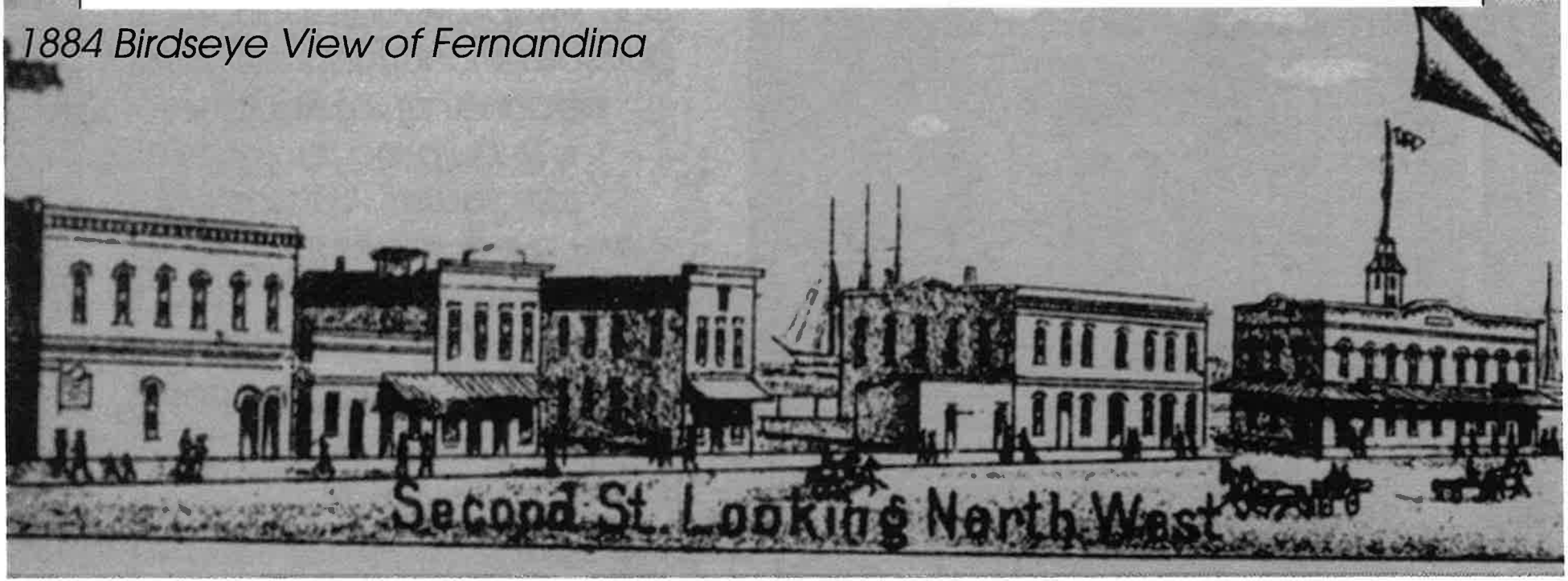
101 N. 2nd Street C.H. Huot 1882 Building

March 15, 2018

101 N. 2nd St.

Address: 101 N. 2nd Street, Block 2 Lots 30&31
Year Built: 1882
FL Master Site File: 8NA0244
Historic District: No **CRA:** Yes
Owner of Record: Front Street Property, LLC
Zoning: C-3

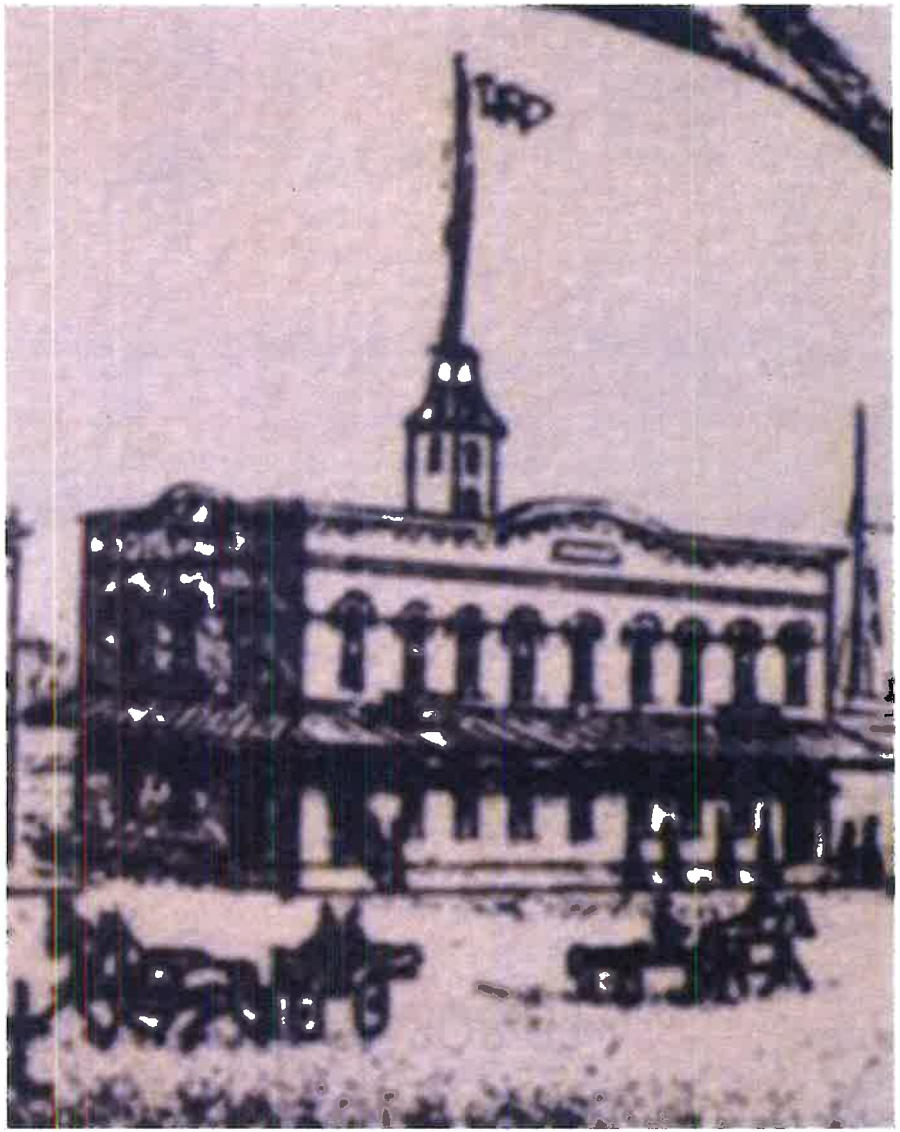
1884 Birdseye View of Fernandina



101 N. 2nd St.

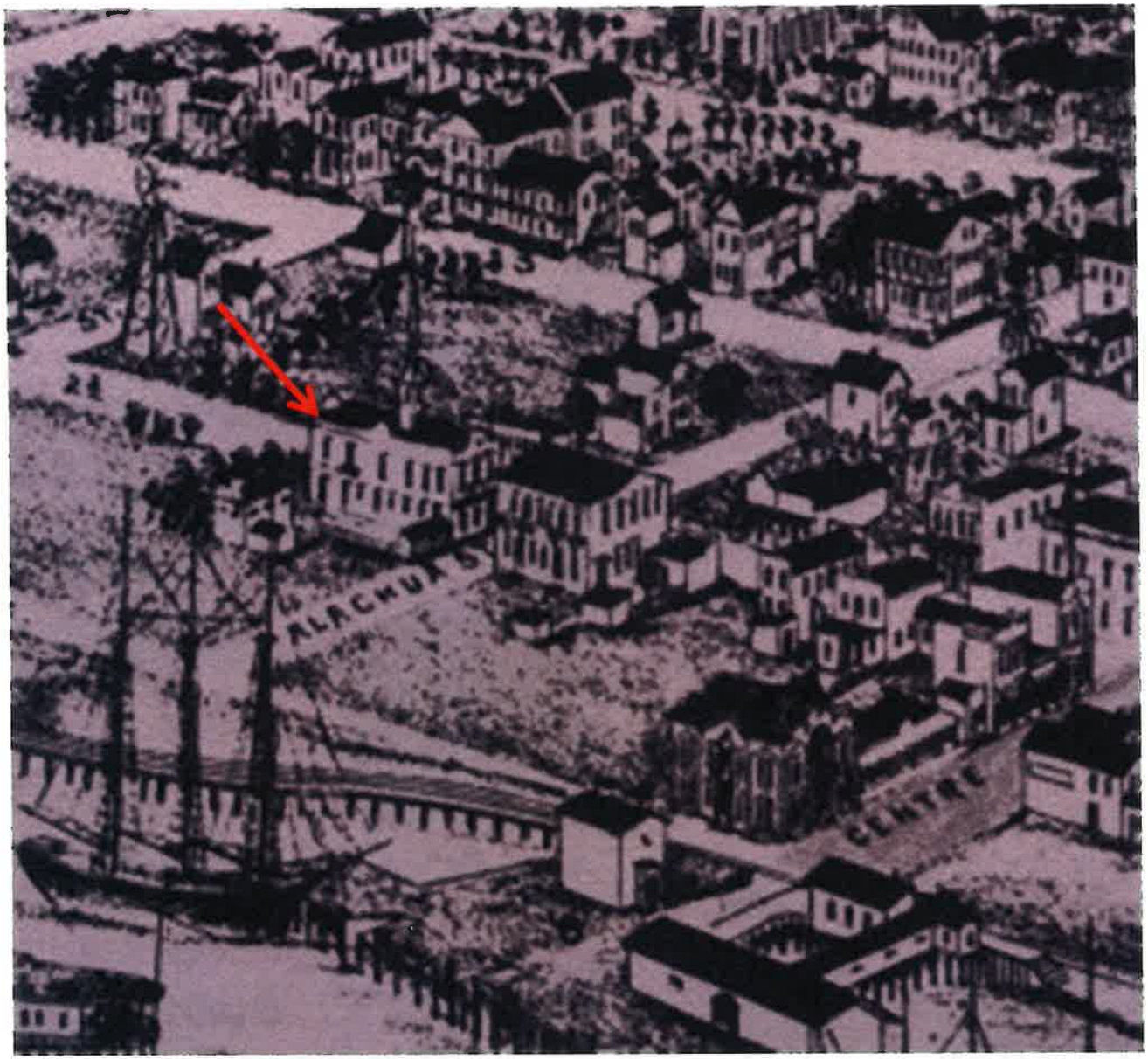
Historic Significance of Structure:

"Constructed in 1882, C.H. Huot's 1882 building is a two-story masonry vernacular commercial building. It is noteworthy for its rounded parapets, continuous molding on second-story windows and for its fleur-de-lis motif on the keystones. It has been significantly altered by stuccoing. It was originally the second building which C.H.Huot, of France, erected for his sawmill and merchandise enterprise." - Florida Master Site File 8NA00244



101 N. 2nd St.

1884 Birdseye View of Fernandina



101 N. 2nd St.

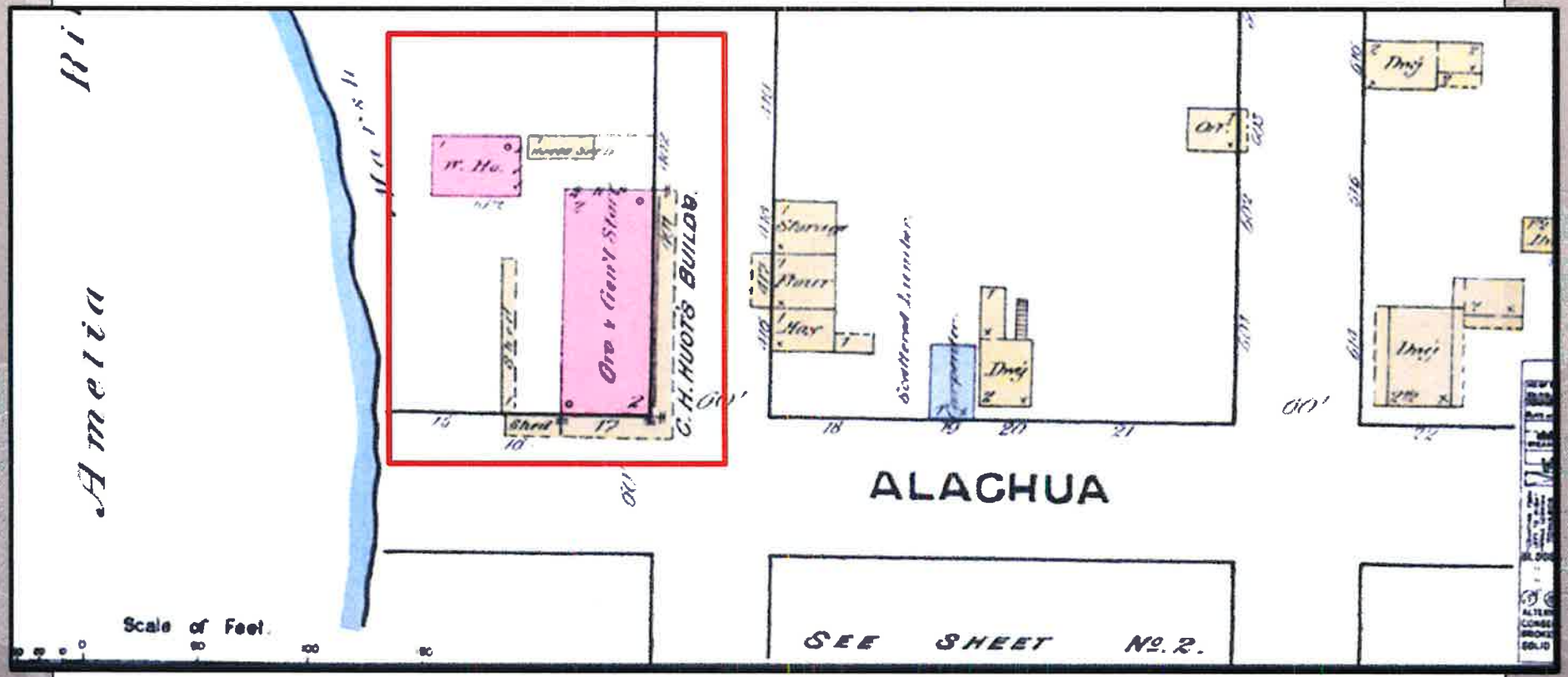
1898 Hurricane

101 N. 2nd St.

1898 Hurricane

101 N. 2nd St.

1884 Sanborn Fire Insurance Map



101 N. 2nd St.

BROOME ST
N 2ND ST
N FRONT ST
ALACHUA ST
N 3RD ST
City of Fernandina Beach
2
3
4
9
101
105
109
111
113
116
117
118
120
121
201

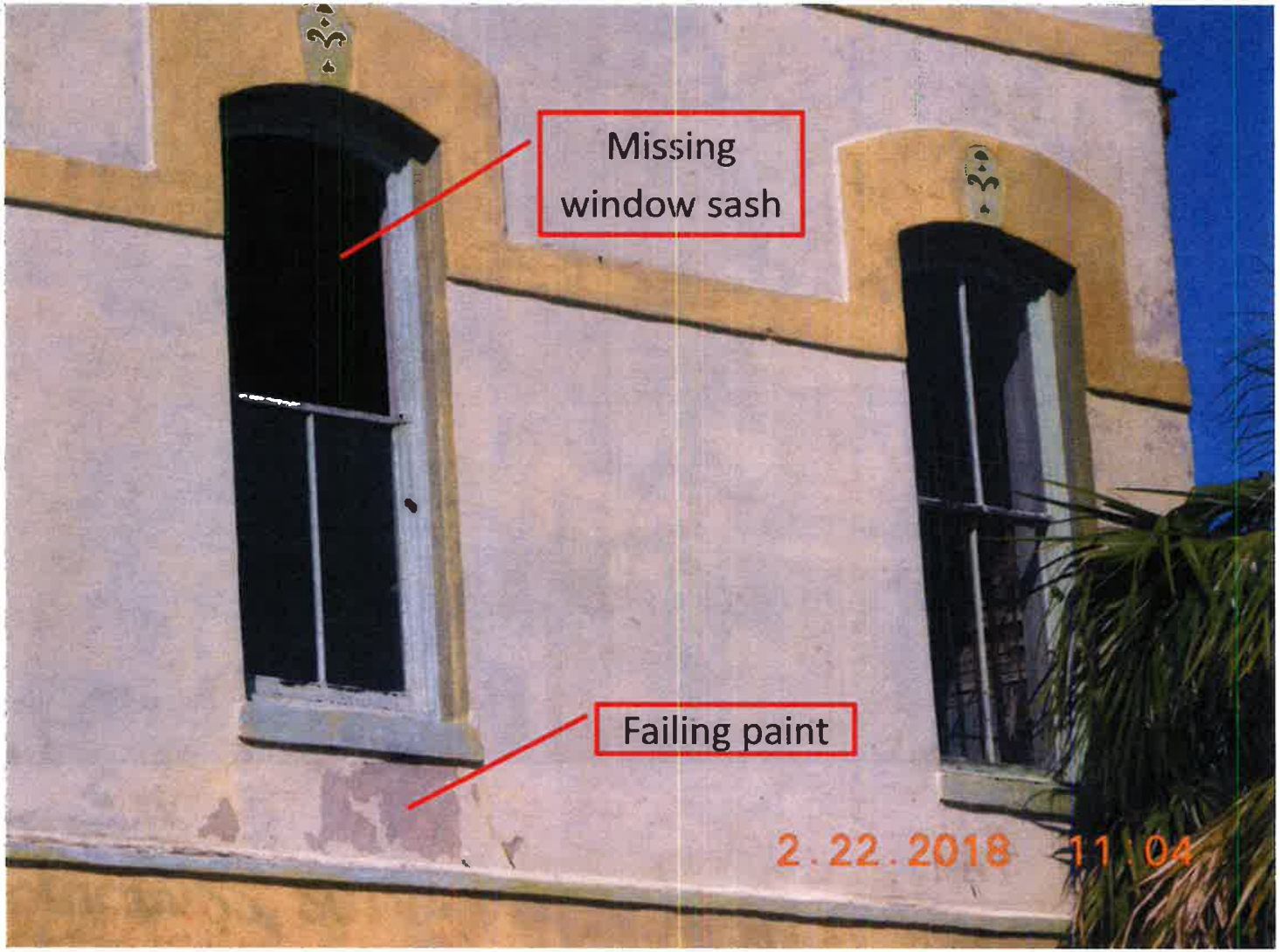
101 N. 2nd St.

101 N. 2nd St.

February 22, 2018
Site Visit

101 N. 2nd St.

February 22, 2018
Site Visit



101 N. 2nd St.

February 22, 2018
Site Visit

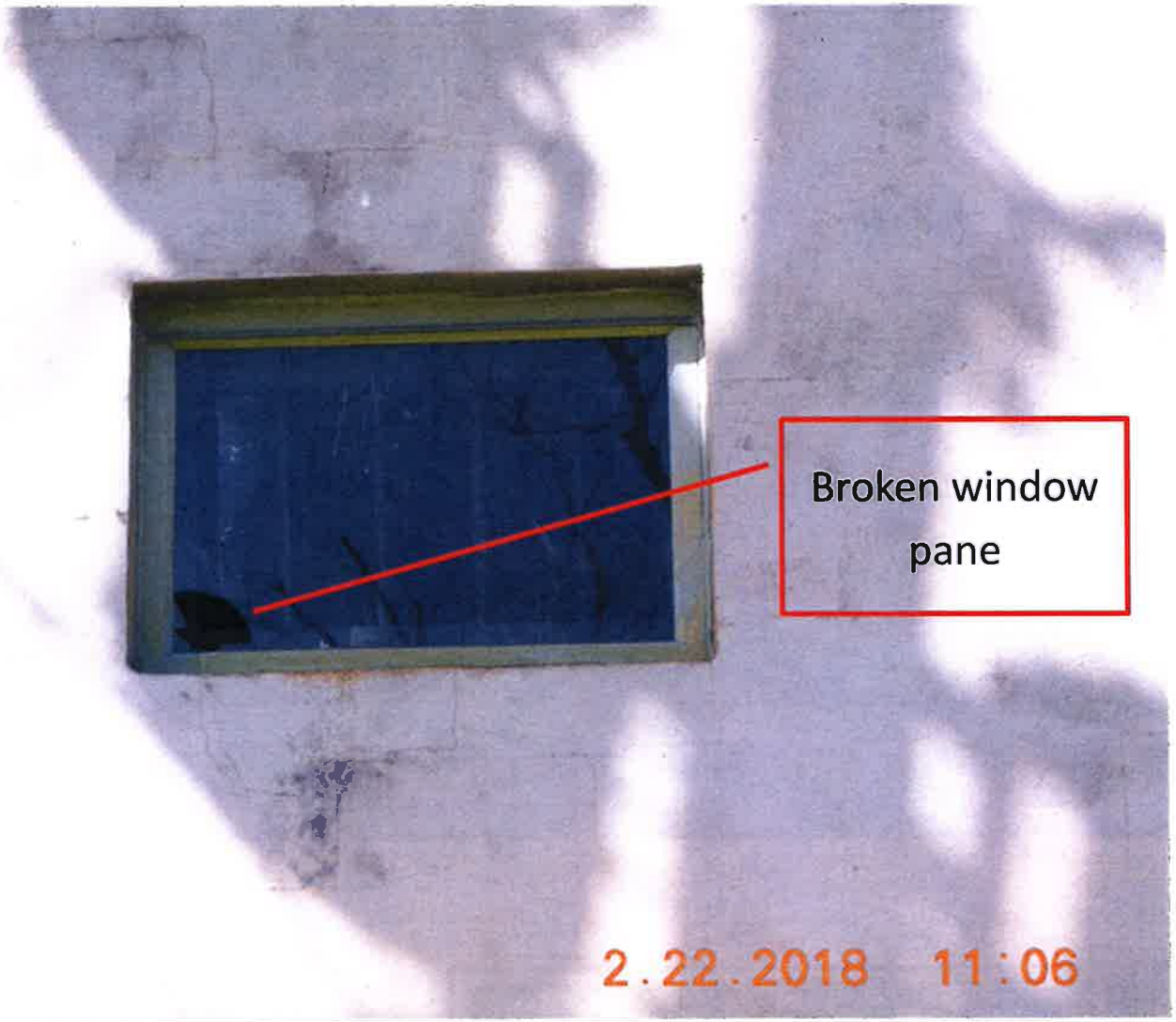
Roof failure as seen through open window

101 N. 2nd St.

February 22, 2018
Site Visit

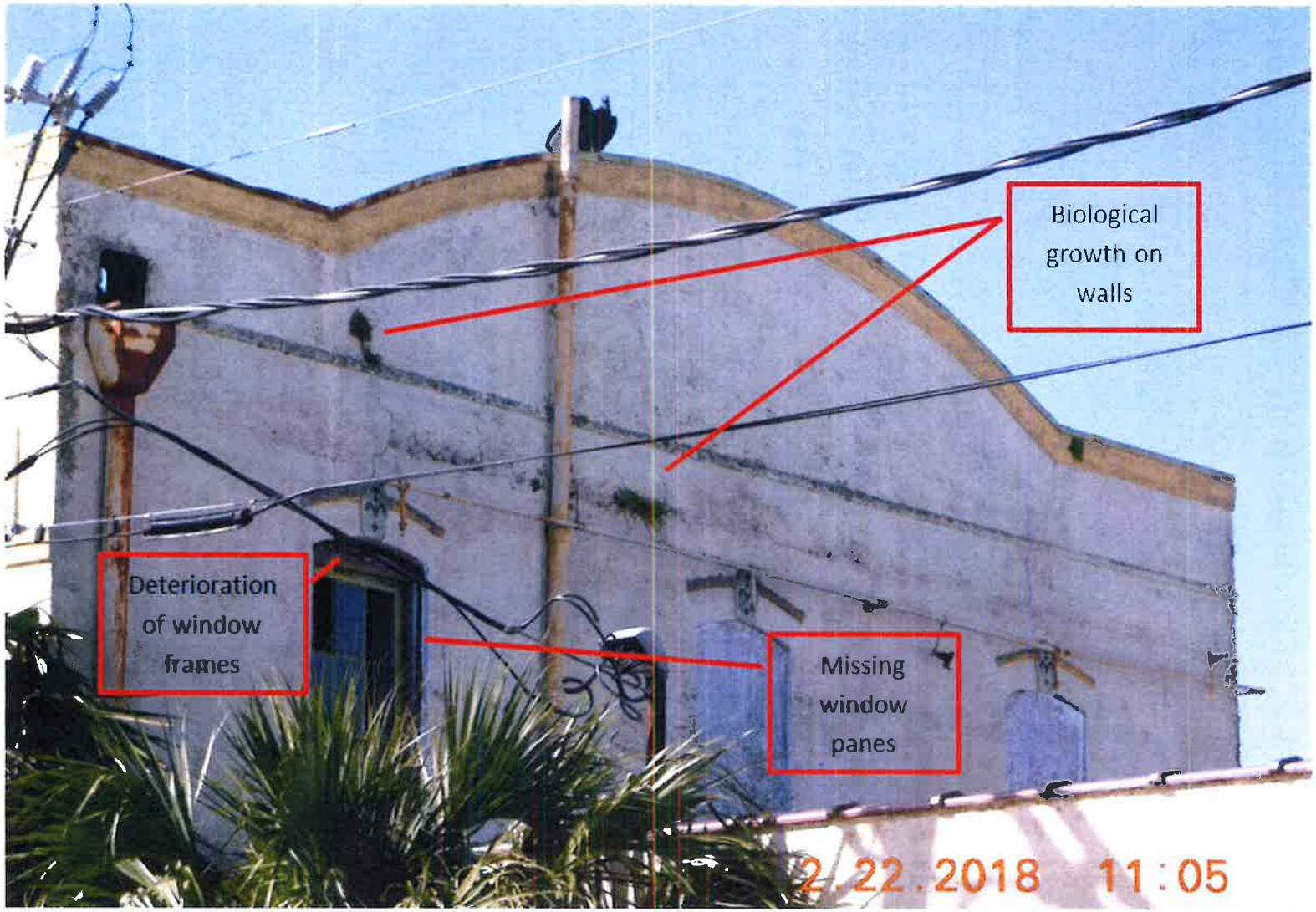
101 N. 2nd St.

February 22, 2018
Site Visit



101 N. 2nd St.

February 22, 2018
Site Visit

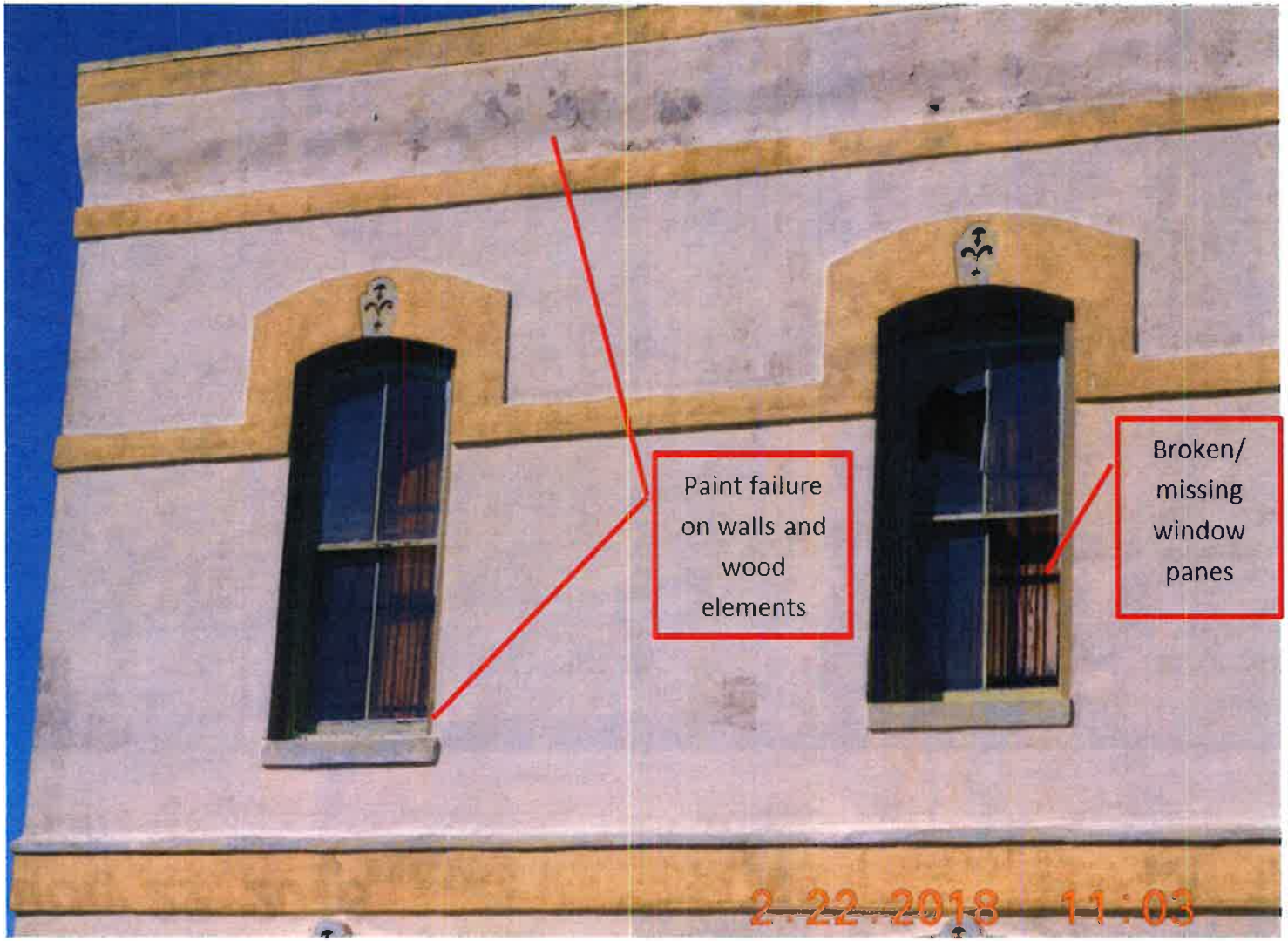


101 N. 2nd St.

February 22, 2018
Site Visit

101 N. 2nd St.

February 22, 2018
Site Visit

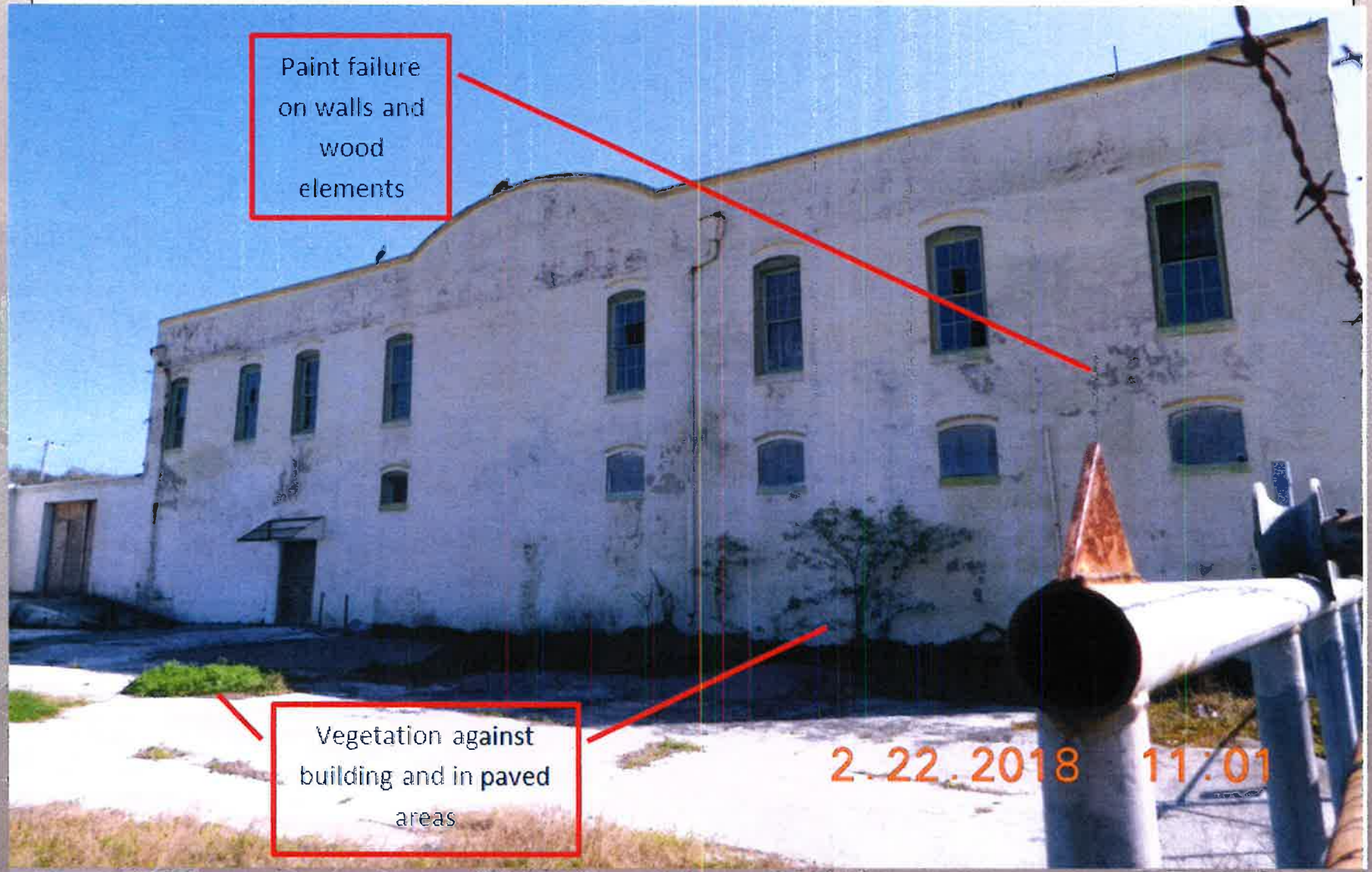


101 N. 2nd St.

February 22, 2018
Site Visit

101 N. 2nd St.

February 22, 2018
Site Visit



101 N. 2nd St.

February 22, 2018
Site Visit

101 N. 2nd St.

February 22, 2018
Site Visit

101 N. 2nd St.

February 22, 2018
Site Visit

101 N. 2nd St.

Land Development Code

8.03.07 Demolition by Neglect

A. The following shall apply to maintenance and repair to structures in the locally designated historic districts, as well as any structure or property in the City that has been listed individually or deemed eligible for individual listing in the National Register:

1. The owner, lessee, or other person in physical control of the structure shall comply with all applicable codes, laws and regulations governing the maintenance and safety of property including but not limited to City Codes, as applicable. It is the intent of this section to preserve from deliberate or inadvertent neglect of the exterior features of a building designated as a contributing structure to a historic district, and the interior portions therefore when such maintenance is necessary to prevent deterioration and decay of the exterior. All such buildings shall be preserved against such decay and deterioration and shall be free from structural defects through prompt correction of any of the following defects:

101 N. 2nd St.

Land Development Code

8.03.07 Demolition by Neglect

a. Facades which may fall and injure members of the public or property;
b. Deteriorated or inadequate foundation, defective or deteriorated flooring or floor supports, deteriorated walls or other vertical structural supports;
c. Members of ceilings, roofs, ceiling and roof supports or other horizontal members which sag, split, or buckle due to defective material or deterioration;
d. Deteriorated or ineffective waterproofing of exterior walls, roofs, foundations or floors, including broken windows or doors;
e. Defective or insufficient weather protection for exterior wall covering, including lack of paint or weathering due to lack of paint or other protective covering.;
f. Any fault or defect in the building which renders it not properly watertight or structurally unsafe; and
g. Any fault or defect in the building rendering such structure an unsafe structure as defined under the provisions of Chapter 22, City Code of Ordinances.

101 N. 2nd St.

Land Development Code
8.03.07 Demolition by Neglect

2. Where the property is an archaeological site, the owner shall be required to maintain his property in such a manner so as not to adversely affect the archaeological integrity of the site.

3. It shall be the joint responsibility of the Building Department, Planning Department, and Code Enforcement staff to enforce the provisions of this section, and the divisions may refer violations to the Code Enforcement and Appeals Board for enforcement proceedings pursuant to Chapter 2, City Code of Ordinances.

Staff Recommendation

HDC make a finding of Demolition By Neglect, and refer case to Code Enforcement And Appeals Board for action.

101 N. 2nd Street C.H. Huot 1882 Building

March 15, 2018

Technical Preservation Services
Preservation Briefs

Preservation Briefs provide guidance on **preserving, rehabilitating,** and **restoring** historic buildings. These NPS Publications help historic building owners recognize and resolve common problems prior to work. The briefs are especially useful to **Historic Preservation Tax Incentives Program** applicants because they recommend methods and approaches for rehabilitating historic buildings that are consistent with their historic character.

1. **Cleaning and Water-Repellent Treatments** for Historic Masonry Buildings
2. **Repointing Mortar Joints** in Historic Masonry Buildings
3. **Improving Energy Efficiency** in Historic Buildings
4. **Roofing** for Historic Buildings
5. The Preservation of Historic **Adobe Buildings**
6. **Dangers of Abrasive Cleaning** to Historic Buildings
7. The Preservation of Historic Glazed Architectural **Terra-Cotta**
8. **Aluminum and Vinyl Siding** on Historic Buildings: The Appropriateness of Substitute Materials for Resurfacing Historic Wood Frame Buildings
9. The Repair of Historic **Wooden Windows**
10. Exterior **Paint Problems** on Historic Woodwork
11. Rehabilitating Historic **Storefronts**
12. The Preservation of Historic Pigmented **Structural Glass**(Vitrolite and Carrara Glass)
13. The Repair and Thermal Upgrading of Historic **Steel Windows**
14. New **Exterior Additions** to Historic Buildings: Preservation Concerns
15. Preservation of Historic **Concrete**
16. The Use of **Substitute Materials** on Historic Building Exteriors
17. **Architectural Character**—Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving their Character
18. Rehabilitating **Interiors** in Historic Buildings—Identifying Character-Defining Elements
19. The Repair and Replacement of Historic **Wooden Shingle Roofs**
20. The Preservation of Historic **Barns**
21. Repairing Historic **Flat Plaster**—Walls and Ceilings
22. The Preservation and Repair of Historic **Stucco**
23. Preserving Historic **Ornamental Plaster**
24. **Heating, Ventilating, and Cooling** Historic Buildings: Problems and Recommended Approaches
25. The Preservation of Historic **Signs**
26. The Preservation and Repair of Historic **Log Buildings**

27. The Maintenance and Repair of Architectural **Cast Iron**
28. **Painting** Historic Interiors
29. The Repair, Replacement, and Maintenance of Historic **Slate Roofs**
30. The Preservation and Repair of Historic **Clay Tile Roofs**
31. **Mothballing** Historic Buildings
32. Making Historic Properties **Accessible**
33. The Preservation and Repair of Historic **Stained and Leaded Glass**
34. Applied Decoration for Historic Interiors: Preserving Historic **Composition Ornament**
35. Understanding Old Buildings: The Process of **Architectural Investigation**
36. Protecting **Cultural Landscapes**: Planning, Treatment and Management of Historic Landscapes
37. Appropriate Methods of Reducing **Lead-Paint Hazards** in Historic Housing
38. **Removing Graffiti** from Historic Masonry
39. Holding the Line: **Controlling Unwanted Moisture** in Historic Buildings
40. Preserving Historic **Ceramic Tile Floors**
41. The **Seismic Rehabilitation** of Historic Buildings
42. The Maintenance, Repair and Replacement of Historic **Cast Stone**
43. The Preparation and Use of Historic **Structure Reports**
44. The Use of **Awnings** on Historic Buildings: Repair, Replacement and New Design
45. Preserving Historic **Wooden Porches**
46. The Preservation and Reuse of Historic **Gas Stations**
47. **Maintaining the Exterior** of Small and Medium Size Historic Buildings
48. **Preserving Grave Markers** in Historic Cemeteries
49. **Historic Decorative Metal Ceilings and Walls:** Use, Repair, and Replacement
50. **Lightning Protection** for Historic Buildings

31 PRESERVATION BRIEFS

Mothballing Historic Buildings

Sharon C. Park, AIA

U.S. Department of the Interior
National Park Service
Cultural Resources
Heritage Preservation Services

When all means of finding a productive use for a historic building have been exhausted or when funds are not currently available to put a deteriorating structure into a useable condition, it may be necessary to close up the building temporarily to protect it from the weather as well as to secure it from vandalism. This process, known as mothballing, can be a necessary and effective means of protecting the building while planning the property's future, or raising money for a preservation, rehabilitation or restoration project. If a vacant property has been declared unsafe by building officials, stabilization and mothballing may be the only way to protect it from demolition.

This Preservation Brief focuses on the steps needed to "de-activate" a property for an extended period of time. The project team will usually consist of an architect, historian, preservation specialist, sometimes a structural engineer, and a contractor. Mothballing should not be done without careful planning to ensure that needed physical repairs are made prior to securing the building. The steps discussed in this Brief can protect buildings for periods of up to ten years; long-term success will also depend on continued, although somewhat limited, monitoring and maintenance. For all but the simplest projects, hiring a team of preservation specialists is recommended to assess the specific needs of the structure and to develop an effective mothballing program.

A vacant historic building cannot survive indefinitely in a boarded-up condition, and so even marginal interim uses where there is regular activity and monitoring, such as a caretaker residence or non-flammable storage, are generally preferable to mothballing. In a few limited cases when the vacant building is in good condition and in a location where it can be watched and checked regularly, closing and locking the door, setting heat levels at just above freezing, and securing the windows may provide sufficient protection for a period of a few years. But if long-term mothballing is the only remaining option, it must be done properly (see fig. 1 & 2). This will require stabilization of the exterior, properly designed security protection, generally some form of interior ventilation - either through mechanical or natural air exchange systems - and continued maintenance and surveillance monitoring.

Figure 1. Proper mothballing treatment: This building has been successfully mothballed for 10 years because the roof and walls were repaired and structurally stabilized, ventilation louvers were added, and the property is maintained. Photo: Charles E. Fisher, NPS.

Comprehensive mothballing programs are generally expensive and may cost 10% or more of a modest rehabilitation budget. However, the money spent on well-planned protective measures will seem small when amortized over the life of the resource. Regardless of the location and condition of the property or the funding available, the following 9 steps are involved in properly mothballing a building:

Figure 2. Improper treatment: Boarding up without adequate ventilation, lack of maintenance, and neglect of this property have accelerated deterioration. Photo; NPS file.

Documentation

1. Document the architectural and historical significance of the building.

2. Prepare a condition assessment of the building.

Stabilization

3. Structurally stabilize the building, based on a professional condition assessment.

4. Exterminate or control pests, including termites and rodents.

5. Protect the exterior from moisture penetration.

Mothballing

6. Secure the building and its component features to reduce vandalism or break-ins.

7. Provide adequate ventilation to the interior.

8. Secure or modify utilities and mechanical systems.

9. Develop and implement a maintenance and monitoring plan for protection.

These steps will be discussed in sequence below. Documentation and stabilization are critical components of the process and should not be skipped over. Mothballing measures should not result in permanent damage, and so each treatment should be weighed in terms of its reversibility and its overall benefit.

Documentation

Documenting the historical significance and physical condition of the property will provide information necessary for setting priorities and allocating funds. The project team should be cautious when first entering the structure if it has been vacant or is deteriorated. It may be advisable to shore temporarily areas appearing to be structurally unsound until the condition of the structure can be fully assessed (see fig. 3). If pigeon or bat droppings, friable asbestos or other health hazards are present, precautions must be taken to wear the appropriate safety equipment when first inspecting the building. Consideration should be given to hiring a firm specializing in hazardous waste removal if these highly toxic elements are found in the building.

Documenting and recording the building. Documenting a building's history is important because evidence of its true age and architectural significance may not be readily evident. The owner should check with the State Historic Preservation Office or local preservation commission for assistance in researching the building. If the building has never been researched for listing in the National Register of Historic Places or other historic registers, then, at a minimum, the following should be determined:

- The overall historical significance of the property and dates of construction;
- the chronology of alterations or additions and their approximate dates; and,
- types of building materials, construction techniques, and any unusual detailing or regional variations of craftsmanship.

Old photographs can be helpful in identifying early or original features that might be hidden under modern materials. On a walk-through, the architect, historian, or preservation specialist should identify the architecturally significant elements of the building, both inside and out (see fig.4).

Figure 3. Buildings seriously damaged by storms or deterioration may need to be braced before architectural evaluations can be made. Jethro Coffin House. Photo: John Milner Architects.

Figure 4. Documenting the building's history, preparing schematic plans, and assessing the condition of the building will provide necessary information on which to set priorities for stabilization and repair prior to securing the building. Photo: Frederick Lindstrom, HABS.

By understanding the history of the resource, significant elements, even though deteriorated, may be spared the trash pile. For that reason alone, any materials removed from the building or site as part of the stabilization effort should be carefully scrutinized and, if appearing historic, should be photographed, tagged with a number, inventioried, and safely stored, preferably in the building, for later retrieval (see fig. 5).

A site plan and schematic building floor plans can be used to note important information for use when the building is eventually preserved, restored, or rehabilitated. Each room should be given a number and notations added to the plans regarding the removal of important features to storage or recording physical treatments undertaken as part of the stabilization or repair.

Because a mothballing project may extend over a long period of time, with many different people involved, clear records should be kept and a building file established. Copies of all important data, plans, photographs, and lists of consultants or contractors who have worked on the property should be added to the file as the job progresses.

Figure 5. Loose or detached elements should be identified, tagged and stored, preferably on site. Photo: NPS files.

Recording all actions taken on the building will be helpful in the future.

The project coordinator should keep the building file updated and give duplicate copies to the owner. A list of emergency numbers, including the number of the key holder, should be kept at the entrance to the building or on a security gate, in a transparent vinyl sleeve.

Preparing a condition assessment of the building. A condition assessment can provide the owner with an accurate overview of the current condition of the property. If the building is deteriorated or if there are significant interior architectural elements that will need special protection during the mothballing years, undertaking a condition assessment is highly recommended, but it need not be exhaustive.

A modified condition assessment, prepared by an architect or preservation specialist, and in some case a structural engineer, will help set priorities for repairs necessary to stabilize the property for both the short and long-term. It will evaluate the age and condition of the following major elements: foundations; structural systems; exterior materials; roofs and gutters; exterior porches and steps; interior finishes; staircases; plumbing, electrical, mechanical systems; special features such as chimneys; and site drainage.

To record existing conditions of the building and site, it will be necessary to clean debris from the building and to remove unwanted or overgrown vegetation to expose foundations. The interior should be emptied of its furnishing (unless provisions are made for mothballing these as well), all debris removed, and the interior swept with a broom. Building materials too deteriorated to repair, or which have come detached, such as moldings, balusters, and decorative plaster, and which can be used to guide later preservation work, should be tagged, labeled and saved.

Photographs or a videotape of the exterior and all interior spaces of the resource will provide an invaluable record of "as is" conditions. If a videotape is made, oral commentary can be provided on the significance of each space and architectural feature. If 35mm photographic prints or slides are made, they should be numbered, dated, and appropriately identified. Photographs should be cross-referenced with the room numbers on the schematic plans. A systematic method for photographing should be developed; for example, photograph each wall in a room and then take a corner shot to get floor and ceiling portions in the picture. Photograph any unusual details as well as examples of each window and door type.

For historic buildings, the great advantage of a condition assessment is that architectural features, both on the exterior as well as the interior, can be rated on a scale of their importance to the integrity and significance of the building. Those features of the highest priority should receive preference when repairs or protection measures are outlined as part of the mothballing process. Potential problems with protecting these features should be identified so that appropriate interim solutions can be selected. For example, if a building has always been heated and if murals, decorative plaster walls, or examples of patterned wall paper are identified as highly significant, then special care should be taken to regulate the interior climate and to monitor it adequately during the

mothballing years. This might require retaining electrical service to provide minimal heat in winter, fan exhaust in summer, and humidity controls for the interior.

Stabilization

Stabilization as part of a mothballing project involves correcting deficiencies to slow down the deterioration of the building while it is vacant. Weakened structural members that might fail altogether in the forthcoming years must be braced or reinforced; insects and other pests removed and discouraged from returning; and the building protected from moisture damage both by weatherizing the exterior envelope and by handling water run-off on the site. Even if a modified use or caretaker services can eventually be found for the building, the following steps should be addressed.

Structurally stabilizing the building. While bracing may have been required to make the building temporarily safe for inspection, the condition assessment may reveal areas of hidden structural damage. Roofs, foundations, walls, interior framing, porches and dormers all have structural components that may need added reinforcement. Structural stabilization by a qualified contractor should be done under the direction of a structural engineer or a preservation specialist to ensure that the added weight of the reinforcement can be sustained by the building and that the new members do not harm historic finishes (see fig. 6). Any major vertical post added during the stabilization should be properly supported and, if necessary, taken to the ground and underpinned.

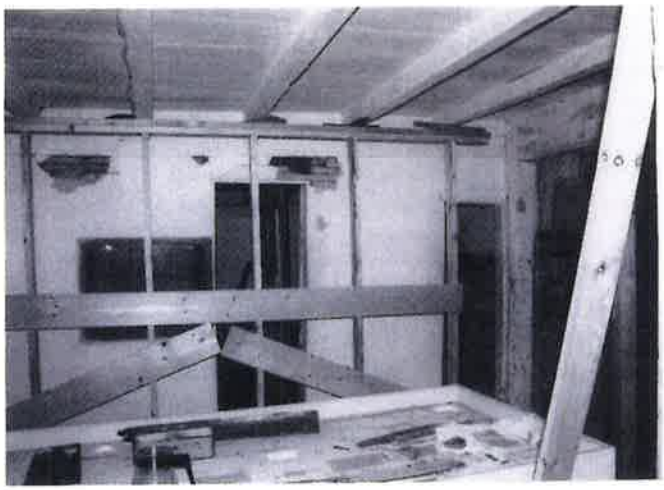


Figure 6. Interior bracing which will last the duration of the mothballing will protect weakened structural members. Jethro Coffin House. Photo: John Milner Architects.

If the building is in a northern climate, then the roof framing must be able to hold substantial snow loads. Bracing the roof at the ridge and mid-points should be considered if sagging is apparent. Likewise, interior framing around stair openings or under long ceiling spans should be investigated. Underpinning or bracing structural piers weakened by poor drainage patterns may be a good precaution as well. Damage caused by insects, moisture, or from other causes should be repaired or reinforced and, if possible, the source of the damage removed. If features such as porches and dormers are so severely deteriorated that they must be removed, they should be documented, photographed, and portions salvaged for storage prior to removal.

If the building is in a southern or humid climate and termites or other insects are a particular problem, the foundation and floor framing should be inspected to ensure that there are no major structural weaknesses. This can usually be done by observation from the crawl space or basement. For those structures where this is not possible, it may be advisable to lift selective floor boards to expose the floor framing. If there is evidence of pest damage, particularly termites, active colonies should be treated and the structural members reinforced or replaced, if necessary.

Controlling pests. Pests can be numerous and include squirrels, raccoons, bats, mice, rats, snakes, termites, moths, beetles, ants, bees and wasps, pigeons, and other birds. Termites, beetles, and carpenter ants destroy wood. Mice, too, gnaw wood as well as plaster, insulation, and electrical wires. Pigeon and bat droppings not only damage wood finishes but create a serious and sometimes deadly health hazard.

If the property is infested with animals or insects, it is important to get them out and to seal off their access to the building. If necessary, exterminate and remove any nests or hatching colonies. Chimney flues may be closed off with exterior grade plywood caps, properly ventilated, or protected with framed wire screens. Existing vents, grills, and louvers in attics and crawl spaces should be screened with bug mesh or heavy duty wire, depending on the type of pest being controlled. It may be advantageous to have damp or infected wood treated with insecticides (as permitted by each state) or preservatives, such as borate, to slow the rate of deterioration during the time that the building is not in use.

Securing the exterior envelope from moisture penetration. It is important to protect the exterior envelope from moisture penetration before securing the building. Leaks from deteriorated or damaged roofing, from around windows and doors, or through deteriorated materials, as well as ground moisture from improper site run-off or rising damp at foundations, can cause long-term damage to interior finishes and structural systems. Any serious deficiencies on the exterior, identified in the condition assessment, should be addressed.

To the greatest extent possible, these weatherization efforts should not harm historic materials. The project budget may not allow deteriorated features to be fully repaired or replaced in-kind. Non-historic or modern materials may be used to cover historic surfaces temporarily, but these treatments should not destroy valuable evidence necessary for future preservation work. Temporary modifications should be as visually compatible as possible with the historic building.

Roofs are often the most vulnerable elements on the building exterior and yet in some ways they are the easiest element to stabilize for the long term, if done correctly. "Quick fix" solutions, such as tar patches on slate roofs, should be avoided as they will generally fail within a year or so and may accelerate damage by trapping moisture. They are difficult to undo later when more permanent repairs are undertaken. Use of a tarpaulin over a leaking roof should be thought of only as a very temporary

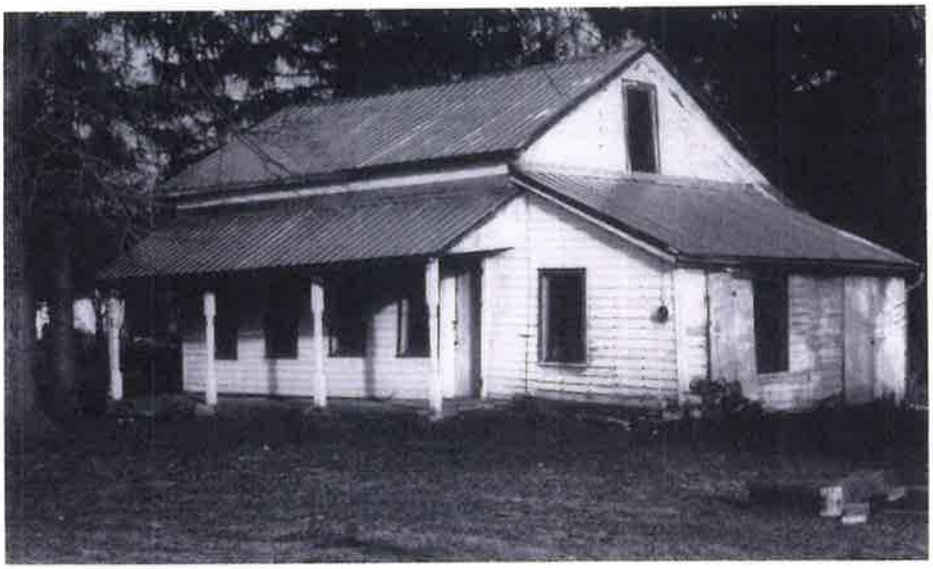


Figure 7. Non-historic materials are appropriate for mothballing projects when they are used to protect historic evidence remaining for future preservation. This lightweight aluminum channel frame and roofing covers the historic wooden shingle roof. Galvanized mesh panels secure the window openings from intrusion by raccoons and other unwanted guests. Photo: Williamsport Preservation Training Center, NPS.

Figure 8. Appropriate mortar mixes should be used when masonry repairs are undertaken. In this case, a soft lime based mortar is used as an infill between the brick and wooden elements. When full repairs are made during the restoration phase, this soft mortar can easily be removed and missing bricks replaced.

emergency repair because it is often blown off by the wind in a subsequent storm.

If the existing historic roof needs moderate repairs to make it last an additional ten years, then these repairs should be undertaken as a first priority. Replacing cracked or missing shingles and tiles, securing loose flashing, and reanchoring gutters and downspouts can often be done by a local roofing contractor. If the roof is in poor condition, but the historic materials and configuration are important, a new temporary roof, such as a lightweight aluminum channel system over the existing, might be considered (see fig. 7). If the roofing is so deteriorated that it must be replaced and a lightweight aluminum system is not affordable, various inexpensive options might be considered. These include covering the existing deteriorated roof with galvanized corrugated metal roofing panels, or 90 lb. rolled roofing, or a rubberized membrane (refer back to cover photo). These alternatives should leave as much of the historic sheathing and roofing in place as evidence for later preservation treatments.

For masonry repairs, appropriate preservation approaches are essential. For example, if repointing deteriorated brick chimneys or walls is necessary to prevent serious moisture penetration while the building is mothballed, the mortar should match the historic mortar in composition, color, and tooling. The use of hard portland cement mortars or vapor-impermeable waterproof coatings are not appropriate solutions as they can cause extensive damage and are not reversible treatments (see fig. 8).

For wood siding that is deteriorated, repairs necessary to keep out moisture should be made; repainting is generally warranted. Cracks around windows and doors can be beneficial in providing ventilation to the interior and so should only be caulked if needed to keep out bugs and moisture. For very deteriorated wall surfaces on wooden frame structures, it may be necessary to sheathe in plywood panels, but care should be taken to minimize installation damage by planning the location of the nailing or screw patterns or by installing panels over a frame of battens (see fig. 9). Generally, however, it is better to repair deteriorated features than to cover them over.

Foundation damage may occur if water does not drain away from the building. Run-off from gutters and downspouts should be directed far away from the foundation wall by using long flexible extender pipes equal in length to twice the depth of the basement or crawl space. If underground drains are susceptible to clogging, it is recommended that the downspouts be disconnected from the drain boot and attached to flexible piping. If gutters and downspouts are in bad condition, replace them with inexpensive aluminum units.

Figure 9. Severely deteriorated wooden siding on a farm building has been covered over with painted plywood panels as a temporary measure to eliminate moisture penetration to the interior. Foundation vents and loose floor boards allow air to circulate inside.

If there are no significant landscape or exposed archeological elements around the foundation, consideration should be given to regrading the site if there is a documented drainage problem (see fig. 10). If building up the grade, use a fiber mesh membrane to separate the new soil from the old and slope the new soil 6 to 8 feet (200 cm-266 cm) away from the foundation making sure not to cover up the dampcourse layer or come into contact with skirting boards. To keep vegetation under control, put down a layer of 6 mil black polyethylene sheeting or fiber mesh matting covered with a 2"-4" (5-10 cm.) of washed gravel. If the building suffers a serious rising damp problem, it may be advisable to eliminate the plastic sheeting to avoid trapping ground moisture against foundations.

Figure 10. Regrading around the Booker Tenement at Colonial Williamsburg has protected the masonary foundation wall from excessive damp. This building has been successfully mothballed for over 10 years. Note the attic and basement vents, the temporary stairs, and the informative sign interpreting the history of this building.

Mothballing

The actual mothballing effort involves controlling the long-term deterioration of the building while it is unoccupied as well as finding methods to protect it from sudden loss by fire or vandalism. This requires securing the building from unwanted entry, providing adequate ventilation to the interior, and shutting down or modifying existing utilities. Once the building is de-activated or secured, the long-term success will depend on periodic maintenance and surveillance monitoring.

Securing the building from vandals, break-ins, and natural disasters. Securing the building from sudden loss is a critical aspect of mothballing. Because historic buildings are irreplaceable, it is vital that vulnerable entry points are sealed. If the building is located where fire and security service is available then it is highly recommeded that some form of monitoring or alarm devices be used.

To protect decorative features, such as mantels, lighting fixtures, copper downspouts, iron roof cresting, or stained glass windows from theft or vandalism, it may be advisable to temporarily remove them to a more secure location if they cannot be adequately protected within the structure.

Mothballed buildings are usually boarded up, particularly on the first floor and basement, to protect fragile glass windows from breaking and to reinforce entry points (see fig. 11). Infill materials for closing door and window openings include plywood, corrugated panels, metal grates, chain fencing, metal grills, and cinder or cement blocks (see fig. 12). The method of installation should not result in the destruction of the opening and all associated sash, doors, and frames should be protected or stored for future reuse.

Figure 11. Urban buildings often need additional protection from unwanted entry and graffiti. This commercial building uses painted plywood panels to cover expansive glass storefronts and chain link fencing is applied on top of the panels. The upper windows on the street sides have been covered and painted to resemble 19th century sash. Photo: Thomas Jester, NPS.

Generally exterior doors are reinforced and provided with strong locks, but if weak historic doors would be damaged or disfigured by adding reinforcement or new locks, they may be removed temporarily and replaced with secure modern doors (see fig. 13). Alternatively, security gates in a new metal frame can be installed within existing door openings, much like a storm door, leaving the historic door in place. If plywood panels are installed over door openings, they should be screwed in place, as opposed to nailed, to avoid crowbar damage each time the panel is removed. This also reduces pounding vibrations from hammers and eliminates new nail holes each time the panel is replaced.

For windows, the most common security feature is the closure of the openings; this may be achieved with wooden or pre-formed panels or, as needed, with metal sheets or concrete blocks. Plywood panels, properly installed to protect wooden frames and properly ventilated, are the preferred treatment from a preservation standpoint.

There are a number of ways to set insert plywood panels into windows openings to avoid damage to frame and sash (see fig. 14). One common method is to bring the upper and lower sash of a double hung unit to the mid-point of the opening and then to install pre-cut plywood panels using long carriage bolts anchored into horizontal wooden bracing, or strong backs, on the inside face of the window. Another means is to build new wooden blocking frames set into deeply recessed openings, for example in an industrial mill or warehouse, and then to affix the plywood panel to

the blocking frame. If sash must be removed prior to installing panels, they should be labeled and stored safely within the building.

Plywood panels are usually 1/2"-3/4" (1.25-1.875 cm.) thick and made of exterior grade stock, such as CDX, or marine grade plywood. They should be painted to protect them from delamination and to provide a neater appearance. These panels may be painted to resemble operable windows or treated decoratively (see fig. 15). With extra attention to detail, the plywood panels can be

Figure 12. First floor openings have been filled with cinderblocks and doors, window sash and frames have been removed for safe keeping. Note the security light over the windows and the use of a security metal door with heavy duty locks. Photo: H. Ward Jandl, NPS.

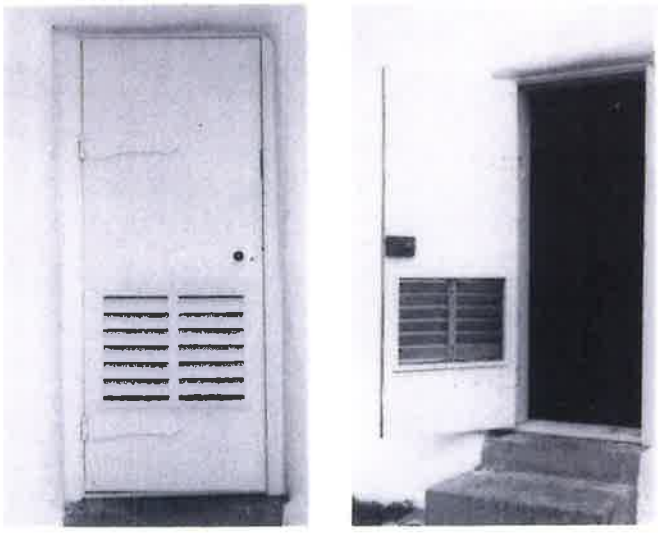


Figure 13. If historic doors would be damaged by adding extra locks, they should be removed and stored and new security doors added. At this lighthouse, the historic door has been replaced with a new door (seen both inside and outside) with an inset vent and new deadbolt locks. The heavy historic hinges have not been damaged. Photo: Williamsport Preservation Training Center, NPS.

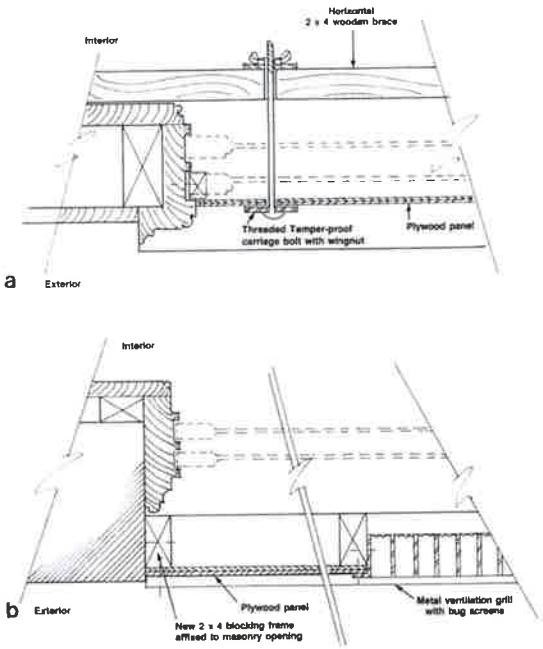


Figure 14. A: Plan detail showing plywood security panel anchored with carriage bolts through to the inside horizontal bracing, or strong backs. B: Plan detail showing section of plywood window panel attached to a new pressure treated wood frame set within the masonry opening. Ventilation should be included whenever possible or necessary.

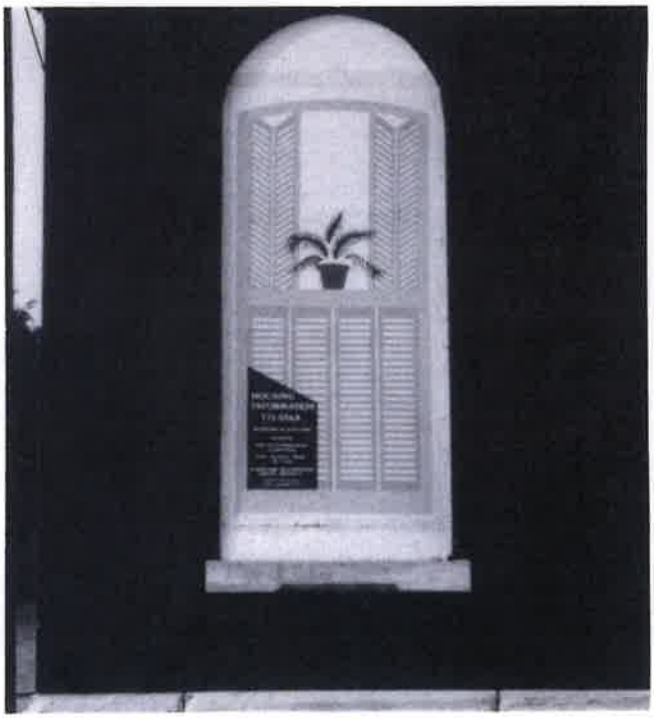


Figure 15. Painting trompe l'oeil scenes on plywood panels is a neighborhood friendly device. In addition, the small sign at the bottom left corner gives information for contacting the organization responsible for the care of the mothballed building. Photo: Lee H. Nelson, FAIA.

trimmed out with muntin strips to give a shadow line simulating multi-lite windows. This level of detail is a good indication that the building is protected and valued by the owner and the community.

If the building has shutters, simply close the shutters and secure them from the interior (see fig. 16). If the building had shutters historically, but they are missing, it may be appropriate to install new shutters, even in a modern material, and secure them in the closed position. Louvered shutters will help with interior ventilation if the sash are propped open behind the shutters.

Figure 16. Historic louvered shutters make excellent security closures with passive ventilation.

There is some benefit from keeping windows unboarded if security is not a problem. The building will appear to be occupied, and the natural air leakage around the windows will assist in ventilating the interior. The presence of natural light will also help when periodic inspections are made. Rigid polycarbonate clear storm glazing panels may be placed on the window exterior to protect against glass breakage. Because the sun's ultraviolet rays can cause fading of floor finishes and wall surfaces, filtering pull shades or inexpensive curtains may be options for reducing this type of deterioration for significant interiors. Some acrylic sheeting comes with built-in ultraviolet filters.

Securing the building from catastrophic destruction from fire, lightning, or arson will require additional security devices. Lightning rods properly grounded should be a first consideration if the building is in an area susceptible to lightning storms. A high security fence should also be installed if the property cannot be monitored closely. These interventions do not require a power source for operation. Since many buildings will not maintain electrical power, there are some devices available using battery packs, such as intrusion alarms, security lighting, and smoke detectors which through audible horn alarms can alert nearby neighbors. These battery packs must be replaced every 3 months to 2 years, depending on type and usage. In combination with a cellular phone, they can also provide some level of direct communication with police and fire departments.

If at all possible, new temporary electric service should be provided to the building (see fig. 17). Generally a telephone

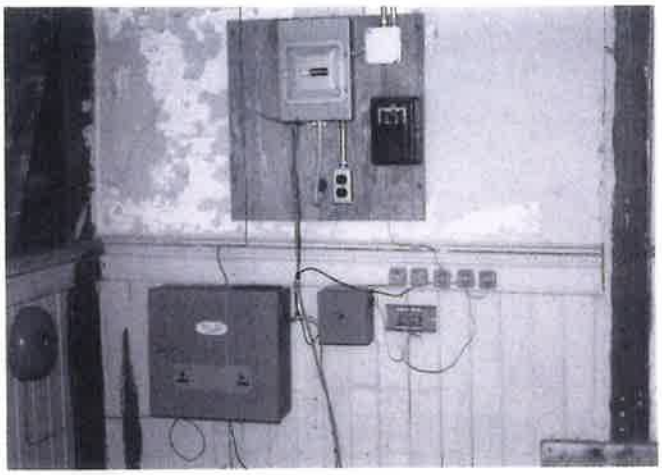


Figure 17. Security systems are very important for mothballed buildings if they are located where fire and security services are available. A temporary electric service with battery back-up has been installed in this building. Intrusion alarms and ionization smoke/fire detectors are wired directly to the nearby security service.

line is needed as well. A hard wired security system for intrusion and a combination rate-of-rise and smoke detector can send an immediate signal for help directly to the fire department and security service. Depending on whether or not heat will be maintained in the building, the security system should be designed accordingly. Some systems cannot work below 32°F (0°C). Exterior lighting set on a timer, photo electric sensor, or a motion/infra-red detection device provides additional security.

Providing adequate ventilation to the interior. Once the exterior has been made weathertight and secure, it is essential to provide adequate air exchange throughout the building. Without adequate air exchange, humidity may rise to unsafe levels, and mold, rot, and insect infestation are likely to thrive (see fig. 18). The needs of each historic resource must be individually evaluated because there are so many variables that affect the performance of each interior space once the building has been secured. A

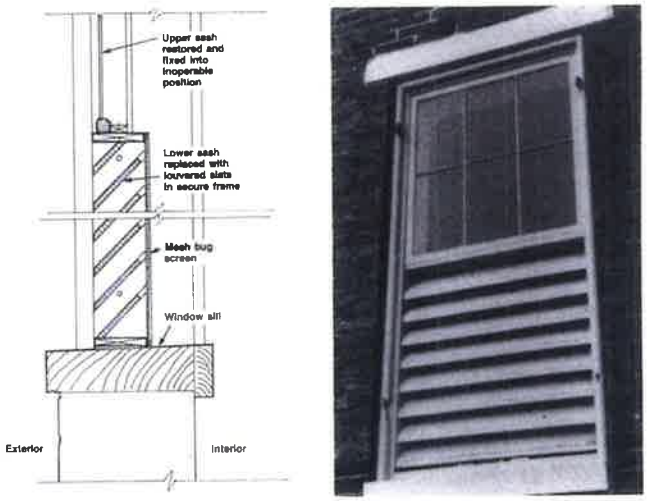


Figure 18. Heavy duty wooden slated louvers were custom fabricated to replace the deteriorated lower sash. The upper sash were rebuilt to retain the historic appearance and to allow light into this vacant historic building. Refer back to Fig. 1 for a view of the building. Photo: Charles E. Fisher, NPS. Drawing by Thomas Vitanza.

mechanical engineer or a specialist in interior climates should be consulted, particularly for buildings with intact and significant interiors. In some circumstances, providing heat during the winter, even at a minimal 45° F (7°C), and utilizing forced-fan ventilation in summer will be recommended and will require retaining electrical service. For masonry buildings it is often helpful to keep the interior temperature above the spring dew point to avoid damaging condensation. In most buildings it is the need for summer ventilation that outweighs the winter requirements.

Many old buildings are inherently leaky due to loose-fitting windows and floorboards and the lack of insulation. The level of air exchange needed for each building, however, will vary according to geographic location, the building's construction, and its general size and configuration.

There are four critical climate zones when looking at the type and amount of interior ventilation needed for a closed up building: hot and dry (southwestern states); cold and damp (Pacific northwest and northeastern states); temperate and humid (Mid-Atlantic states, coastal areas); and hot and humid (southern states and the tropics). (See fig. 19 for a chart outlining guidance on ventilation.)

Once closed up, a building interior will still be affected by the temperature and humidity of the exterior. Without proper ventilation, moisture from condensation may occur and cause damage by wetting plaster, peeling paint, staining woodwork, warping floors, and in some cases even causing freeze thaw damage to plaster. If moist conditions persist in a property, structural damage can result from rot or returning insects attracted to moist conditions. Poorly mothballed masonry buildings, particularly in damp and humid zones have been so damaged on the interior with just one year of unventilated closure that none of the interior finishes were salvageable when the buildings were rehabilitated.

The absolute minimum air exchange for most mothballed buildings consists of one to four air exchanges every hour; one or two air exchanges per hour in winter and often twice that amount in summer. Even this minimal exchange may foster mold and mildew in damp climates, and so monitoring the property during the stabilization period and after the building has been secured will provide useful information on the effectiveness of the ventilation solution.

There is no exact science for how much ventilation should be provided for each building. There are, however, some general rules of thumb. Buildings, such as adobe structures, located in hot and arid climates may need no additional ventilation if they have been well weatherized and no moisture is penetrating the interior. Also frame buildings with natural cracks and fissures for air infiltration may have a natural air exchange rate of 3 or 4 per hour, and so in arid as well as temperate climates may need no additional ventilation once secured. The most difficult

VENTILATION GUIDANCE CHART

CLIMATE	AIR EXCHANGES		VENTILATION				
Temperature and Humidity	Winter air exchange per hour	Summer air exchange per hour	Frame Buildings passive louvering % of openings louvered		Masonry Buildings passive louvering % of openings louvered		Masonry Buildings fan combination one fan + % louvered
			winter	summer	winter	summer	summer
hot and dry Southwestern areas	less than 1	less than 1	N/A	N/A	N/A	N/A	N/A
cold and damp Northeastern & Pacific northwestern areas	1	2-3	5%	10%	10%	30%	20%
temperate/humid Mid-Atlantic & coastal areas	2	3-4	10%	20%	20%	40%	30%
hot and humid Southern states & tropical areas	3	4 or more	20%	30%	40% or more	80%	40% or more

Figure 19. This is a general guide for the amount of louvering which might be expected for a medium size residential structure with an average amount of windows, attic, and crawl space ventilation. There is currently research being done on effective air exchanges, but each project should be evaluated individually. It will be noticed from the chart that summer louvering requirements can be reduced with the use of an exhaust fan. Masonry buildings need more ventilation than frame buidings. Chart prepared by Sharon C. Park, AIA and Ernest A. Conrad, PE.

buildings to adequately ventilate without resorting to extensive louvering and/or mechanical exhaust fan systems are masonry buildings in humid climates. Even with basement and attic vent grills, a masonry building many not have more than one air exchange an hour. This is generally unacceptable for summer conditions. For these buildings, almost every window opening will need to be fitted out with some type of passive, louvered ventilation.

Depending on the size, plan configuration, and ceiling heights of a building, it is often necessary to have louvered opening equivalent to 5%-10% of the square footage of each floor. For example, in a humid climate, a typical 20'x30' (6.1m x 9.1m) brick residence with 600 sq. ft.(55.5 sq.m) of floor space and a typical number of windows, may need 30-60 sq. ft.(2.75sq.m-5.5 sq. m) of louvered openings per floor. With each window measuring 3'x5'(.9m x 1.5 m) or 15 sq. ft. (1.3 sq.m), the equivalent of 2 to 4 windows per floor may need full window louvers.

Small pre-formed louvers set into a plywood panel or small slit-type registers at the base of inset panels generally cannot provide enough ventilation in most moist climates to offset condensation, but this approach is certainly better than no louvers at all. Louvers should be located to give cross ventilation, interior doors should be fixed ajar at least 4" (10cm) to allow air to circulate, and hatches to the attic should be left open.

Monitoring devices which can record internal temperature and humidity levels can be invaluable in determining if the internal climate is remaining stable. These units can be powered by portable battery packs or can be wired into electric service with data downloaded into laptop computers periodically (see fig. 20). This can also give long-term information throughout the mothballing years. If it is determined that there are inadequate air exchanges to keep interior moisture levels under control, additional passive ventilation can be increased, or, if there is electric service, mechanical exhaust fans can be installed. One fan in a small to medium sized building can reduce the amount of louvering substantially.

Figure 20. Portable monitors used to record temperature and humidity conditions in historic buildings during mothballing can help identify ventilation needs. This data can be downloaded directly into a lap top computer on site. These monitors are especially helpful over the long term for buildings with significant historic interiors or which are remaining furnished. If interiors are remaining damp or humid, additional ventilation should be added or the source of moisture controlled.

If electric fans are used, study the environmental conditions of each property and determine if the fans should be controlled by thermostats or automatic timers. Humidistats, designed for enclosed climate control systems, generally are difficult to adapt for open mothballing conditions. How the system will draw in or exhaust air is also important. It may be determined that it is best to bring dry air in from the attic or upper levels and force it out through lower basement windows (see fig. 21). If the basement is damp, it may be best to zone it from the rest of the building and exhaust its air separately. Additionally, less humid day air is preferred over damper night air, and this can be controlled with a timer switch mounted to the fan.

The type of ventilation should not undermine the security of the building. The most secure installations use custom-made grills well anchored to the window frame, often set in plywood security panels. Some vents are formed using heavy millwork louvers set into existing window openings (refer back to fig.18). For buildings where security is not a primary issue, where the interior is modest, and where there has been no heat for a long time, it may be possible to use lightweight galvanized metal grills in the window openings (refer back to fig.7). A cost effective grill can be made from the expanded metal mesh lath used by plasterers and installed so that the mesh fins shed rainwater to the exterior.

Securing mechanical systems and utilities. At the outset, it is important to determine which utilities and services, such as electrical or telephone lines, are kept and which are cut off. As long as these services will not constitute a fire

Figure 21. This electric thermostat/humidistat mounted in the attic vent controls a modified ducted air/fan system. The unit uses temporary exposed sheet metal ducts to pull air through the building and exhaust it out of the basement. For over ten years this fan system in combination with 18" x 18" preformed louvers in selective windows has kept the interior dry and with good air exchanges.

hazard, it is advisable to retain those which will help protect the property. Since the electrical needs will be limited in a vacant building, it is best to install a new temporary electric line and panel (100 amp) so that all the wiring is new and exposed. This will be much safer for the building, and allows easy access for reading the meter (see fig. 22).

Most heating systems are shut down in long term mothballing. For furnaces fueled by oil, there are two choices for dealing with the tank. Either it must be filled to the top with oil to eliminate condensation or it should be drained. If it remains empty for more than a year, it will likely rust and not be reusable. Most tanks are drained if a newer type of system is envisioned when the building is put back into service. Gas systems with open flames should be turned off unless there is regular maintenance and frequent surveillance of the property. Gas lines are shut off by the utility company.

If a hot water radiator system is retained for low levels of heat, it generally must be modified to be a self-contained system and the water supply is capped at the meter. This recirculating system protects the property from extensive damage from burst pipes. Water is replaced with a water/glycol mix and the reserve tank must also be filled with this mixture. This keeps the modified system from freezing, if there is a power failure. If water service is cut off, pipes should be drained. Sewerage systems will require special care as sewer gas is explosive. Either the traps must be filled with glycol or the sewer line should be capped off at the building line.

Figure 22. All systems except temporary electric have been shut off at this residence which has been mothballed over 20 years. An electric meter and 100 amp panel box have been set on a plywood panel at the front of the building. It is used for interior lighting and various alarm systems. The building, however, is showing signs of moisture problems with efflourescent stains on the masonry indicating the need for gutter maintenance and additional ventilation for the interior. The vegetation on the walls, although picturesque, traps moisture and is damaging to the masonry. Photo: H. Ward Jandl, NPS.

Developing a maintenance and monitoring plan. While every effort may have been made to stabilize the property and to slow the deterioration of materials, natural disasters, storms, undetected leaks, and unwanted intrusion can still occur. A regular schedule for surveillance, maintenance, and monitoring should be established: (See fig. 23 for maintenance chart).

MAINTENANCE CHART

periodic
- ❑ regular drive by surveillance
- ❑ check attic during storms if possible

monthly walk arounds
- ❑ check entrances
- ❑ check window panes for breakage
- ❑ mowing as required
- ❑ check for graffiti or vandalism

enter every 3 months to air out
- ❑ check for musty air
- ❑ check for moisture damage
- ❑ check battery packs and monitoring equipment
- ❑ check light bulbs
- ❑ check for evidence of pest intrusion

every 6 months; spring and fall
- ❑ site clean-up; pruning and trimming
- ❑ gutter and downspout check
- ❑ check crawlspace for pests
- ❑ clean out storm drains

every 12 months
- ❑ maintenance contract inspections for equipment/utilities
- ❑ check roof for loose or missing shingles
- ❑ termite and pest inspection/treatment
- ❑ exterior materials spot repair and touch up painting
- ❑ remove bird droppings or other stains from exterior
- ❑ check and update building file

Figure 23. Maintenance Chart. Many of the tasks on the maintenance chart can be done by volunteer help or service contracts. Regular visits to the site will help detect intrusion, storm damage, or poor water drainage.

The fire and police departments should be notified that the property will be vacant. A walk-through visit to familiarize these officials with the building's location, construction materials, and overall plan may be invaluable if they are called on in the future.

The optimum schedule for surveillance visits to the property will depend on the location of the property and the number of people who can assist with these activities. The more frequent the visits to check the property, the sooner that water leaks or break-ins will be noticed. Also, the more frequently the building is entered, the better the air exchange. By keeping the site clear and the building in good repair, the community will know that the building has not been abandoned (see fig. 24). The involvement of neighbors and community groups in caring for the property can ensure its protection from a variety of catastrophic circumstances.

The owner may utilize volunteers and service companies to undertake the work outlined in the maintenance chart.

Service companies on a maintenance contract can provide yard, maintenance, and inspection services, and their reports or itemized bills reflecting work undertaken should be added to update the building file.

Figure 24. Once mothballed, a property must still be monitored and maintained. The openings in this historic barn has been modified with a combination of wood louvers and metal mesh panels which require little maintenance. The grounds are regularly mowed, even inside the chain link security fence. Photo: Williamsport Preservation Training Center, NPS.

Components of a Mothballing Project

Document: Brearley House, New Jersey; 2½ story center hall plan house contains a high degree of integrity of circa 1761 materials and significant early 19th century additions. Deterioration was attributable to leaking roof, unstable masonry at gables and chimneys, deteriorating attic windows, poor site drainage, and partially detached gutters. Mothballing efforts are required for approximately 7-10 years.

Stabilize: Remove bat droppings from attic using great caution. Secure historic chimneys and gable ends with plywood panels. Do not take historic chimneys down. Reroof with asphalt shingles and reattach or add new gutters and downspouts. Add extenders to downspouts. Add bug screens to any ventilation areas. Add soil around foundation and slope to gain positive drain; do not excavate as this will disturb archeological evidence.

Mothball: Install security fence around the property. Secure doors and windows with plywood panels (½" exterior grade). Install preformed metal grills in basement and attic openings. Add surface mounted wiring for ionization smoke and fire detection with direct wire to police and fire departments. Shut off heat and drain pipes. Add window exhaust fan set on a thermostatic control. Provide for periodic monitoring and maintenance of the property.

Figure 25. Above is a summary of the tasks that were necessary in order to protect this significant property while restoration funds are raised. Photographs: Michael Mills; Ford Farewell Mills Gatsch Architects.

a. A view showing the exterior of the house in its mothballed condition.

b. Plywood panels stabilize the chimneys. Note the gable vents.

c. The exhaust fan has tamper-proof housing.

MOTHBALLING CHECKLIST

Mothballing Checklist In reviewing mothballing plans, the following checklist may help to ensure that work items are not inadvertently omitted.	Yes	No	Date of action or comment.
Moisture • Is the roof watertight? • Do the gutters retain their proper pitch and are they clean? • Are downspout joints intact? • Are drains unobstructed? • Are windows and doors and their frames in good condition? • Are masonry walls in good condition to seal out moisture? • Is wood siding in good condition? • Is site properly graded for water run-off? • Is vegetation cleared from around the building foundation to avoid trapping moisture?			
Pests • Have nests/pests been removed from the building's interior and eaves? • Are adequate screens in place to guard against pests? • Has the building been inspected and treated for termites, carpenter ants, and rodents? • If toxic droppings from bats and pigeons are present, has a special company been brought in for its disposal?			
Housekeeping • Have the following been removed from the interior: trash, hazardous materials such as inflammable liquids, poisons, and paints and canned goods that could freeze and burst? • Is the interior broom-clean? • Have furnishings been removed to a safe location? • If furnishings are remaining in the building, are they properly protected from dust, pests, ultraviolet light, and other potentially harmful problems? • Have significant architectural elements that have become detached from the building been labeled and stored in a safe place? • Is there a building file?			
Security • Have fire and police departments been notified that the building will be mothballed? • Are smoke and fire detectors in working order? • Are the exterior doors and windows securely fastened? • Are plans in place to monitor the building on a regular basis? • Are the keys to the building in a secure but accessible location? • Are the grounds being kept from becoming overgrown?			
Utilities • Have utility companies disconnected/shut off or fully inspected water, gas, and electric lines? • If the building will not remain heated, have water pipes been drained and glycol added? • If the electricity is to be left on, is the wiring in safe condition?			
Ventilation • Have steps been taken to ensure proper ventilation of the building? • Have interior doors been left open for ventilation purposes? • Has the secured building been checked within the last 3 months for interior dampness or excessive humidity?			

Figure 26.. MOTHBALL CHECKLIST. This checklist will give the building owner or manager a handy reference guide to items that should be addressed when mothballing a historic building. Prepared by H. Ward Jandl, NPS.

Conclusion

Providing temporary protection and stabilization for vacant historic buildings can arrest deterioration and buy the owner valuable time to raise money for preservation or to find a compatible use for the property. A well planned mothballing project involves documenting the history and condition of the building, stabilizing the structure to slow down its deterioration, and finally mothballing the structure to secure it (See fig. 25). The three highest priorities for the building while it is mothballed are 1) to protect the building from sudden loss, 2) to weatherize and maintain the property to stop moisture penetration, and 3) to control the humidity levels inside once the building has been secured. See Mothballing Checklist Figure 26.

While issues regarding mothballing may seem simple, the variables and intricacies of possible solutions make the decision-making process very important. Each building must be individually evaluated prior to mothballing. In addition, a variety of professional services as well as volunteer assistance are needed for careful planning and repair, sensitively designed protection measures, follow-up security surveillance, and cyclical maintenance (see fig. 27).

In planning for the future of the building, complete and systematic records must be kept and generous funds allocated for mothballing. This will ensure that the historic property will be in stable condition for its eventual preservation, rehabilitation, or restoration.

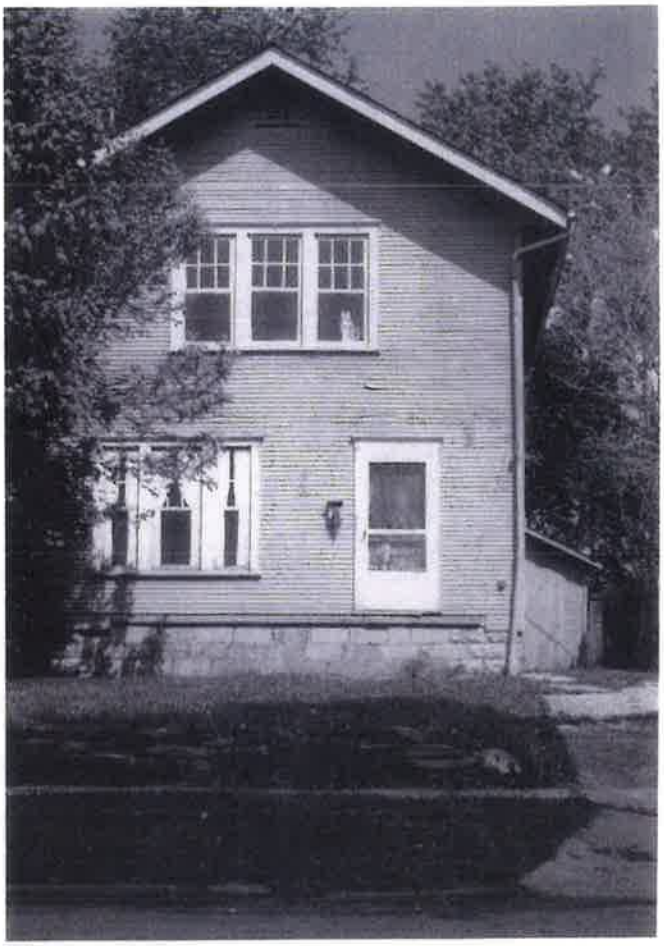


Figure 27. This residential building blends into its neighborhood even though all the windows have been covered over and the front steps are missing. The grounds are maintained and the special attention to decoratively painting the window panels shows that the property is being well cared for until it can be rehabilitated. Photo: Ohio Historical Society.

Acknowledgements

This publication has been prepared pursuant to the National Historic Preservation Act of 1966, as amended, which directs the Secretary of the Interior to develop and make available information concerning historic properties. Comments on the usefulness of this publication may be directed to H. Ward Jandl, Deputy Chief, Preservation Assistance Division, National Park Service, P.O. Box 37127, Washington, D.C. 20013-7127. This publication is not copyrighted and can be reproduced without penalty. Normal procedures for credit to the author and the National Park Service are appreciated.

The author, Sharon C. Park, Senior Historical Architect, Preservation Assistance Division, National Park Service, would like to acknowledge the assistance of the following individuals in the preparation and review of this publication. H. Ward Jandl served as the technical editor and assisted with producing this Preservation Brief. In addition the following persons have provided invaluable information and illustrations: Ernest A. Conrad, PE; Doug Hicks, NPS Williamsport Preservation Training Center; Thomas C. Taylor, Colonial Williamsburg; Karen Gordon, Seattle Urban Conservation Office; Kevin B. Stoops, Seattle Department of Parks and Recreation; Michael Mills, AIA; Christine Henry, architect, Mary Beth Hirsch, Ohio Historical Society. Thanks also to Preservation Assistance Division staff members Michael J. Auer, Anne E. Grimmer, Kay D. Weeks, Timothy A. Buehner, and Jean Travers, and to the numerous staff members of the NPS Regional offices who submitted comments.

All photographs and drawings are by the author unless otherwise noted.

Cover photograph: Mothballing of this historic house involved a new membrane roof covering over the historic roof and slatted window covers for security and ventilation. Photo: Williamsport Preservation Training Center, NPS.

ISSN: 0885-7016
September 1993

Further Reading

Cotton, J. Randall. "Mothballing Buildings." *The Old House Journal*. July/August, 1993.

Fisher, Charles E. and Thomas A. Vitanza. "Temporary Window Vents in Unoccupied Historic Buildings." Preservation Tech Note (Windows, No. 10). Washington, DC: National Park Service, 1985.

Frazier Associates. "Mothballing Historic Buildings." Preserving Prince William, 2. County of Prince William, VA, 1990.

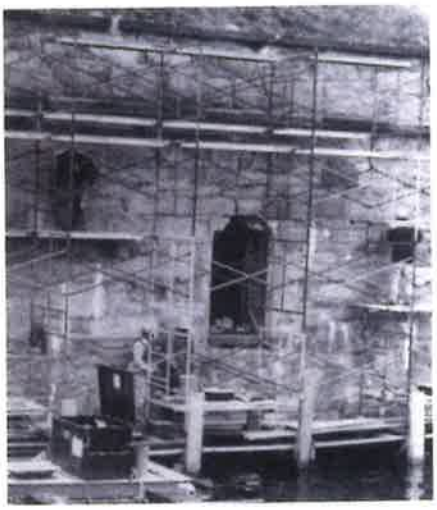
Michell, Eleanor. *Emergency Repairs for Historic Buildings*. London: Butterworth Architecture, 1988.

"Mothballing Vacant Buildings," *An Anti-Arson Kit for Preservation and Neighborhood Action*. Washington, DC: Federal Emergency Management Agency, 1982.

Nelson, Lee H. *Preservation Briefs 17. Architectural character-Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character*. Washington, DC: Government Printing Office, 1988.

Solon, Thomas E. "Security Panels for the Foster-Armstrong House." *Association for Preservation Technology Bulletin*. Vol XVI no. 3 & 4, 1984. (note the design of the panels, but be aware that additional louvering may be needed on other projects).

39 PRESERVATION BRIEFS



Holding the Line: Controlling Unwanted Moisture in Historic Buildings

Sharon C. Park, AIA

U.S. Department of the Interior
National Park Service
Cultural Resources
Heritage Preservation Services

Uncontrolled moisture is the most prevalent cause of deterioration in older and historic buildings. It leads to erosion, corrosion, rot, and ultimately the destruction of materials, finishes, and eventually structural components. Ever-present in our environment, moisture can be *controlled* to provide the differing *levels* of moisture necessary for human comfort as well as the longevity of historic building materials, furnishings, and museum collections. The challenge to building owners and preservation professionals alike is to understand the patterns of moisture movement in order to better manage it — not to eliminate it. There is never a single answer to a moisture problem. Diagnosis and treatment will always differ depending on where the building is located, climatic and soil conditions, ground water effects, and local traditions in building construction.

Remedial Actions within an Historic Preservation Context

In this Brief, advice about controlling the sources of unwanted moisture is provided within a preservation context based on philosophical principles contained in the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. Following the Standards means significant materials and features that contribute to the historic character of the building should be preserved, not damaged during remedial treatment (see fig.1). It also means that physical treatments should be reversible, whenever possible. The majority of treatments for moisture management in this Brief stress preservation maintenance for materials, effective drainage of troublesome ground moisture, and improved interior ventilation.

The Brief encourages a systematic approach for evaluating moisture problems which, in some cases, can be undertaken by a building owner. Because the source of moisture can be elusive, it may be necessary to consult with historic preservation professionals prior to starting work that would affect historic materials. Architects, engineers, conservators, preservation contractors, and staff of State Historic Preservation Offices (SHPOs) can provide such advice.

Regardless of who does the work, however, these are the principles that should guide treatment decisions:

- Avoid remedial treatments without prior careful diagnosis.
- Undertake treatments that protect the historical significance of the resource.
- Address issues of ground-related moisture and rain run-off thoroughly.
- Manage existing moisture conditions before introducing humidified / dehumidified mechanical systems.
- Implement a program of ongoing monitoring and maintenance once moisture is controlled or managed.
- Be aware of significant landscape and archeological resources in areas to be excavated.

Finally, mitigating the effects of catastrophic moisture, such as floods, requires a different approach and will not be addressed fully in this Brief.

Fig. 1. Moisture problems, if not properly corrected, will increase damage to historic buildings. This waterproof coating trapped moisture from the leaking roof, causing portions of the masonry parapet to fail. Photo: NPS Files.

How and Where to Look for Damaging Moisture

Finding, treating, and managing the sources of damaging moisture requires a systematic approach that takes time, patience, and a thorough examination of all aspects of the problem—including a series of variable conditions (See this page). Moisture problems may be a direct result of one of these factors or may be attributable to a combination of interdependent variables.

Factors Contributing to Moisture Problems

A variety of simultaneously existing conditions contribute to moisture problems in old buildings. For recurring moisture problems, it may be necessary for the owner or preservation professional to address many, if not all, of the following variables:

- Types of building materials and construction systems
- Type and condition of roof and site drainage systems and their rates of discharge
- Type of soil, moisture content, and surface / subsurface water flow adjacent to building
- Building usage and moisture generated by occupancy
- Condition and absorption rates of materials
- Type, operation, and condition of heating, ventilating, cooling, humidification / dehumidification, and plumbing systems
- Daily and seasonal changes in sun, prevailing winds, rain, temperature, and relative humidity (inside and outside), as well as seasonal or tidal variations in groundwater levels
- Unusual site conditions or irregularities of construction
- Conditions in affected wall cavities, temperature and relative humidity, and dewpoints
- Amount of air infiltration present in a building
- Adjacent landscape and planting materials

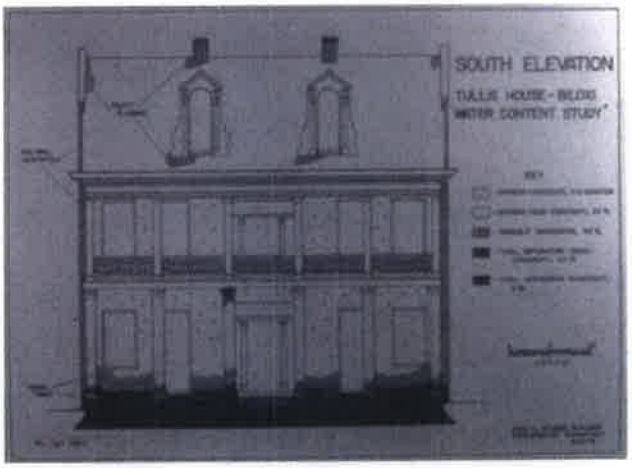


Fig. 2. Historic buildings plagued by dampness problems will benefit from systematic documentation to set a baseline against which moisture changes can be measured. Exterior areas with higher moisture levels may have algae growth or discoloration stains. Drawing: John H. Stubbs.

Diagnosing and treating the cause of moisture problems requires looking at both the localized decay, as well as understanding the performance of the entire building and site. Moisture is notorious for traveling far from the source, and moisture movement within concealed areas of the building construction make accurate diagnosis of the source and path difficult. Obvious deficiencies, such as broken pipes, clogged gutters, or cracked walls that contribute to moisture damage, should always be corrected promptly.

For more complicated problems, it may take several months or up to four seasons of monitoring and evaluation to complete a full diagnosis. Rushing to a solution without adequate documentation can often result in the unnecessary removal of historic materials—and worse—the creation of long-term problems associated with an increase, rather than a decrease, in the unwanted moisture.

Looking for Signs

Identifying the type of moisture damage and discovering its source or sources usually involves the human senses of sight, smell, hearing, touch, and taste combined with intuition. Some of the more common signs of visible as well as hidden moisture damage (see fig. 2, 3) include:

- Presence of standing water, mold, fungus, or mildew
- Wet stains, eroding surfaces, or efflorescence (salt deposits) on interior and exterior surfaces
- Flaking paint and plaster, peeling wallpaper, or moisture blisters on finished surfaces
- Dank, musty smells in areas of high humidity or poorly ventilated spaces
- Rust and corrosion stains on metal elements, such as anchorage systems and protruding roof nails in the attic
- Cupped, warped, cracked, or rotted wood
- Spalled, cracked masonry or eroded mortar joints
- Faulty roofs and gutters including missing roofing slates, tiles, or shingles and poor condition of flashing or gutters
- Condensation on window and wall surfaces
- Ice dams in gutters, on roofs, or moisture in attics

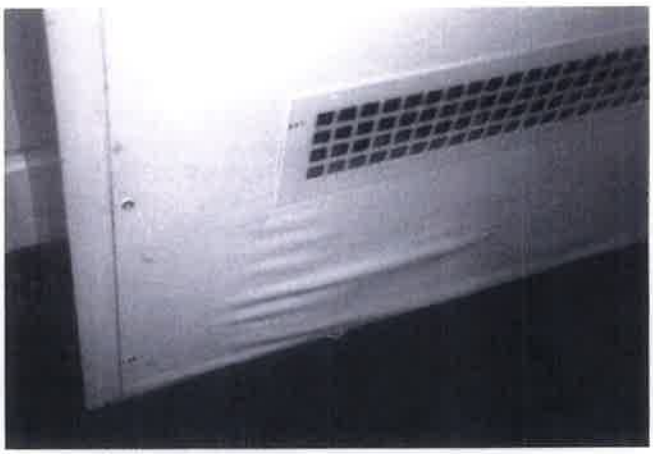


Fig. 3. The deterioration of this wooden cover was a sign that water was leaking from the fan coil unit behind. Photo: author.

Uncovering and Analyzing Moisture Problems

Moisture comes from a variety of external sources. Most problems begin as a result of the weather in the form of rain or snow, from high ambient relative humidity, or from high water tables. But some of the most troublesome moisture damage in older buildings may be from internal sources, such as leaking plumbing pipes, components of heating, cooling, and climate control systems, as well as sources related to use or occupancy of the building. In some cases, moisture damage may be the result of poorly designed original details, such as projecting outriggers in rustic structures that are vulnerable to rotting, and may require special treatment.

The five most common sources of unwanted moisture include:

- Above grade exterior moisture entering the building
- Below grade ground moisture entering the building
- Leaking plumbing pipes and mechanical equipment
- Interior moisture from household use and climate control systems
- Water used in maintenance and construction materials.

Above grade exterior moisture generally results from weather related moisture entering through deteriorating materials as a result of deferred maintenance, structural settlement cracks, or damage from high winds or storms (see fig. 4). Such sources as faulty roofs, cracks in walls, and open joints around window and door openings can be corrected through either repair or limited replacement. Due to their age, historic buildings are notoriously "drafty," allowing rain, wind, and damp air to enter through missing mortar joints; around cracks in windows, doors, and wood siding; and into uninsulated attics. In some cases, excessively absorbent materials, such as soft sandstone, become saturated from rain or gutter overflows, and can allow moisture to dampen interior surfaces. Vines or other vegetative materials allowed to grow directly on building materials without trellis or other framework can cause damage from roots eroding mortar joints and foundations as well as dampness being held against surfaces. In most cases, keeping vegetation off buildings, repairing damaged materials, replacing flashings, rehanging gutters, repairing downspouts, repointing mortar, caulking perimeter joints around windows and doors, and repainting surfaces can alleviate most sources of unwanted exterior moisture from entering a building above grade.

Below grade ground moisture is a major source of unwanted moisture for historic and older buildings. *Proper handling of surface rain run-off is one of the most important measures of controlling unwanted ground moisture.* Rain water is often referred to as "bulk moisture" in areas that receive significant annual rainfalls or infrequent, but heavy, precipitation. For example, a heavy rain of 2" per hour can produce 200 gallons of water from downspout discharge alone for a house during a one hour period. When soil is saturated at the base of the building, the moisture will wet footings and crawl spaces or find its way through cracks in foundation walls and enter into basements (see fig. 5). Moisture in saturated basement or foundation walls—also exacerbated by high water tables—will generally rise up within a wall and eventually cause deterioration of the masonry and adjacent wooden structural elements.

Builders traditionally left a working area, known as a builder's trench, around the exterior of a foundation wall. These trenches have been known to increase moisture problems if the infill soil is less than fully compacted or includes rubble backfill, which, in some cases, may act as a reservoir holding damp materials against masonry walls. Broken subsurface pipes or downspout drainage can leak into the builder's trench and dampen walls some distance from the source. Any subsurface penetration of the foundation wall for sewer, water, or other piping also can act as a direct conduit of ground moisture unless these holes are well sealed. A frequently unsuspected, but serious, modern source of ground moisture is a landscape irrigation system set too close to the building. Incorrect placement of sprinkler heads can add a tremendous amount of moisture at the foundation level and on wall surfaces.

Fig. 4. Deferred maintenance often leads to blocked gutters and downspouts. This cracked gutter system allowed moisture to penetrate the upper exterior wall, erode mortar joints, and rot fascia boards. Photo: NPS files.

Fig. 5. Excavating this foundation revealed that the downspout pipe had corroded at the " u-trap" and was leaking moisture into the soil. Openings around the horizontal water supply line and cracks in the wall allowed moisture to penetrate the basement in multiple locations. Photo: author.

The ground, and subsequently the building, will stay much drier by 1) re-directing rain water away from the foundation through sloping grades, 2) capturing and disposing downspout water well away from the building, 3) developing a controlled ground gutter or effective drainage for buildings historically without gutters and downspouts, and 4) reducing splash-back of moisture onto foundation walls. The excavation of foundations and the use of dampproof coatings and footing drains should only be used after the measures of reducing ground moisture listed above have been implemented.

Leaking plumbing pipes and mechanical equipment can cause immediate or long-term damage to historic building interiors. Routine maintenance, repair, or, if necessary, replacement of older plumbing and mechanical equipment are common solutions. Older water and sewer pipes are subject to corrosion over time. Slow leaks at plumbing joints hidden within walls and ceilings can ultimately rot floor boards, stain ceiling plaster, and lead to decay of structural members. Frozen pipes that crack can damage interior finishes (see fig. 6). In addition to leaking plumbing pipes, old radiators in some historic buildings have been replaced with water-supplied fan coil units which tend to leak. These heating and cooling units, as well as central air equipment, have overflow and condensation pans that require cyclical maintenance to avoid mold and mildew growth and corrosion blockage of drainage channels. Uninsulated forced-air sheet metal ductwork and cold water pipes in walls and ceilings often allow condensation to form on the cold metal, which then drips and causes bubbling plaster and peeling paint. Careful design and vigilant maintenance, as well as repair and insulating pipes or ductwork, will generally rid the building of these common sources of moisture.

Fig. 6. Uninsulated plumbing pipes close to the exterior wall froze and cracked, wetting this ornamental plaster ceiling before the water supply line could be shut off. As a result, limited portions of the ceiling needed reattaching. Photo: author.

Interior moisture from building use and modern humidified heating and cooling systems can create serious problems. In northern U.S. climates, heated buildings will have winter-time relative humidity levels ranging from 10%-35% Relative Humidity (RH). A house with four occupants generates between 10 and 16 pounds of water a day (approximately 1 – 2 gallons) from human residents. Moisture from food preparation, showering, or laundry use will produce condensation on windows in winter climates. When one area or floor of a building is air-conditioned and another area is not, there is the chance for condensation to occur between the two areas. Most periodic condensation does not create a long-term problem.

Humidified climate control systems are generally a major problem in museums housed within historic buildings. They produce between 35%-55% RH on average which, as a vapor, will seek to dissipate and equalize with adjacent spaces (see fig. 7). Moisture can form on single-glazed windows in winter with exterior temperatures below 30 F and interior temperatures at 70 F with as little as 35% RH. Frequent condensation on interior window surfaces is an indication that moisture is migrating into exterior walls, which can cause long-term damage to historic materials. Materials and wall systems around climate controlled areas may need to be made of moisture resistant finishes in order to handle the additional moisture in the air. Moist interior conditions in hot and humid climates will generate mold and fungal growth. Unvented mechanical equipment, such as gas stoves, driers, and kerosene heaters, generate large quantities of moisture. It is important to provide adequate ventilation and find a balance between interior temperature, relative humidity, and airflow to avoid interior moisture that can damage historic buildings.

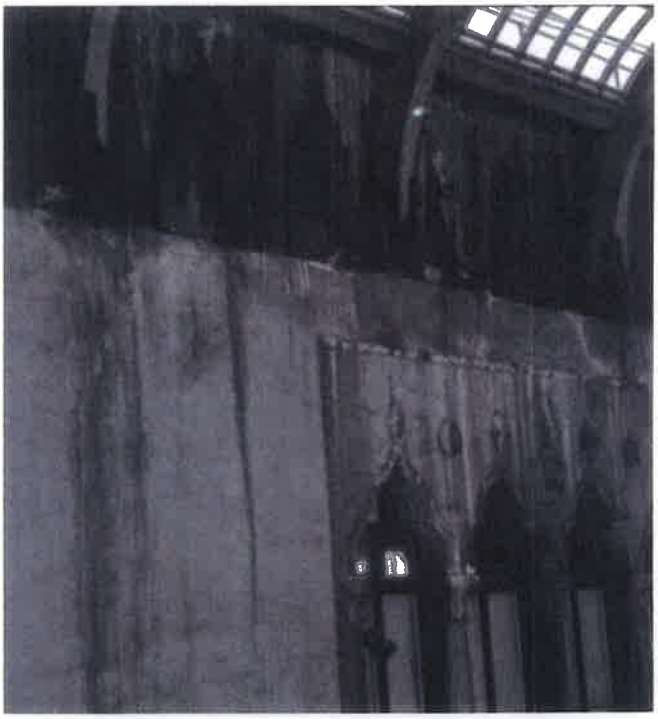


Fig. 7. Condensation dripping from the large overhead courtyard skylight was damaging the masonry in this museum. A new skylight with thermal glazing was installed, replacing the deteriorated single-glazed unit. A new climate control system monitors interior temperature and humidity. Photo: © Isabella Stewart Gardner Museum, Boston.

Moisture from maintenance and construction materials can cause damage to adjacent historic materials. Careless use of liquids to wash floors can lead to water seepage through cracks and dislodge adhesives or cup and curl materials. High-pressure power washing of exterior walls and roofing materials can force water into construction joints where it can dislodge mortar, lift roofing tiles, and saturate frame walls and masonry. Replastered or newly

plastered interior walls or the construction of new additions attached to historic buildings may hold moisture for months; new plaster, mortar, or concrete should be fully cured before they are painted or finished. The use of materials in projects that have been damaged by moisture prior to installation or have too high a moisture content may cause concealed damage (see fig. 8).

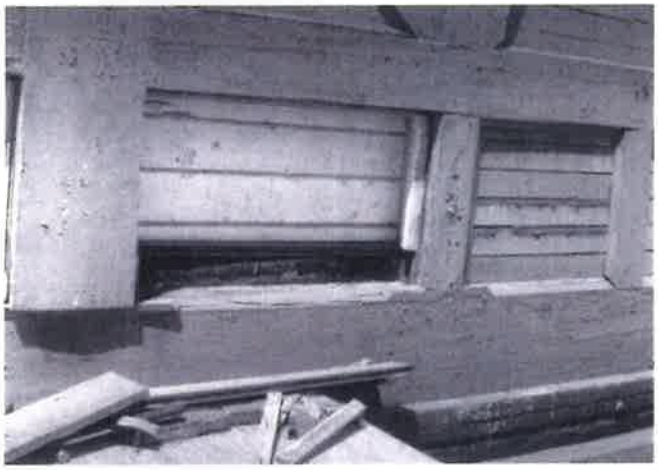


Fig. 8. Damaging moisture conditions can occur during construction. Peeling paint on this newly rehabilitated frame wall was attributed to wall insulation that had become wet during the project and was not discovered. Photo: NPS Files.

Transport or Movement of Moisture

Knowing the five most common sources of moisture that cause damage to building materials is the first step in diagnosing moisture problems. But it is also important to understand the basic mechanisms that affect moisture movement in buildings. Moisture transport, or movement, occurs in two states: liquid and vapor. It is directly related to pressure differentials. For example, water in a gaseous or vapor state, as warm moist air, will move from its high pressure area to a lower pressure area where the air is cooler and drier. Liquid water will move as a result of differences in hydrostatic pressure or wind pressure. *It is the pressure differentials that drive the rate of moisture migration in either state.* Because the building materials themselves resist this moisture movement, the rate of movement will depend on two factors: the permeability of the materials when affected by vapor and the absorption rates of materials in contact with liquid.

The mechanics, or physics, of moisture movement is complex, but if the driving force is difference in pressure, then an approach to reducing moisture movement and its damage is to reduce the difference in pressure, not to increase it. That is why the treatments discussed in this Brief will look at *managing moisture by draining bulk moisture and ventilating vapor moisture* before setting up new barriers with impermeable coatings or over-pressurized new climate control systems that threaten aging building materials and archaic construction systems.

Three forms of moisture transport are particularly important to understand in regards to historic buildings — *infiltration, capillary action, and vapor diffusion* —remembering, at the same time, that the subject is infinitely complex and, thus, one of continuing scientific study (see fig. 9). Buildings were traditionally designed to deal with the movement of air. For example, cupolas and roof lanterns allowed hot air to rise and provided a natural draft to pull air through buildings. Cavity walls in both frame and masonry buildings were constructed to allow moisture to dissipate in the air space between external and internal walls. Radiators were placed in front of windows to keep cold surfaces warm, thereby reducing condensation on these surfaces. Many of these features, however, have been altered over time in an effort to modernize appearances, improve energy efficiency, or accommodate changes in use. The change in use will also affect moisture movement, particularly in commercial and industrial buildings with modern mechanical systems. Therefore, the way a building handles air and moisture today may be different from that intended by the original builder or architect, and poorly conceived changes may be partially responsible for chronic moisture conditions.

Moisture moves into and through materials as both a visible liquid (capillary action) and as a gaseous vapor (infiltration and vapor diffusion). Moisture from leaks, saturation, rising damp, and condensation can lead to the deterioration of materials and cause an unhealthy environment. Moisture in its solid form, ice, can also cause damage from frozen, cracked water pipes, or split gutter seams or spalled masonry from freeze-thaw action. Moisture from melting ice dams, leaks, and condensation often can travel great distances down walls and along construction surfaces, pipes, or conduits. The amount of moisture and how it deteriorates materials is dependent upon complex forces and variables that must be considered for each situation.

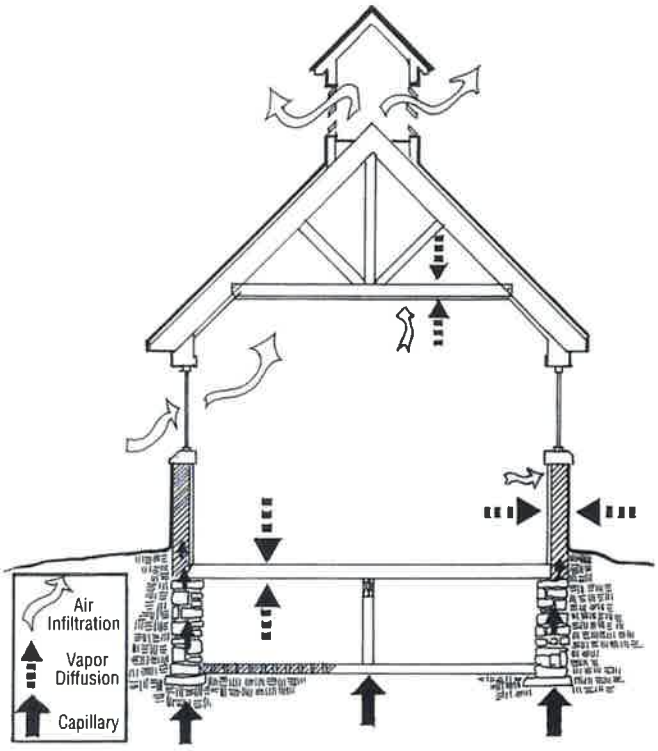


Fig. 9. The dynamic forces that move air and moisture through a building are important to understand particularlly when selecting a treatment to correct a moisture problem. Air infiltration, capillary action, and vapor diffusion all affect the wetting and drying of materials. Drawing; NPS Files.

Determining the way moisture is handled by the building is further complicated because each building and site is unique. Water damage from blocked gutters and downspouts can saturate materials on the outside, and high levels of interior moisture can saturate interior materials. Difficult cases may call for technical evaluation by consultants specializing in moisture monitoring and diagnostic evaluation. In other words, it may take a team to effectively evaluate a situation and determine a proper approach to controlling moisture damage in old buildings.

Infiltration is created by wind, temperature gradients (hot air rising), ventilation fan action, and the stack or chimney effect that draws air up into tall vertical spaces. Infiltration as a dynamic force does not actually move liquid water, but is the vehicle by which dampness, as a component of air, finds its way into building materials. Older buildings have a natural air exchange, generally from 1 to 4 changes per hour, which, in turn, may help control moisture by diluting moisture within a building. The tighter the building construction, however, the lower will be the infiltration rate and the natural circulation of air. In the process of infiltration, however, moisture that has entered the building and saturated materials can be drawn in and out of materials, thereby adding to the dampness in the air (see fig. 10). Inadequate air circulation where there is excessive moisture (i.e., in a damp basement), accelerates the deterioration of historic materials. To reduce the unwanted moisture that accompanies infiltration, it is best to incorporate maintenance and repair treatments to close joints and weatherstrip windows, while providing controlled air exchanges elsewhere. The worst approach is to seal the building so completely, while limiting fresh air intake, that the building cannot breathe.

Fig. 10. Infiltration of damp air can occur around loose-fitting or deteriorated window sash and through cracks or open joints in building exteriors. Photo: Ann Brooks Prucher.

Capillary action occurs when moisture in saturated porous building materials, such as masonry, wicks up or travels vertically as it evaporates to the surface. In capillary attraction, liquid in the material is attracted to the solid surface of the pore structure causing it to rise vertically; thus, it is often called "rising damp," particularly when found in conjunction with ground moisture. It should not, however, be confused with moisture that laterally penetrates a foundation wall through cracks and settles in the basement. Not easily controlled, most rising damp comes from high water tables or a constant source under the footing. In cases of damp masonry walls with capillary action, there is usually a whitish stain or horizontal tide mark of efflorescence that seasonally fluctuates about 1- 3 feet above grade where the excess moisture evaporates from the wall (see fig. 11). This tide mark is full of salt crystals, that have been drawn from the ground and building materials along with the water, making the masonry even more sensitive to additional moisture absorption from the surrounding air. Capillary migration of moisture may occur in any material with a pore structure where there is a constant or recurring source of moisture.

Fig. 11. Capillary rise of moisture in masonry is often accompanied with a horizontal tide-mark line several feet above the grade, as seen here. Removing or redirecting as much ground moisture as possible usually helps reduce moisture within a wall. Photo: NPS Files.

The best approach for dealing with capillary rise in building materials is to reduce the amount of water in contact with historic materials. If that is not possible due to chronically high water tables, it may be necessary to introduce a horizontal damp-proof barrier, such as slate course or a lead or plastic sheet, to stop the vertical rise of moisture. Moisture should not be sealed into the wall with a waterproof coating, such as cement parging or vinyl wall coverings, applied to the inside of damp walls. This will only increase the pressure differential as a vertical barrier and force the capillary action, and its destruction of materials, higher up the wall.

Vapor diffusion is the natural movement of pressurized moisture vapor through porous materials. It is most readily apparent as humidified interior air moves out through walls to a cooler exterior. In a hot and humid climate, the reverse will happen as moist hot air moves into cooler, dryer, air-conditioned, interiors. The movement of the moisture vapor is not a serious problem until the dewpoint temperature is reached and the vapor changes into liquid moisture known as *condensation*. This can occur within a wall or on interior surfaces. Vapor diffusion will be more of

a problem for a frame structure with several layers of infill materials within the frame cavity than a dense masonry structure. Condensation as a result of vapor migration usually takes place on a surface or film, such as paint, where there is a change in permeability.

The installation of climate control systems in historic buildings (mostly museums) that have *not* been properly designed or regulated and that force pressurized damp air to diffuse into perimeter walls is an ongoing concern. These newer systems take constant monitoring and back-up warning systems to avoid moisture damage.

Long-term and undetected condensation or high moisture content can cause serious structural damage as well as an unhealthy environment, heavy with mold and mildew spores. Reducing the interior/exterior pressure differential and the difference between interior and exterior temperature and relative humidity helps control unwanted vapor diffusion. This can sometimes be achieved by reducing interior relative humidity. In some instances, using vapor barriers, such as heavy plastic sheeting laid over damp crawl spaces, can have remarkable success in stopping vapor diffusion from damp ground into buildings. Yet, knowledgeable experts in the field differ regarding the appropriateness of vapor barriers and when and where to use them, as well as the best way to handle natural diffusion in insulated walls.

Adding insulation to historic buildings, particularly in walls of wooden frame structures, has been a standard modern weatherization treatment, but it can have a disastrous effect on historic buildings. The process of installing the insulation destroys historic siding or plaster, and it is very difficult to establish a tight vapor barrier. While insulation has the benefit of increasing the efficiency of heating and cooling by containing temperature controlled air, it does not eliminate surfaces on which damaging moisture can condense. For insulated residential frame structures, the most obvious sign of a moisture

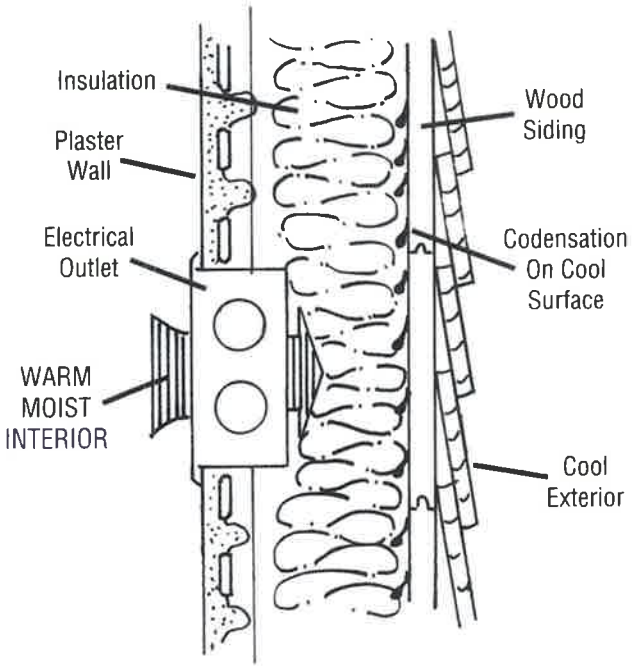


Fig. 12. Vapor diffusion can result in damp air migrating into absorbent materials and condensing on colder surfaces, thereby wetting insulation, damaging electrical conduits, and causing deterioration of the wooden framing. Drawing: NPS Files.

diffusion problem is peeling paint on wooden siding, even after careful surface preparation and repainting. Vapor impermeable barriers such as plastic sheeting, or more accurately, *vapor retarders*, in cold and moderate climates generally help slow vapor diffusion where it is not wanted.

In regions where *humidified* climate control systems are installed into insulated frame buildings, it is important to stop *interstitial*, or in-wall, dewpoint condensation. This is very difficult because humidified air can penetrate breaches in the vapor barrier, particularly around electrical outlets (see fig. 12). Improperly or incompletely installed retrofit vapor barriers will cause extensive damage to the building, just in the installation process, and will allow trapped condensation to wet the insulation and sheathing boards, corrode metal elements such as wiring cables and metal anchors, and blister paint finishes. Providing a tight wall vapor barrier, as well as a ventilated cavity behind wooden clapboards or siding appears to help insulated frame walls, if the interior relative humidity can be adjusted or monitored to avoid condensation. Correct placement of vapor retarders within building construction will vary by region, building construction, and type of climate control system.

Surveying and Diagnosing Moisture Damage: Key Questions to Ask

It is important for the building to be surveyed first and the evidence and location of suspected moisture damage systematically recorded before undertaking any major work to correct the problem. This will give a baseline from which relative changes in condition can be noted.

When materials become wet, there are specific physical changes that can be detected and noted in a record book or on survey sheets. Every time there is a heavy rain, snow storm, water in the basement, or mechanical systems failure, the owner or consultant should note and record the way moisture is moving, its appearance, and what variables might contribute to the cause. *Standing outside to observe a building in the rain may answer many questions and help trace the movement of water into the building.* Evidence of deteriorating materials that cover more serious moisture damage should also be noted, even if it is not immediately clear what is causing the damage. (For example, water stains on the ceiling may be from leaking pipes, blocked fan coil drainage pans above, or from moisture which has penetrated around a poorly sloped window sill above.) Don't jump to conclusions, but use a systematic approach to help establish an educated theory — or hypothesis — of what is causing the moisture problem or what areas need further investigation.

Surveying moisture damage must be systematic so that relative changes can be noted. Tools for investigating can be as simple as a notebook, sketch plans, binoculars, camera, aluminum foil, smoke pencil, and flashlight. The systematic approach involves looking at buildings from the top down and from the outside to the inside. Photographs, floor plans, site plan, and exterior elevations — even roughly sketched — should be used to indicate all evidence of damp or damaged materials, with notations for musty or poorly ventilated areas. Information might be needed on the absorption and permeability characteristics of the building materials and soils. Exterior drainage patterns should be noted and these base plans referred to on a regular basis in different seasons and in differing types of weather (see fig. 13).

Glossary:

Air flow/ infiltration: The movement that carries moist air into and through materials. Air flow depends on the difference between indoor and outdoor pressures, wind speed and direction as well as the permeability of materials.

Bulk water: The large quantity of moisture from roof and ground run-off that can enter into a building either above grade or below grade.

Capillary action: The force that moves moisture through the pore structure of materials. Generally referred to as rising damp, moisture at or below the foundation level will rise vertically in a wall to a height at which the rate of evaporation balances the rate at which it can be drawn up by capillary forces.

Condensation: The physical process by which water vapor is transformed into a liquid when the relative humidity of the air reaches 100% and the excess water vapor forms, generally as droplets, on the colder adjacent surface.

Convection: Heat transfer through the atmosphere by a difference in force or air pressure is one type of air transport. Sometimes referred to as the "stack effect," hotter less dense air will rise, colder dense air will fall creating movement of air within a building.

Dewpoint: The temperature at which water vapor condenses when the air is cooled at a constant pressure and constant moisture content.

Diffusion: The movement of water vapor through a material. Diffusion depends on vapor pressure, temperature, relative humidity, and the permeability of a material.

Evaporation: The transformation of liquid into a vapor, generally as a result of rise of temperature, is the opposite of condensation. Moisture in damp soil, such as in a crawl space, can evaporate into the air, raise the relative humidity in that space, and enter the building as a vapor.

Ground moisture: The saturated moisture in the ground as a result of surface run-off and naturally occuring water tables. Ground moisture can penetrate through cracks and holes in foundation walls or can migrate up from moisture under the foundation base.

Monitoring instrumentation: These devices are generally used for long term diagnostic analysis of a problem, or to measure the preformance of a treatment, or to measure changes of conditions or environment. In-wall probes or sensors are often attached to data-loggers which can be down-loaded into computers.

Permeability: A characteristic of porosity of a material generally listed as the rate of diffusion of a pressurized gas through a material. The pore structure of some materials allows them to absorb or adsorb more moisture than other materials. Limestones are generally more permeable than granites.

Relative humidity (RH): Dampness in the air is measured as the percent of water vapor in the air at a specific temperature relative to the amount of water vapor that can be held in a vapor form at that specific temperature.

Survey instrumentation: technical instrumentation that is used on-site to provide quick readings of specific physical conditions. Generally these are hand-held survey instruments, such as moisture, temperature and relative humidity readers, dewpoint sensors, and fiber optic boroscopes.

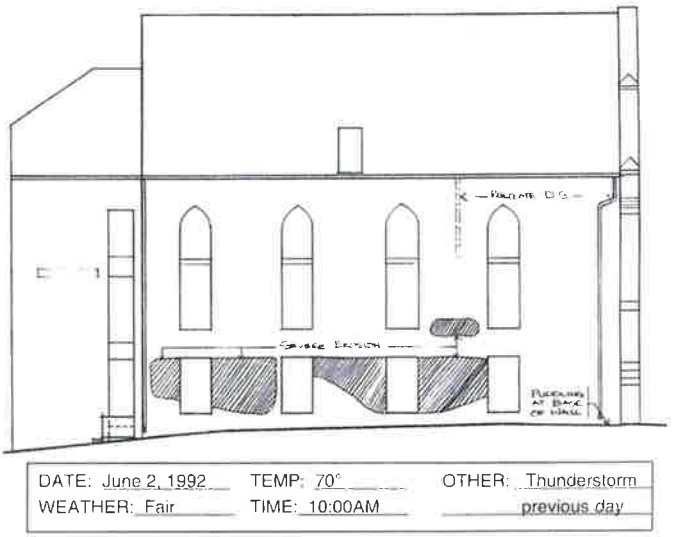


Fig. 13. Using sketch plans and elevation drawings to record the moisture damage along with the date, time, and weather conditions will show how moisture is affecting buildings over time. Drawing: Courtesy, Quinn Evans Architects.

It is best to start with one method of periodic documentation and to use this same method each time. Because moisture is affected by gravity, many surveys start with the roof and guttering systems and work down through the exterior walls. Any obvious areas of water penetration, damaged surfaces, or staining should be noted. Any recurring damp or stain patterns, both exterior and interior, should also be noted with a commentary on the temperature, weather, and any other facts that may be relevant (driving rains, saturated soil, high interior humidity, recent washing of the building, presence of a lawn watering system, etc.).

The interior should be recorded as well, beginning with the attic and working down to the basement and crawl space. It may be necessary to remove damaged materials selectively in order to trace the path of moisture or to pinpoint a source, such as a leaking pipe in the ceiling. The use of a basic resistance moisture meter, available in many hardware stores, can identify moisture contents of materials and show, over time, if wall surfaces are drying or becoming damper (see fig. 14). A smoke pencil can chart air infiltration around windows or draft patterns in interior spaces. For a quick test to determine if a damp basement is caused by saturated walls or is a result of condensation, tape a piece of foil onto a masonry surface and check it after a day or two; if moisture has developed behind the foil, then it is coming from the masonry. If condensation is on the surface of the foil, then moisture is from the air.

Comparing current conditions with previous conditions, historic drawings, photographs, or known alterations may also assist in the final diagnosis. A chronological record, showing improvement or deterioration, should be backed up with photographs or notations as to the changing size, condition, or features of the deterioration and how these changes have been affected by variables of temperature and rainfall. If a condition can be related in time to a particular event, such as efflorescence developing on a chimney after the building is no longer heated, it may be possible to isolate a cause, develop a hypothesis, and then test the hypothesis (by adding some temporary heat), before applying a remedial treatment.

Fig. 14. Using instruments in this damp-check kit can help determine the relative change in wet conditions over time. This involves readings of air temperature, computing dewpoint temperatures, and tracking the moisture content of materials to indicate if they are drying properly. Photo: Dell Corporation.

If the owner or consultant has access to moisture survey and monitoring equipment such as resistance moisture meters, dewpoint indicators, salt detectors, infrared thermography systems, psychrometer, fiber-optic boroscopes, and miniaturized video cameras, additional quantified data can be incorporated into the survey (see fig. 15). If it is necessary to track the wetting and drying of walls over a period of time, deep probes set into walls and in the soil with connector cables to computerized data loggers or the use of long-term recording of hygrothermographs may require a trained specialist. Miniaturized fiber-optic video cameras can record the condition of subsurface drain lines without excavation (see fig. 16). It should be noted, however, that *instrumentation, while extremely useful, cannot take the place of careful personal observation and analysis.* Relying on instrumentation alone rarely will give the owner the information needed to fully diagnose a moisture problem.

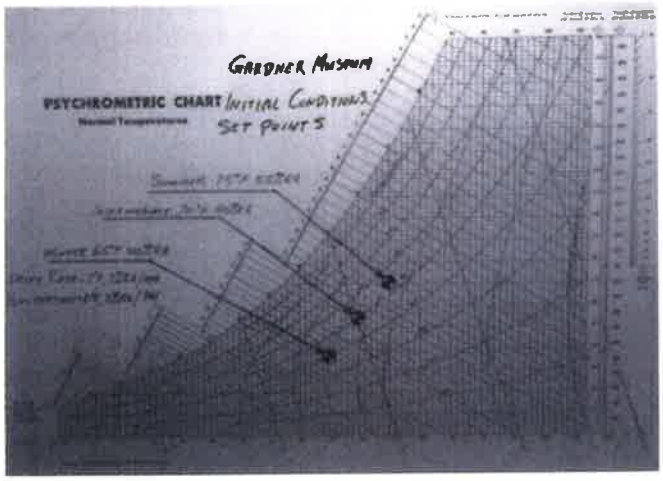


Fig. 15. Psychrometric charts quantify the amount of relative humidity a building can tolerate before dewpoint condensation occurs. This is important when the range of temperature and humidity are critical to both collections management and historic building preservation. Chart: Landmark Facilities Group.

Fig. 16. Contractors specializing in building diagnostics often have video cameras or fiber optic equipment that allow the viewing of inaccessible areas. This is particularly helpful in chimney flues or subsurface drains, as shown here. In the past, these areas would need to be excavated for visual inspection. Photo: author.

To avoid jumping to a quick—potentially erroneous—conclusion, a series of questions should be asked first. This will help establish a theory or hypothesis that can be tested to increase the chances that a remedial treatment will control or manage existing moisture.

How is water draining around building and site? What is the effectiveness of gutters and downspouts? Are the slopes or grading around foundations adequate? What are the locations of subsurface features such as wells, cisterns, or drainage fields? Are there subsurface drainage pipes (or drainage boots) attached to the downspouts and are they in good working condition? Does the soil retain moisture or allow it to drain freely? Where is the water table? Are there window wells holding rain water? What is the flow rate of area drains around the site (can be tested with a hose for several minutes)? Is the storm piping out to the street sufficient for heavy rains, or does water chronically back up on the site? Has adjacent new construction affected site drainage or water table levels?

How does water/moisture appear to be entering the building? Have all five primary sources of moisture been evaluated? What is the condition of construction materials and are there any obvious areas of deterioration? Did this building have a builder's trench around the foundation that could be holding water against the exterior walls? Are the interior bearing walls as well as the exterior walls showing evidence of rising damp? Is there evidence of hydrostatic pressure under the basement floor such as water percolating up through cracks? Has there been moisture damage from an ice dam in the last several months? Is damage localized, on one side of the building only, or over a large area?

What are the principal moisture dynamics? Is the moisture condition from liquid or vapor sources? Is the attic moisture a result of vapor diffusion as damp air comes up through the cavity walls from the crawl space or is it from a leaking roof? Is the exterior wall moisture from rising damp with a tide mark or are there uneven spots of dampness from foundation splash back, or other ground

moisture conditions? Is there adequate air exchange in the building, particularly in damp areas, such as the basement? Has the height of the water table been established by inserting a long pipe into the ground in order to record the water levels?

How is the interior climate handling moisture? Are there areas in the building that do not appear to be ventilating well and where mold is growing? Are there historic features that once helped the building control air and moisture that can be reactivated, such as operable skylights or windows? Could dewpoint condensation be occurring behind surfaces, since there is often condensation on the windows? Does the building feel unusually damp or smell in an unusual way that suggest the need for further study? Is there evidence of termites, carpenter ants, or other pests attracted to moist conditions? Is a dehumidifier keeping the air dry or is it, in fact, creating a cycle where it is actually drawing moisture through the foundation wall?

Does the moisture problem appear to be intermittent, chronic, or tied to specific events? Are damp conditions occuring within two hours of a heavy rain or is there a delayed reaction? Does rust on most nail heads in the attic indicate a condensation problem? What are the wet patterns that appear on a building wall during and after a rain storm? Is it localized or in large areas? Can these rain patterns be tied to gutter over-flows, faulty flashing, or saturation of absorbent materials? Is a repaired area holding up well over time or is there evidence that moisture is returning? Do moisture meter readings of wall cavities indicate they are wet, suggesting leaks or condensation in the wall?

Once a hypothesis of the source or sources of the moisture has been developed from observation and recording of data, it is often useful to prove or disprove this hypothesis with interim treatments, and, if necessary, the additional use of instrumentation to verify conditions. For damp basements, test solutions can help determine the cause. For example, surface moisture in low spots should be redirected away from the foundation wall with regrading to determine if basement dampness improves. If there is still a problem, determine if subsurface downspout collection pipes or cast iron boots are not functioning properly. The above grade downspouts can be disconnected and attached to long, flexible extender pipes and redirected away from the foundation (see fig. 17). If, after a heavy rain or a simulation using a hose, there is no improvement, look for additional ground moisture sources such as high water tables, hidden cisterns, or leaking water service lines as a cause of moisture in the basement. New data will lead to a new hypothesis that should be tested and verified. *The process of elimination can be frustrating, but is required if a systematic method of diagnosis is to be successful.*

Selecting an Appropriate Level of Treatment

The treatments in chart format at the back of this publication are divided into levels based on the degree of moisture problems. Level I covers preservation maintenance; Level II focuses on repair using historically compatible materials and essentially mitigating damaging moisture conditions; and Level III discusses replacement and alteration of materials that permit continued use in a chronically moist environment. It is important to begin

Fig. 17. In testing a theory for the cause of basement wetness, the owner used long black extender pipes to direct roof run-off away from the foundation. This test established that the owner did not need expensive waterproofing of the foundation, but a better drainage system. Photo: Baird M. Smith.

with Level I and work through to a manageable treatment as part of the control of moisture problems. Buildings in serious decay will require treatments in Level II, and difficult or unusual site conditions may require more aggressive treatments in Level III. Caution should always be exercised when selecting a treatment. The treatments listed are a guide and not intended to be recommendations for specific projects as the key is always proper diagnosis.

Start with the repair of any obvious deficiencies using sound preservation maintenance. If moisture cannot be managed by maintenance alone, it is important to reduce it by mitigating problems *before* deteriorated historic materials are replaced (see fig. 18). Treatments should not remove materials that can be preserved; should not involve extensive excavation unless there is a documented need; and should not include coating buildings with waterproof sealers that can exacerbate an existing problem. Some alteration to historic materials, structural systems, mechanical systems, windows, or finishes may be needed when excessive site moisture cannot be controlled by drainage systems, or in areas prone to floods. These changes, however, should, be sensitive to preserving those materials, features, and finishes that convey the historic character of the building and site.

Ongoing Care

Once the building has been repaired and the larger moisture issues addressed, it is important to keep a record of additional evidence of moisture problems and *to protect the historic or old building through proper cyclical maintenance* (see fig. 19) In some cases, particularly in museum environments, it is critical to monitor areas vulnerable to moisture damage. In a number of historic buildings, in-wall moisture monitors are used to ensure that the moisture purposely generated to keep relative humidity at ranges appropriate to a museum collection does not migrate into walls and cause deterioration. The potential problem with all systems is the failure of controls, valves, and panels over time. Back-up systems, warning devices, properly trained staff and an emergency plan will help control damage if there is a system failure.

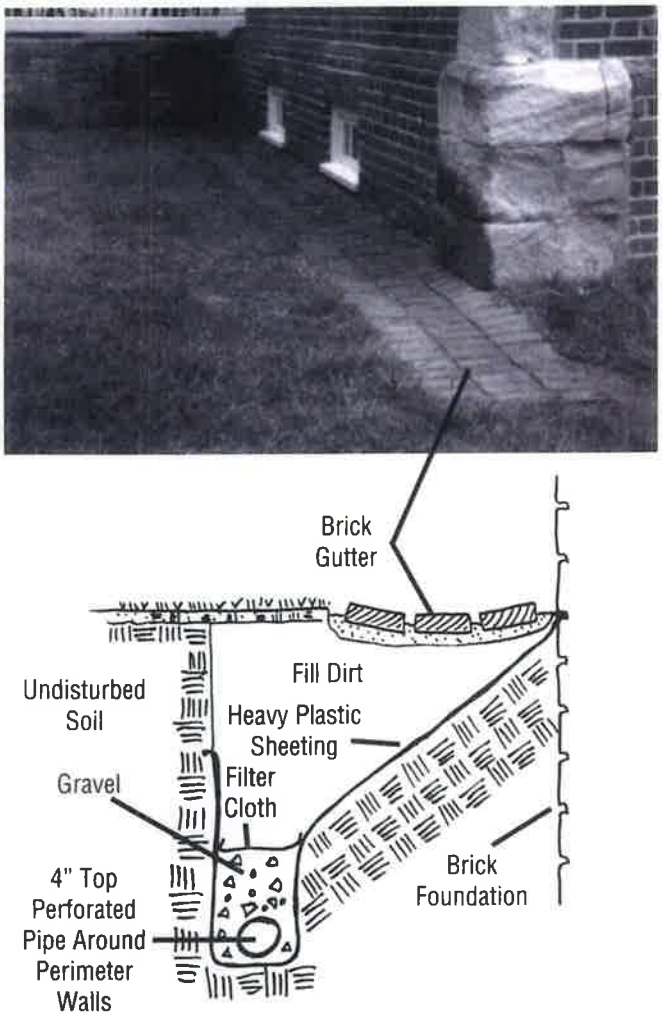


Fig. 18. This detail drawing shows a sub-surface perimeter drain in conjunction with a historic brick ground gutter system to help control roof run-off moisture from entering the historic foundation. Detail: Courtesy, Gunston Hall Plantation. Photo: Elizabeth Sasser.

Fig. 19. Maintaining gutters and downspouts in good operable condition, repairing exteriors to keep water out, redirecting damaging moisture away from foundations and controlling interior moisture and condensation are all important when holding the line on moisture deterioration. Photo: Nebraska State Historical Society.

Ongoing maintenance and vigilance to situations that could potentially cause moisture damage must become a routine part of the everyday life of a building. The owner or staff responsible for the upkeep of the building should inspect the property weekly and note any leaks, mustiness, or blocked drains. Again, observing the building during a rain will test whether ground and gutter drainage are working well.

For some buildings a back-up power system may be necessary to keep sump pumps working during storms when electrical power may be lost. For mechanical equipment rooms, condensation pans, basement floors, and laundry areas where early detection of water is important, there are alarms that sound when their sensors come into contact with moisture.

Conclusion

Moisture in old and historic buildings, though difficult to evaluate, can be systematically studied and the appropriate protective measures taken. Much of the documentation and evaluation is based on common sense combined with an understanding of historic building materials, construction technology, and the basics of moisture and air movement. Variables can be evaluated step by step and situations creating direct or secondary moisture damage can generally be corrected. The majority of moisture problems can be mitigated with maintenance, repair, control of ground and roof moisture, and improved ventilation. For more complex situations, however, a thorough diagnosis and an understanding of how the building handles moisture at present, can lead to a treatment that solves the problem without damaging the historic resource.

It is usually advantageous to eliminate one potential source of moisture at a time. Simultaneous treatments may set up a new dynamic in the building with its own set of moisture problems. Implementing changes sequentially will allow the owner or preservation professional to track the success of each treatment.

Moisture problems can be intimidating to a building owner who has diligently tried to control them. Keeping a record of evidence of moisture damage, results of diagnostic tests, and remedial treatments, is beneficial to a building's long-term care. The more complete a survey and evaluation, the greater the success in controlling unwanted moisture now and in the future.

Holding the line on unwanted moisture in buildings will be successful if 1) there is constant concern for signs of problems and 2) there is ongoing physical care provided by those who understand the building, site, mechanical systems, and the previous efforts to deal with moisture. For properties with major or difficult-to-diagnose problems, a team approach is often most effective. The owner working with properly trained staff, contractors and consultants can monitor, select, and implement treatments within a preservation context in order to manage moisture and to protect the historic resource.

MOISTURE: LEVEL I PRESERVATION MAINTENANCE

Exterior: Apply cyclical maintenance procedures to eliminate rain and moisture infiltration.

Roofing/ guttering: Make weather-tight and operational; inspect and clean gutters as necessary depending on number of nearby trees, but at least twice a year; inspect roofing at least once a year, preferably spring; replace missing or damaged roofing shingles, slates, or tiles; repair flashing; repair or replace cracked downspouts.

Walls: Repair damaged surface materials; repoint masonry with appropriately formulated mortar; prime and repaint wooden, metal, or masonry elements or surfaces; remove efflorescence from masonry with non-metallic bristle brushes.

Window and door openings: Eliminate cracks or open joints; caulk or repoint around openings or steps; repair or reset weatherstripping; check flashing; repaint, as necessary.

Ground: Apply regular maintenance procedures to eliminate standing water and vegetative threats to building/site.

Grade: Eliminate low spots around building foundations; clean out existing downspout boots twice a year or add extension to leaders to carry moisture away from foundation; do a hose test to verify that surface drains are functioning; reduce moisture used to clean steps and walks; eliminate the use of chlorides to melt ice which can increase freeze/thaw spalling of masonry; check operation of irrigation systems, hose bib leaks, and clearance of air conditioning condensate drain outlets.

Crawl space: Check crawl space for animal infestation, termites, ponding moisture, or high moisture content; check foundation grilles for adequate ventilation; seasonally close grilles when appropriate — in winter, if not needed, or in summer if hot humid air is diffusing into air conditioned space.

Foliage: Keep foliage and vines off buildings; trim overhanging trees to keep debris from gutters and limbs from rubbing against building; remove moisture retaining elements, such as firewood, from foundations.

Basements and foundations: Increase ventilation and maintain surfaces to avoid moisture.

Equipment: Check dehumidifiers, sump pump, vent fans, and water detection or alarm systems for proper maintenance as required; check battery back-up twice a year.

Piping/ductwork: Check for condensation on pipes and insulate/seal joints, if necessary.

Interior: Maintain equipment to reduce leaks and interior moisture.

Plumbing pipes: Add insulation to plumbing or radiator pipes located in areas subject to freezing, such as along outside walls, in attics, or in unheated basements.

Mechanical equipment: Check condensation pans and drain lines to keep clear; insulate and seal joints in exposed metal ductwork to avoid drawing in moist air.

Cleaning: Routinely dust and clean surfaces to reduce the amount of water or moist chemicals used to clean building; caulk around tile floor and wall connections; and maintain floor grouts in good condition.

Ventilation: Reduce household-produced moisture, if a problem, by increasing ventilation; vent clothes driers to the outside; install and always use exhaust fans in restrooms, bathrooms, showers, and kitchens, when in use.

A. Inspecting the overall building on at least an annual basis will identify areas needing maintenance. A bucket lift is helpful for large buildings. Photo: author.

B. Repair exterior surfaces, paint, and recaulk as needed. Photo: Williamsport Preservation Training Center (WPTC), NPS.

C. Cleaning out gutters and downspouts should be done at least twice a year. Photo: WPTC, NPS.

D. Protect the building from damage by maintaining equipment and using alarms, like this floor water sensor. Photo: Dell Corporation.

MOISTURE: LEVEL II REPAIR AND CORRECTIVE ACTION

Exterior: Repair features that have been damaged. Replace an extensively deteriorated feature with a new feature that matches in design, color, texture, and where possible, materials.

Roofing: Repair roofing, parapets and overhangs that have allowed moisture to enter; add ice and water shield membrane to lower 3-4 feet or roofing in cold climates to limit damage from ice dams; increase attic ventilation, if heat and humidity build-up is a problem. Make gutters slope @ 1/8" to the foot. Use professional handbooks to size gutters and reposition, if necessary and appropriate to historic architecture. Add ventilated chimney caps to unused chimneys that collect rain water.

Walls: Repair spalled masonry, terra cotta, etc. by selectively installing new masonry units to match; replace rotted clapboards too close to grade and adjust grade or clapboards to achieve adequate clearance; protect or cover open window wells.

A. Mitigate poor drainage with gravel, filter cloth, or the use of subsurface drainage mats under finished paving. Photo: Larry D. Dermody.

Ground: Correct serious ground water problems; capture and dispose of downspout water away from foundation; and control vapor diffusion of crawlspace moisture.

Grade: Re-establish positive sloping of grade; try to obtain 6" of fall in the first 10' surrounding building foundation; for buildings without gutter systems, regrade and install a positive subsurface collection system with gravel, or waterproof sheeting and perimeter drains; adjust pitch or slope of eave line grade drains or French drains to reduce splash back onto foundation walls; add subsurface drainage boots or extension pipes to take existing downspout water away from building foundation to the greatest extent feasible.

Crawl space: Add polyethylene vapor barrier (heavy construction grade or Mylar) to exposed dirt in crawlspace if monitoring indicates it is needed and there is no rising damp; add ventilation grilles for additional cross ventilation, if determined advisable.

B. Repair roofs and add ice and water shields at eaves and under valleys in cold climates. Photo: Larry D. Dermody.

Foundations and Basements: Correct existing high moisture levels, if other means of controlling ground moisture are inadequate.

Mechanical devices: Add interior perimeter drains and sump pump; add dehumidifiers for seasonal control of humidity in confined, unventilated space (but don't create a problem with pulling dampness out of walls); add ventilator fans to improve air flow, but don't use both the dehumidifier and ventilator fan at the same time.

Walls: Remove commentates coatings, if holding rising damp in walls; coat walls with vapor permeable lime based rendering plaster, if damp walls need a sacrificial coating to protect mortar from erosion; add termite shields, if evidence of termites and dampness cannot be controlled.

Framing: Reinforce existing floor framing weakened by moisture by adding lolly column support and reinforcing joist ends with sistered or parallel supports. Add a vapor impermeable shield, preferably non-ferrous metal, under wood joists coming into contact with moist masonry.

C. Develop new drainage systems for roof run-off that remove moisture from the base of the building. Photo: WPTC, NPS.

Interior: Eliminate areas where moisture is leaking or causing a problem.

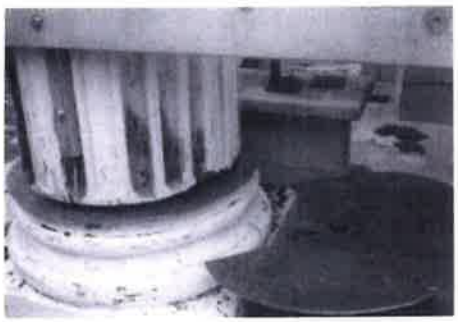
Plumbing: Replace older pipes and fixtures subject to leaking or overflowing; insulate water pipes subject to condensation.

Ventilation: Add exhaust fans and whole house fans to increase air flow through buildings, if areas are damp or need more ventilation to control mold and mildew.

Climate: Adjust temperature and relative humidity to manage interior humidity; Correct areas of improperly balanced pressure for HVAC systems that may be causing a moisture problem.

D. Install ventilating fans when additional air circulation will improve damp conditions in buildings or reduce cooling loads. Photo: Ernest A. Conrad, P. E.

MOISTURE: LEVEL III REPLACEMENT / ALTERATIONS — —



A. This lead sheet was installed at the base of the replacement column to stop rising damp. Photo: Bryan Blundell.

Exterior: Undertake exterior rehabilitation work that follows professional repair practices —i.e., replace a deteriorated feature with a new feature to match the existing in design, color, texture, and when possible, materials. In some limited situations, non-historic materials may be necessary in unusually wet areas.

Roofs: Add ventilator fans to exhaust roofs but avoid large projecting features whose designs might negatively affect the appearance of the historic roof. When replacing roofs, correct conditions that have caused moisture problems, but keep the overall appearance of the roof; for example, ventilate under wooden shingles, or detail standing seams to avoid buckling and cracking. Be attentive to provide extra protection for internal or built-in gutters by using the best quality materials, flashing, and vapor impermeable connection details.

Walls: If insulation and vapor barriers are added to frame walls, consider maintaining a ventilation channel behind the exterior cladding to avoid peeling and blistering paint occurrences.

Windows: Consider removable exterior storm windows, but allow operation of windows for periodic ventilation of cavity between exterior storm and historic sash. For stained glass windows using protective glazing, use only ventilated storms to avoid condensation as well as heat build-up.

B. Wood sills set on grade were replaced with concrete pier foundation and new wooden sill plates. Changes were not visible on the exterior (see C). Photo: WPTC, NPS.

Ground: Control excessive ground moisture. This may require extensive excavations, new drainage systems, and the use of substitute materials. These may include concrete or new sustainable recycled materials for wood in damp areas when they do not impact the historic appearance of the building.

Grade: Excavate and install water collection systems to assist with positive run-off of low lying or difficult areas of moisture drainage; use drainage mats under finished grade to improve run-off control; consider the use of column plinth blocks or bases that are ventilated or constructed of non-absorbent substitute materials in chronically damp areas. Replace improperly sloped walks; repair non-functioning catch basins and site drains; repair settled areas around steps and other features at grade.

C. The new ground gutter gravel base helps drainage around the concrete foundation (see B above) which is not visible behind the replaced wooden wall shingles. Photo: WPTC, NPS.

D. In a flood plain, rotted joists were replaced with a concrete slab and sleepers designed to drain water. Spaced flooring allowed drainage and room for damp wood to swell without buckling. Harper's Ferry Center, NPS.

E. Mechanical systems on the lower level were placed on platforms above the flood line. Harper's Ferry Center, NPS.

— — FOR CHRONICALLY DAMP CONDITIONS

Foundations: Improve performance of foundation walls with damp-proof treatments to stop infiltration or damp course layers to stop rising damp. Some substitute materials may need to be selectively integrated into new features.

Walls: excavate, repoint masonry walls, add footing drains, and waterproof exterior subsurface walls; replace wood sill plates and deteriorated structural foundations with new materials, such as pressure treated wood, to withstand chronic moisture conditions; materials may change, but overall appearance should remain similar. Add dampcourse layer to stop rising damp; avoid chemical injections as these are rarely totally effective, are not reversible, and are often visually intrusive.

Interior: Control the amount of moisture and condensation on the interiors of historic buildings. Most designs for new HVAC systems will be undertaken by mechanical engineers, but systems should be selected that are appropriate to the resource and intended use.

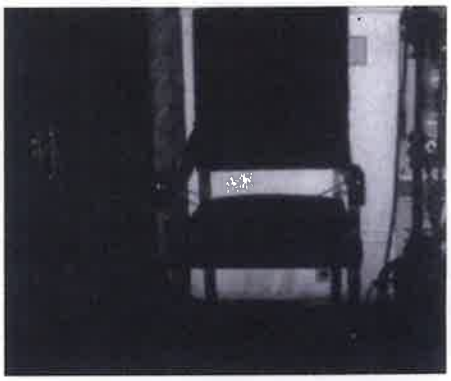
Windows, skylights: Add double and triple glazing, where necessary to control condensation. Avoid new metal sashes or use thermal breaks where prone to heavy condensation.

Mechanical systems: Design new systems to reduce stress on building exterior. This might require insulating and tightening up the building exterior, but provisions must be made for adequate air flow. A new zoned system, with appropriate transition insulation, may be effective in areas with differing climatic needs.

Control devices/Interior spaces: If new climate control systems are added design back-up controls and monitoring systems to protect from interior moisture damage.

Walls: If partition walls sit on floors that periodically flood, consider spacers or isolation membranes behind baseboards to stop moisture from wicking up through absorbent materials.

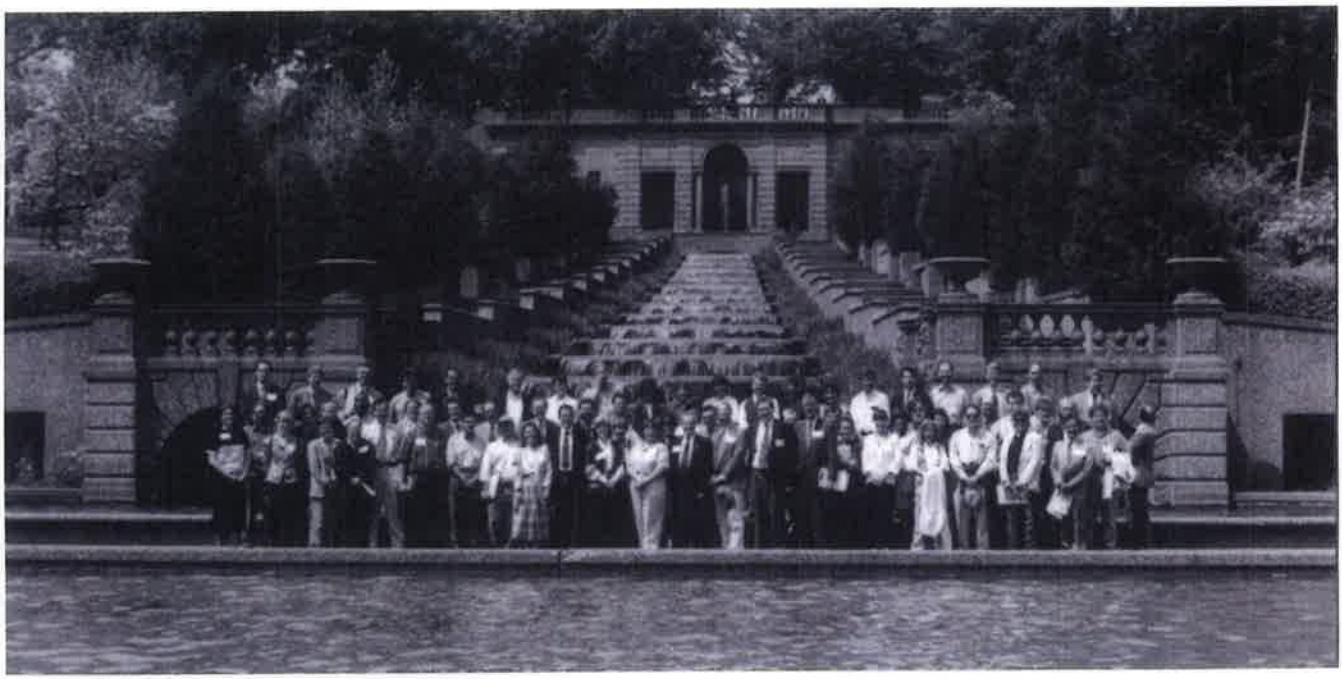
F. Triple glazed windows replaced the originals to control condensation. Photo: © Isabella Stewart Gardner Museum, Boston.



G. New sensors which monitor temperature and relative humidity are located throughout this museum and tied to a computer that controls the climate control system. Photo: © Isabella Stewart Gardner Museum, Boston.

I. Critically damp foundation walls were protected with a layer of bentonite clay to reduce moisture penetration. This work was in combination with new downspouts that were connected to drainage boots that deposited captures roof run-off away from the foundation. Photo: Courtesy, Larry D. Dermody and the National Trust for Historic Preservation.

H. New computers tie a variety of monitoring and security features into a comprehensive system which provides warning and backup alerts when any of the system components are not functioning properly. Photo: © Isabella Stewart Gardner Museum, Boston.



Back Cover: The Diagnosing Moisture in Historic Building Symposium held in Washington, DC, May, 1996, brought together practitioners in the field of historic preservation to discuss the issues contained in this Preservation Brief. Attendees are standing in front of the cascading fountains at Meridian Hill Park, a National Historic Landmark. Photo: Eric Avner.

Reading List

Conrad, Ernest A., P.E. "The Dews and Don'ts of Insulating." *Old House Journal*, May/June, 1996.

Cumberland, Don, Jr. "Museum Collection Storage in an Historic Building Using a Prefabricated Structure." *Preservation Tech Notes*. Washington, DC: National Park Service, issue PTN-14. September, 1985.

Jessup, Wendy Claire, Ed. *Conservation in Context: Finding a Balance for the Historic House Museum*. Washington, DC: National Trust for Historic Preservation (Symposium Proceedings March 7-8, 1994).

Labine, Clem. "Managing Moisture in Historic Buildings" Special Report and Moisture Monitoring Source List. *Traditional Building*, Vol 9, No.2, May-June 1996.

Leeke, John. "Detecting Moisture; Methods and Tools for Evaluating Water in Old Houses." *Old House Journal*, May/June, 1996.

Moisture Control in Buildings. Heinz R. Trechsel, Editor. Philadelphia: American Society for Testing and Materials (ASTM manual series: MNL 18), 1993.

Museums in Historic Buildings (Special Issue). *APT Bulletin*. The Journal of Preservation Technology, Vol 26, No. 3 . Williamsburg, VA: APT, 1996.

Oxley, T.A. and A. E. Gobert. *Dampness in Buildings: Diagnosis, Treatment, Instruments*. London, Boston: Butterworth-Heinemann, 1994.

Park, Sharon C. AIA. *Preservation Brief 24: Heating, Ventilating, and Cooling Historic Buildings: Problems and Recommended Approaches*. Washington, DC: Department of the Interior, Government Printing Office, 1991.

Rose, William. "Effects of Climate Control on the Museum Building Envelope," *Journal of the American Institute for Conservation*, Vol. 33, No. 2. Summer, 1994.

Smith, Baird M. *Moisture Problems in Historic Masonry Walls; Diagnosis and Treatment*. Washington, DC.: Department of the Interior, Government Printing Office, 1984.

Tolpin, Jim. "Builder's Guide to Moisture Meters," Tools of the Trade Vol 2, No. 1 (Quarterly Supplement to *The Journal of Light Construction*). Richmond, Vermont: Builderburg Group Inc. Summer, 1994.

Acknowledgments

Sharon C. Park, AIA is the Senior Historical Architect, Technical Preservation Services, Heritage Preservation Services Program, National Park Service, Washington, D.C.

The author wishes to thank the following individuals and organizations for providing technical review and other assistance in developing this publication: The attendees, speakers, and sponsors of the Diagnosing Moisture in Historic Buildings Symposium held in Washington, DC in 1996 and funded by a grant from the National Center for Preservation Technology and Training, National Park Service ; Hugh C. Miller, FAIA; Michael Henry, AIA, PE, PP; Baird M. Smith, AIA; Ernest A. Conrad, P.E.; William B. Rose; Rebecca Stevens. AIA; Wendy Claire Jessup; Elizabeth Sasser, AIA; Bryan Blundell; George Siekkinen, AIA; Larry D. Dermody; Kimberly A. Konrad; Barbara J. Mangum and the Isabella Stewart Gardner Museum, Boston; Gunston Hall Plantation; Friends of Meridian Hill; Friends of Great Falls Tavern; The National Trust for Historic Preservation; Thomas McGrath, Douglas C. Hicks and The Williamsport Preservation Training Center, NPS; the staff at Heritage Preservation Services, NPS, Charles E. Fisher, Brooks Prueher, Anne E. Grimmer, Antoinette Lee, and especially Kay D. Weeks.

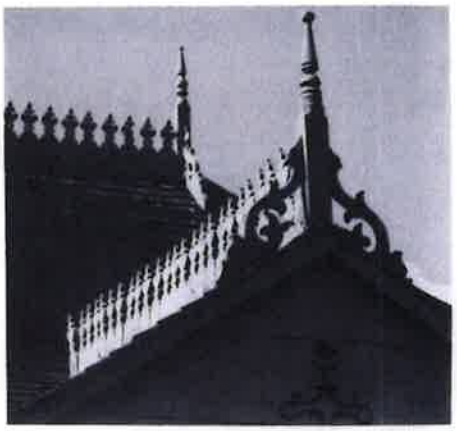
This publication has been prepared pursuant to the National Historic Preservation Act, as amended, which directs the Secretary of the Interior to develop and make available information concerning historic properties. Comments about this publication should be directed to de Teel Patterson Tiller, Acting Manager, Heritage Preservation Services Program, National Park Service, P.O. Box 37127, Washington, DC 20013-7127. This publication is not copyrighted and can be reproduced without penalty.

Copyright photographs included in this publication may not be used to illustrate publications other than as a reference to this Preservation Brief, without permission of the owners. Normal procedures for credit to the authors and the National Park Service are appreciated.

Cover Photo: Masonry repointing in a wet environment. Photo: Williamsport Preservation Training Center, NPS.

ISSN: 0885-7016 October, 1996

4 PRESERVATION BRIEFS



HABS

Roofing for Historic Buildings

Sarah M. Sweetser

U.S. Department of the Interior
National Park Service
Cultural Resources
Heritage Preservation Services

Significance of the Roof

A weather-tight roof is basic in the preservation of a structure, regardless of its age, size, or design. In the system that allows a building to work as a shelter, the roof sheds the rain, shades from the sun, and buffers the weather.

During some periods in the history of architecture, the roof imparts much of the architectural character. It defines the style and contributes to the building's aesthetics. The hipped roofs of Georgian architecture, the turrets of Queen Anne, the Mansard roofs, and the graceful slopes of the Shingle Style and Bungalow designs are examples of the use of roofing as a major design feature.

But no matter how decorative the patterning or how compelling the form, the roof is a highly vulnerable element of a shelter that will inevitable fail. A poor roof will permit the accelerated deterioration of historic building materials—masonry, wood, plaster, paint—and will cause general disintegration of the basic structure. Furthermore, there is an urgency involved in repairing a leaky roof since such repair costs will quickly become prohibitive. Although such action is desirable as soon as a failure is discovered, temporary patching methods should be carefully chosen to prevent inadvertent damage to sound or historic roofing materials and related features. Before any repair work is performed, the historic value of the materials used on the roof should be understood. Then a complete internal and external inspection of the roof should be planned to determine all the causes of failure and to identify the alternatives for repair or replacement of the roofing.

Historic Roofing Materials in America

Clay Tile: European settlers used clay tile for roofing as early as the mid-17th century; many pantiles (S-curved tiles), as well as flat roofing tiles, were used in Jamestown, Virginia. In some cities such as New York and Boston, clay was popularly used as a precaution against such fire as those that engulfed London in 1666 and scorched Boston in 1679.

Tiles roofs found in the mid-18th century Moravian settlements in Pennsylvania closely resembled those found in Germany. Typically, the tiles were 14–15″ long, 6–7″ wide with a curved butt. A lug on the back allowed the tiles to hang on the lathing without nails or pegs. The tile surface was usually scored with finger marks to promote drainage. In the Southwest, the tile roofs of the Spanish missionaries (mission tiles) were first manufactured (ca. 1780) at the Mission San Antonio de Padua in California. These semicircular tiles were made by molding clay over sections of logs, and they were generally 22″ long and tapered in width.

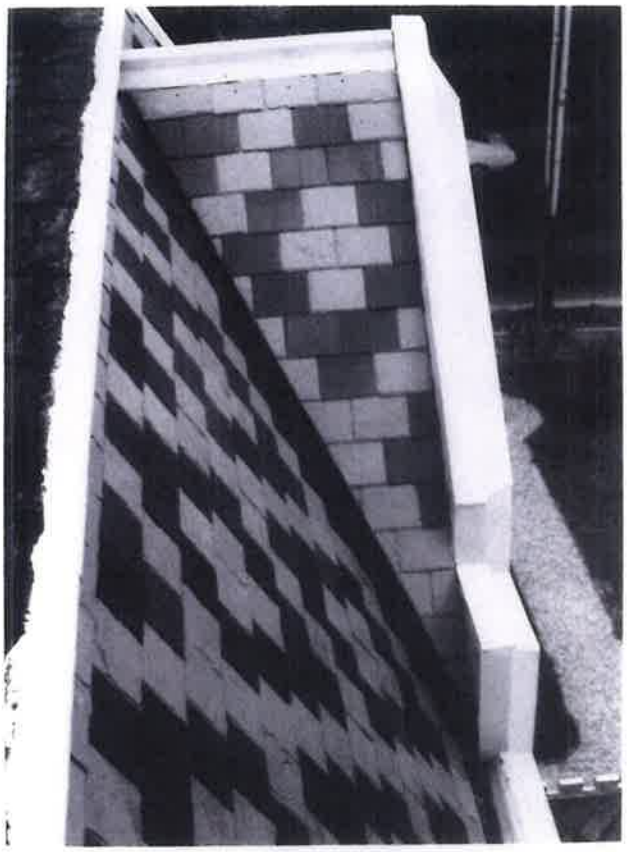
Repairs on this pantile roof were made with new tiles held in place with metal hangers. (Main Building, Ellis Island, New York)

The plain or flat rectangular tiles most commonly used from the 17th through the beginning of the 19th century measured about 10″ by 6″ by ½″, and had two holes at one end for a nail or peg fastener. Sometimes mortar was applied between the courses to secure the tiles in a heavy wind.

In the mid-19th century, tile roofs were often replaced by sheet-metal roofs, which were lighter and easier to install and maintain. However, by the turn of the century, the Romanesque Revival and Mission style buildings created a new demand and popularity for this picturesque roofing material.

Slate: Another practice settlers brought to the New World was slate roofing. Evidence of roofing slates have been found also among the ruins of mid-17th-century Jamestown. But because of the cost and the time required to obtain the material, which was mostly imported from Wales, the use of slate was initially limited. Even in Philadelphia (the second largest city in the English-speaking world at the time of the Revolution) slates were so rare that "The Slate Roof House" distinctly referred to William Penn's home built late in the 1600s. Sources of native slate were known to exist along the eastern seaboard from Maine to Virginia, but difficulties in inland transportation limited its availability to the cities, and contributed to its expense. Welsh slate continued to be imported until the development of canals and railroads in the mid-19th century made American slate more accessible and economical.

Slate was popular for its durability, fireproof qualities, and



The Victorians loved to used different colored slates to create decorative patterns on their roofs, an effect which cannot be easily duplicated by substitute materials. Before any repair work on a roof such as this, the slate sizes, colors, and position of the patterning should be carefully recorded to assure proper replacement. (Ebenezer Maxwell Mansion, Philadelphia, Pennsylvania, photo courtesy of William D. Hershey)

Replacement of particular historic details is important to the individual historic character of a roof, such as the treatment at the eaves of this rounded butt wood shingle roof. Also note that the surface of the roof was carefully sloped to drain water away from the side of the dormer. In the restoration, this function was augmented with the addition of carefully concealed modern metal flashing. (Mount Vernon, Virginia)

Galvanized sheet-metal shingles imitating the appearance of pantiles remained popular from the second half of the 19th century into the 20th century. (Episcopal Church, now the Jerome Historical Society Building, Jerome, Arizona, 1927)

aesthetic potential. Because slate was available in different colors (red, green, purple, and blue-gray), it was an effective material for decorative patterns on many 19th-century roofs (Gothic and Mansard styles). Slate continued to be used well into the 20th century, notably on many Tudor revival style buildings of the 1920s.

Shingles: Wood shingles were popular throughout the country in all periods of building history. The size and shape of the shingles as well as the detailing of the shingle roof differed according to regional craft practices. People within particular regions developed preferences for the local species of wood that most suited their purposes. In New England and the Delaware Valley, white pine was frequently used: in the South, cypress and oak; in the far west, red cedar or redwood. Sometimes a protective coating was applied to increase the durability of the shingle such as a mixture of brick dust and fish oil, or a paint made of red iron oxide and linseed oil.

Commonly in urban areas, wooden roofs were replaced with more fire resistant materials, but in rural areas this was not a major concern. On many Victorian country houses, the practice of wood shingling survived the technological advances of metal roofing in the 19th century, and near the turn of the century enjoyed a full revival in its namesake, the Shingle Style. Colonial revival and the Bungalow styles in the 20th century assured wood shingles a place as one of the most fashionable, domestic roofing materials.

Metal: Metal roofing in America is principally a 19th-century phenomenon. Before then the only metals commonly used were lead and copper. For example, a lead roof covered "Rosewell," one of the grandest mansions in 18th-century Virginia. But more often, lead was used for protective flashing. Lead, as well as copper, covered roof surfaces where wood, tile, or slate shingles were inappropriate because of the roof's pitch or shape.

Copper with standing seams covered some of the more notable early American roofs including that of Christ Church (1727–1744) in Philadelphia. Flat-seamed copper was used on many domes and cupolas. The copper sheets were imported from England until the end of the 18th century when facilities for rolling sheet metal were developed in America.

Sheet iron was first known to have been manufactured here by the Revolutionary War financier, Robert Morris, who had a rolling mill near Trenton, New Jersey. At his mill Morris produced the roof of his own Philadelphia mansion, which he started in 1794. The architect Benjamin H. Latrobe used sheet iron to replace the roof on Princeton's "Nassau Hall," which had been gutted by fire in 1802.

The method for corrugating iron was originally patented in England in 1829. Corrugating stiffened the sheets, and allowed greater span over a lighter framework, as well as reduced installation time and labor. In 1834 the American architect William Strickland proposed corrugated iron to cover his design for the market place in Philadelphia.

Galvanizing with zinc to protect the base metal from rust was developed in France in 1837. By the 1850s the material was used on post offices and customhouses, as well as on train sheds and factories. In 1857 one of the first metal roofs in the

Repeated repair with asphalt, which cracks as it hardens, has created a blistered surface on this sheet-metal roof and built-in gutter, which will retain water. Repairs could be made by carefully heating and scraping the surface clean, repairing the holes in the metal with a flexible mastic compound or a metal patch, and coating the surface with a fibre paint. (Roane County Courthouse, Kingston, Tennessee, photo courtesy of Building Conservation Technology, Inc.)

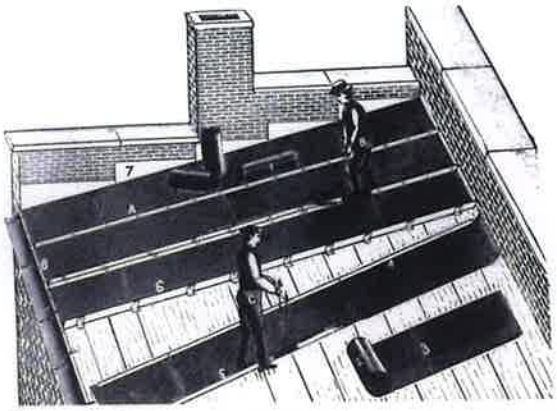
South was installed on the U.S. Mint in New Orleans. The Mint was thereby "fireproofed" with a 20-gauge galvanized, corrugated iron roof on iron trusses.

Tin-plate iron, commonly called "tin roofing," was used extensively in Canada in the 18th century, but it was not as common in the United States until later. Thomas Jefferson was an early advocate of tin roofing, and he installed a standing-seam tin roof on "Monticello" (ca. 1770–1802). The Arch Street Meetinghouse (1804) in Philadelphia had tin shingles laid in a herringbone pattern on a "piazza" roof.

However, once rolling mills were established in this country, the low cost, light weight, and low maintenance of tin plate made it the most common roofing material. Embossed tin shingles, whose surfaces created interesting patterns, were popular throughout the country in the late 19th century. Tin roofs were kept well-painted, usually red; or, as the architect A. J. Davis suggested, in a color to imitate the green patina of copper.

Terne plate differed from tin plate in that the iron was dipped in an alloy of lead and tin, giving it a duller finish. Historic, as well as modern, documentation often confuses the two, so much that it is difficult to determine how often actual "terne" was used.

Zinc came into use in the 1820s, at the same time tin plate was becoming popular. Although a less expensive substitute for lead, its advantages were controversial, and it was never widely used in this country.



A Chicago firm's catalog dated 1896 illustrates a method of unrolling, turning the edges, and finishing the standing seam on a metal roof.

Tin shingles, commonly embossed to imitate wood or tile, or with a decorative design, were popular as an inexpensive, textured roofing material. These shingles 8 3/8 inch by 12 1/2 inch on the exposed surface) were designed with interlocking edges, but they have been repaired by surface nailing, which may cause future leakage. (Ballard House, Yorktown, Virgina, photo by Gordie Whittington, National Park Service)

Other Materials: Asphalt shingles and roll roofing were used in the 1890s. Many roofs of asbestos, aluminum, stainless steel, galvinized steel, and lead-coated copper may soon have historic values as well. Awareness of these and other traditions of roofing materials and their detailing will contribute to more sensitive preservation treatments.

Locating the Problem

Failures of Surface Materials

When trouble occurs, it is important to contact a professional, either an architect, a reputable roofing contractor, or a craftsman familiar with the inherent characteristics of the particular historic roofing system involved. These professionals may be able to advise on immediate patching procedures and help plan more permanent repairs. A thorough examination of the roof should start with an appraisal of the existing condition and quality of the roofing material itself. Particular attention should be given to any southern slope because year-round exposure to direct sun may cause it to break down first.

Wood: Some historic roofing materials have limited life expectancies because of normal organic decay and "wear." For example, the flat surfaces of wood shingles erode from exposure to rain and ultraviolet rays. Some species are more hardy than others, and heartwood, for example, is stronger and more durable than sapwood.

Ideally, shingles are split with the grain perpendicular to

the surface. This is because if shingles are sawn across the grain, moisture may enter the grain and cause the wood to deteriorate. Prolonged moisture on or in the wood allows moss or fungi to grow, which will further hold the moisture and cause rot.

Metal: Of the inorganic roofing materials used on historic buildings, the most common are perhaps the sheet metals: lead, copper, zinc, tin plate, terne plate, and galvanized iron. In varying degrees each of these sheet metals are likely to deteriorate from chemical action by pitting or streaking. This can be caused by airborn pollutants; acid rainwater; acids from lichen or moss; alkalis found in lime mortars or portland cement, which might be on adjoining features and washes down on the roof surface; or tannic acids from adjacent wood sheathings or shingles made of red cedar or oak.

Corrosion from "galvanic action" occurs when dissimilar metals, such as copper and iron, are used in direct contact. Corrosion may also occur even though the metals are physically separated; one of the metals will react chemically against the other in the presence of an electrolyte such as rainwater. In roofing, this situation might occur when either a copper roof is decorated with iron cresting, or when steel nails are used in copper sheets. In some instances the corrosion can be prevented by inserting a plastic insulator between the dissimilar materials. Ideally, the fasteners should be a metal sympathetic to those involved.

Iron rusts unless it is well-painted or plated. Historically this problem was avoided by use of tin plating or galvinizing. But this method is durable only as long as the coating remains intact. Once the plating is worn or damaged, the exposed iron will rust. Therefore, any iron-based roofing material needs to be undercoated, and its surface needs to be kept well-painted to prevent corrosion.

One cause of sheet metal deterioration is fatigue. Depending upon the size and the gauge of the metal sheets, wear and metal failure can occur at the joints or at any protrusions in the sheathing as a result from the metal's alternating movement to thermal changes. Lead will tear because of "creep," or the gravitational stress that causes the material to move down the roof slope.

Slate: Perhaps the most durable roofing materials are slate and tile. Seemingly indestructable, both vary in quality. Some slates are hard and tough without being brittle. Soft slates are more subject to erosion and to attack by airborne and rainwater chemicals, which cause the slates to wear at nail holes, to delaminate, or to break. In winter, slate is very susceptible to breakage by ice, or ice dams.

Tile: Tiles will weather well, but tend to crack or break if hit, as by tree branches, or if they are walked on improperly. Like slates, tiles cannot support much weight. Low quality tiles that have been insufficiently fired during manufacture, will craze and spall under the effects of freeze and thaw cycles on their porous surfaces.

Failures of Support Systems

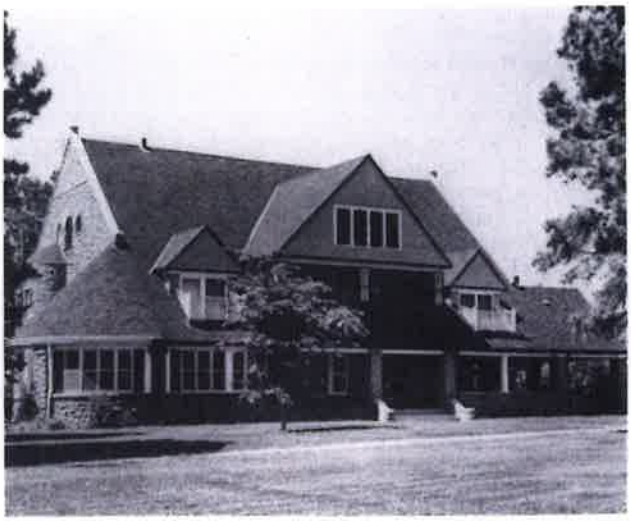
Once the condition of the roofing material has been determined, the related features and support systems should be examined on the exterior and on the interior of the roof. The gutters and downspouts need periodic cleaning and maintenance since a variety of debris fill them, causing water to back up and seep under roofing units. Water will eventually cause fasteners, sheathing, and roofing structure to deteriorate. During winter, the daily freeze-thaw cycles can cause ice floes to develop under the roof surface. The pressure from these ice floes will dislodge the roofing material, especially slates, shingles, or tiles. Moreover, the buildup of ice dams above the gutters can trap enough moisture to rot the sheathing or the structural members.

Many large public buildings have built-in gutters set within the perimeter of the roof. The downspouts for these gutters may run within the walls of the building, or drainage may be through the roof surface or through a parapet to exterior downspouts. These systems can be effective if properly maintained; however, if the roof slope is inadequate for good runoff, or if the traps are allowed to clog, rainwater will form pools on the roof surface. Interior downspouts can collect debris and thus back up, perhaps leaking water into the surrounding walls. Exterior downspouts may fill with water, which in cold weather may freeze and crack the pipes. Conduits from the built-in gutter to the exterior downspout may also leak water into the surrounding roof structure or walls.

Failure of the flashing system is usually a major cause of roof deterioration. Flashing should be carefully inspected for failure caused by either poor workmanship, thermal stress, or metal deterioration (both of flashing material itself and of the fasteners). With many roofing materials, the replacement of flashing on an existing roof is a major operation, which may require taking up large sections of the roof surface. Therefore, the installation of top quality flashing material on

This detail shows slate delamination caused by a combination of weathering and pollution. In addition, the slates have eroded around the repair nails, incorrectly placed in the exposed surface of the slates. (Lower Pontalba Building, New Orleans, photo courtesy of Building Conservation Technology, Inc.)

Temporary stabilization or "mothballing" with materials such as plywood and building paper can protect the roof of a project until it can be properly repaired or replaced. (Narbonne House, Salem, Massachusetts)



These two views of the same house demonstrate how the use of a substitute material can drastically affect the overall character of a structure. The textural interest of the original tile roof was lost with the use of asphalt shingles. Recent preservation efforts are replacing the tile roof. (Frank House, Kearney, Nebraska, photo courtesy of the Nebraska State Historical Society, Lincoln, Nebraska)

a new or replaced roof should be a primary consideration. *Remember, some roofing and flashing materials are not compatible.*

Roof fasteners and clips should also be made of a material compatible with all other materials used, or coated to prevent rust. For example, the tannic acid in oak will corrode iron nails. Some roofs such as slate and sheet metals may fail if nailed too rigidly.

If the roof structure appears sound and nothing indicates recent movement, the area to be examined most closely is the roof substrate—the sheathing or the battens. The danger spots would be near the roof plates, under any exterior patches, at the intersections of the roof planes, or at vertical surfaces such as dormers. Water penetration, indicating a breach in the roofing surface or flashing, should be readily apparent, usually as a damp spot or stain. Probing with a small pen knife may reveal any rot which may indicate previously undetected damage to the roofing membrane. Insect infestation evident by small exit holes and frass (a sawdust-like debris) should also be noted. Condensation on the underside of the roofing is undesirable and indicates improper ventilation. Moisture will have an adverse effect on any roofing material; a good roof stays dry inside and out.

Repair or Replace

Understanding potential weaknesses of roofing material also requires knowledge of repair difficulties. Individual slates can be replaced normally without major disruption to the rest of the roof, but replacing flashing on a slate roof can require substantial removal of surrounding slates. If it is the substrate or a support material that has deteriorated, many surface materials such as slate or tile can be reused if handled carefully during the repair. Such problems should be evaluated at the outset of any project to determine if the roof can be effectively patched, or if it should be completely replaced.

Will the repairs be effective? Maintenance costs tend to multiply once trouble starts. As the cost of labor escalates, repeated repairs could soon equal the cost of a new roof.

The more durable the surface is initially, the easier it will be to maintain. Some roofing materials such as slate are expensive to install, but if top quality slate and flashing are used, it will last 40–60 years with minimal maintenance. Although the installation cost of the roof will be high, low maintenance needs will make the lifetime cost of the roof less expensive.

Historical Research

In a restoration project, research of documents and physical investigation of the building usually will establish the roof's history. Documentary research should include any original plans or building specifications, early insurance surveys, newspaper descriptions, or the personal papers and files of people who owned or were involved in the history of the building. Old photographs of the building might provide evidence of missing details.

Along with a thorough understanding of any written history of the building, a physical investigation of the roofing and its structure may reveal information about the roof's construction history. Starting with an overall impression of the structure, are there any changes in the roof slope, its configuration, or roofing materials? Perhaps there are obvious patches or changes in patterning of exterior brickwork where a gable roof was changed to a gambrel, or where a whole upper story was added. Perhaps there are obvious stylistic changes in the roof line, dormers, or ornamentation. These observations could help one understand any important alteration, and could help establish the direction of further investigation.

Because most roofs are physically out of the range of careful scrutiny, the "principle of least effort" has probably limited the extent and quality of previous patching or replacing, and usually considerable evidence of an earlier roof surface remains. Sometimes the older roof will be found as an underlayment of the current exposed roof. Original roofing may still be intact in awkward places under later features on a roof. Often if there is any unfinished attic space, remnants of roofing may have been dropped and left when the roof was being built or repaired. If the configuration of the roof has been changed, some of the original material might still be in place under the existing roof. Sometimes whole sections of the roof and roof framing will have been left intact under the higher roof. The profile and/or flashing of the earlier roof may be apparent on the interior of the walls at the level of the alteration. If the sheathing or lathing appears to have survived changes in the roofing surface, they may contain evidence of the roofing systems. These may appear either as dirt marks, which provide "shadows" of a roofing material, or as nails broken or driven down into the wood, rather than pulled out during previous alterations or repairs. Wooden headers in the roof framing may indicate that earlier chimneys or skylights have been removed. Any metal ornamentation that might have existed may be indicated by anchors or unusual markings along the ridge or at other edges of the roof. This primary

evidence is essential for a full understanding of the roof's history.

Caution should be taken in dating early "fabric" on the evidence of a single item, as recycling of materials is not a mid-20th-century innovation. Carpenters have been reusing materials, sheathing, and framing members in the interest of economy for centuries. Therefore, any analysis of the materials found, such as nails or sawmarks on the wood, requires an accurate knowledge of the history of local building practices before any final conclusion can be accurately reached. It is helpful to establish a sequence of construction history for the roof and roofing materials; any historic fabric or pertinent evidence in the roof should be photographed, measured, and recorded for future reference.

During the repair work, useful evidence might unexpectedly appear. It is essential that records be kept of any type of work on a historic building, before, during, and after the project. Photographs are generally the easiest and fastest method, and should include overall views and details at the gutters, flashing, dormers, chimneys, valleys, ridges, and eaves. All photographs should be immediately labeled to insure accurate identification at a later date. Any patterning or design on the roofing deserves particular attention. For example, slate roofs are often decorative and have subtle changes in size, color, and texture, such as a gradually decreasing coursing length from the eave to the peak. If not carefully noted before a project begins, there may be problems in replacing the surface. The standard reference for this phase of the work is *Recording Historic Buildings,* compiled by Harley J. McKee for the Historic American Buildings Survey, National Park Service, Washington, D.C., 1970.

Replacing the Historic Roofing Material

Professional advice will be needed to assess the various aspects of replacing a historic roof. With some exceptions, most historic roofing materials are available today. If not, an architect or preservation group who has previously worked with the same type material may be able to recommend suppliers. Special roofing materials, such as tile or embossed metal shingles, can be produced by manufacturers of related products that are commonly used elsewhere, either on the exterior or interior of a structure. With some creative thinking and research, the historic materials usually can be found.

Because of the roof's visibility, the slate detailing around the dormers is important to the character of this structure. Note how the slates swirl from a horizontal pattern on the main roof to a diamond pattern on the dormer roofs and side walls. (18th and Que Streets, NW, Washington, D.C.)

Craft Practices: Determining the craft practices used in the installation of a historic roof is another major concern in roof restoration. Early builders took great pride in their work, and experience has shown that the "rustic" or irregular designs commercially labled "Early American" are a 20th-century invention. For example, historically, wood shingles underwent several distinct operations in their manufacture including splitting by hand, and smoothing the surface with a draw knife. In modern nomenclature, the same item would be a "tapersplit" shingle which has been dressed. Unfortunately, the rustic appearance of today's commercially available "handsplit" and re-sawn shingle bears no resemblance to the hand-made roofing materials used on early American buildings.

Good design and quality materials for the roof surface, fastenings, and flashing minimize roofing failures. This is essential on roofs such as on the National Cathedral where a thorough maintenance inspection and minor repairs cannot be done easily without special scaffolding. However, the success of the roof on any structure depends on frequent cleaning and repair of the gutter system. (Washington, D.C., photo courtesy of John Burns, A.I.A.)

Early craftsmen worked with a great deal of common sense; they understood their materials. For example they knew that wood shingles should be relatively narrow; shingles much wider than about 6" would split when walked on, or they may curl or crack from varying temperature and moisture. It is important to understand these aspects of craftsmanship, remembering that people wanted their roofs to be weather-tight and to last a long time. The recent use of "mother-goose" shingles on historic structures is a gross underestimation of the early craftsman's skills.

Supervision: Finding a modern craftsman to reproduce historic details may take some effort. It may even involve some special instruction to raise his understanding of certain historic craft practices. At the same time, it may be pointless (and expensive) to follow historic craft practices in any construction that will not be visible on the finished product. But if the roofing details are readily visible, their appearance should be based on architectural evidence or on historic prototypes. For instance, the spacing of the seams on a standing-seam metal roof will affect the building's overall scale and should therefore match the original dimensions of the seams.

Many older roofing practices are no longer performed because of modern improvements. Research and review of specific detailing in the roof with the contractor before beginning the project is highly recommended. For example, one early craft practice was to finish the ridge of a wood shingle roof with a roof "comb"—that is, the top course of one slope of the roof was extended uniformly beyond the peak to shield the ridge, and to provide some weather protection for the raw horizontal edges of the shingles on the other slope. If the "comb" is known to have been the correct detail, it should be used. Though this method leaves the top course vulnerable to the weather, a disguised strip of flashing will strengthen this weak point.

Detail drawings or a sample mock-up will help ensure that the contractor or craftsman understands the scope and special requirements of the project. It should never be assumed that the modern carpenter, slater, sheet metal worker, or roofer will know all the historic details. Supervision is as important as any other stage of the process.

Special problems inherent in the design of an elaborate historic roof can be controlled through the use of good materials and regular maintenance. The shape and detailing are essential elements of the building's historic character, and should not be modified, despite the use of alternative surface materials. (Gamwell House, Bellingham, Washington)

Alternative Materials

The use of the historic roofing material on a structure may be restricted by building codes or by the availability of the materials, in which case an appropriate alternative will have to be found.

Some municipal building codes allow variances for roofing materials in historic districts. In other instances, individual variances may be obtained. Most modern heating and cooking is fueled by gas, electricity, or oil—none of which emit the hot embers that historically have been the cause of roof fires. Where wood burning fireplaces or stoves are used, spark arrestor screens at the top of the chimneys help to prevent flaming material from escaping, thus reducing the number of fires that start at the roof. In most states, insurance rates have been equalized to reflect revised considerations for the risks involved with various roofing materials.

In a rehabilitation project, there may be valid reasons for replacing the roof with a material other than the original. The historic roofing may no longer be available, or the cost of obtaining specially fabricated materials may be prohibitive. But the decision to use an alternative material should be weighed carefully against the primary concern to keep the historic character of the building. If the roof is flat and is not visible from any elevation of the building, and if there are advantages to substituting a modern built-up composition roof for what might have been a flat metal roof, then it may make better economic and construction sense to use a modern roofing method. But if the roof is readily visible, the alternative material should match as closely as possible the scale, texture, and coloration of the historic roofing material.

Asphalt shingles or ceramic tiles are common substitute materials intended to duplicate the appearance of wood shingles, slates, or tiles. Fire-retardant, treated wood shingles are currently available. The treated wood tends, however, to be brittle, and may require extra care (and expense) to install. In some instances, shingles laid with an interlay of fire-retardent building paper may be an acceptable alternative.

Lead-coated copper, terne-coated steel, and aluminum/zinc-coated steel can successfully replace tin, terne plate, zinc, or lead. Copper-coated steel is a less expensive (and less durable) substitute for sheet copper.

The search for alternative roofing materials is not new. As early as the 18th century, fear of fire cause many wood shingle or board roofs to be replaced by sheet metal or clay tile. Some historic roofs were failures from the start, based on overambitious and naive use of materials as they were first developed. Research on a structure may reveal that an inadequately designed or a highly combustible roof was replaced early in its history, and therefore restoration of a later roof material would have a valid precedent. In some cities, the substitution of sheet metal on early row houses occurred as soon as the rolled material became available.

Cost and ease of maintenance may dictate the substitution of a material wholly different in appearance from the original. The practical problems (wind, weather, and roof pitch) should be weighed against the historical consideration of scale, texture, and color. Sometimes the effect of the alternative material will be minimal. But on roofs with a high degree of visibility and patterning or texture, the substitution may seriously alter the architectural character of the building.

Temporary Stabilization

It may be necessary to carry out an immediate and temporary stabilization to prevent further deterioration until research can determine how the roof should be restored or rehabilitated, or until funding can be provided to do a proper job. A simple covering of exterior plywood or roll roofing might provide adequate protection, but any temporary covering should be applied with caution. One should be careful not to overload the roof structure, or to damage or destroy historic evidence or fabric that might be incorporated into a new roof at a later date. In this sense, repairs with caulking or bituminous patching compounds should be recognized as potentially harmful, since they are difficult to remove, and at their best, are very temporary.

Precautions

The architect or contractor should warn the owner of any precautions to be taken against the specific hazards in installing the roofing material. Soldering of sheet metals, for instance, can be a fire hazard, either from the open flame or from overheating and undected smoldering of the wooden substrate materials.

Thought should be given to the design and placement of any modern roof appurtenances such as plumbing stacks, air vents, or TV antennas. Consideration should begin with the placement of modern plumbing on the interior of the building, otherwise a series of vent stacks may pierce the roof membrane at various spots creating maintenance problems as well as aesthetic ones. Air handling units placed in the attic space will require vents which, in turn, require sensitive design. Incorporating these in unused chimneys has been very successful

in the past.

Whenever gutters and downspouts are needed that were not on the building historically, the additions should be made as unobtrusively as possible, perhaps by painting them out with a color compatible with the nearby wall or trim.

Maintenance

Although a new roof can be an object of beauty, it will not be protective for long without proper maintenance. At least twice a year, the roof should be inspected against a checklist. All changes should be recorded and reported. Guidelines should be established for any foot traffic that may be required for the maintenance of the roof. Many roofing materials should not be walked on at all. For some—slate, asbestos, and clay tile—a self-supporting ladder might be hung over the ridge of the roof, or planks might be spanned across the roof surface. Such items should be specifically designed and kept in a storage space accessible to the roof. If exterior work ever requires hanging scaffolding, use caution to insure that the anchors do not penetrate, break, or wear the roofing surface, gutters, or flashing.

Any roofing system should be recognized as a membrane that is designed to be self-sustaining, but that can be easily damaged by intrusions such as pedestrian traffic or fallen tree branches. Certain items should be checked at specific times. For example, gutters tend to accumulate leaves and debris during the spring and fall and after heavy rain. Hidden gutter screening both at downspouts and over the full length of the gutter could help keep them clean. The surface material would require checking after a storm as well. Periodic checking of the underside of the roof from the attic after a storm or winter freezing may give early warning of any leaks. Generally, damage from water or ice is less likely on a roof that has good flashing on the outside and is well ventilated and insulated on the inside. Specific instructions for the maintenance of the different roof materials should be available from the architect or contractor.

Summary

The essential ingredients for replacing and maintaining a historic roof are:

- Understanding the historic character of the building and being sympathetic to it.
- Careful examination and recording of the existing roof and any evidence of earlier roofs.
- Consideration of the historic craftsmanship and detailing and implementing them in the renewal wherever visible.
- Supervision of the roofers or maintenance personnel to assure preservation of historic fabric and proper understanding of the scope and detailing of the project.
- Consideration of alternative materials where the original cannot be used.
- Cyclical maintenance program to assure that the staff understands how to take care of the roof and of the particular trouble spots to safeguard.

With these points in mind, it will be possible to preserve the architectural character and maintain the physical integrity of the roofing on a historic building.

This Preservation Brief was written by Sarah M. Sweetser, Architectural Historian, Technical Preservation Services Division. Much of the technical information was based upon an unpublished report prepared under contract for this office by John G. and Diana S. Waite. Some of the historical information was from Charles E. Peterson, FAIA, "American Notes," *Journal of the Society of Architectural Historians.*

The illustrations for this brief not specifically credited are from the files of the Technical Preservation Services Division.

This publication was prepared pursuant to Executive Order 11593, "Protection and Enhancement of the Cultural Environment," which directs the Secretary of the Interior to "develop and make available to Federal agencies and State and local governments information concerning professional methods and techniques for preserving, improving, restoring and maintaining historic properties." The Brief has been developed under the technical editorship of Lee H. Nelson, AIA, Chief, Preservation Assistance Division, National Park Service, U.S. Department of the Interior, Washington, D.C. 20240. Comments on the usefulness of this information are welcome and can be sent to Mr. Nelson at the above address. This publication is not copyrighted and can be reproduced without penalty. Normal procedures for credit to the author and the National Park Service are appreciated. **February 1978.**

Decorative features such as cupolas require extra maintenance. The flashing is carefully detailed to promote run-off, and the wooden ribbing must be kept well-painted. This roof surface, which was originally tin plate, has been replaced with lead-coated copper for maintenance purposes. (Lyndhurst, Tarrytown, New York, photo courtesy of the National Trust for Historic Preservation)

Additional readings on the subject of roofing are listed below.

Boaz, Joseph N., ed. *Architectural Graphic Standards.* New York: John Wiley and Sons, Inc., 1970. (Modern roofing types and detailing)

Briggs, Martin S. *A Short History of the Building Crafts.* London: Oxford University Press, 1925. (Descriptions of historic roofing materials)

Bulletin of the Association for Preservation Technology. Vol. 2 (nos. 1-2) 1970. (Entirely on roofing)

Holstrom, Ingmar; and Sandstrom, Christina. *Maintenance of Old Buildings: Preservation from the Technical and Antiquarian Standpoint.* Stockholm: National Swedish Building Research, 1972. (Contains a section on roof maintenance problems)

Insall, Donald. *The Care of Old Buildings Today.* London: The Architectural Press, 1972. (Excellent guide to some problems and solutions for historic roofs)

Labine, R.A. Clem. "Repairing Slate Roofs." *The Old House Journal* 3 (no. 12, Dec. 1975): 6-7.

Lefer, Henry. "A Birds-eye View." *Progressive Architecture.* (Mar. 1977), pp. 88-92. (Article on contemporary sheet metal)

National Slate Association. *Slate Roofs.* Reprint of 1926 edition, now available from the Vermont Structural Slate Co., Inc., Fairhaven, VT 05743. (An excellent reference for the many designs and details of slate roofs)

Peterson, Charles E. "Iron in Early American Roofs." *The Smithsonian Journal of History* 3 (no. 3). Edited by Peter C. Welsh. Washington, D.C.: Smithsonian Institution, 1968, pp. 41-76.

Waite, Diana S. *Nineteenth Century Tin Roofing and its Use at Hyde Hall.* Albany: New York State Historic Trust, 1971.

——. "Roofing for Early America." *Building Early America.* Edited by Charles E. Peterson. Radnor, Penn.: Chilton Book Co., 1976.

U.S. Department of the Interior
National Park Service
Cultural Resources
Heritage Preservation Services

Preservation Briefs: 9
The Repair of Historic Wooden Windows

John H. Myers

The windows on many historic buildings are an important aspect of the architectural character of those buildings. Their design, craftsmanship, or other qualities may make them worthy of preservation. This is self-evident for ornamental windows, but it can be equally true for warehouses or factories where the windows may be the most dominant visual element of an otherwise plain building (see figure 1). Evaluating the significance of these windows and planning for their repair or replacement can be a complex process involving both objective and subjective considerations. The *Secretary of the Interior's Standards for Rehabilitation*, and the accompanying guidelines, call for respecting the significance of original materials and features, repairing and retaining them wherever possible, and when necessary, replacing them in kind. This **Brief** is based on the issues of significance and repair which are implicit in the standards, but the primary emphasis is on the technical issues of planning for the repair of windows including evaluation of their physical condition, techniques of repair, and design considerations when replacement is necessary.

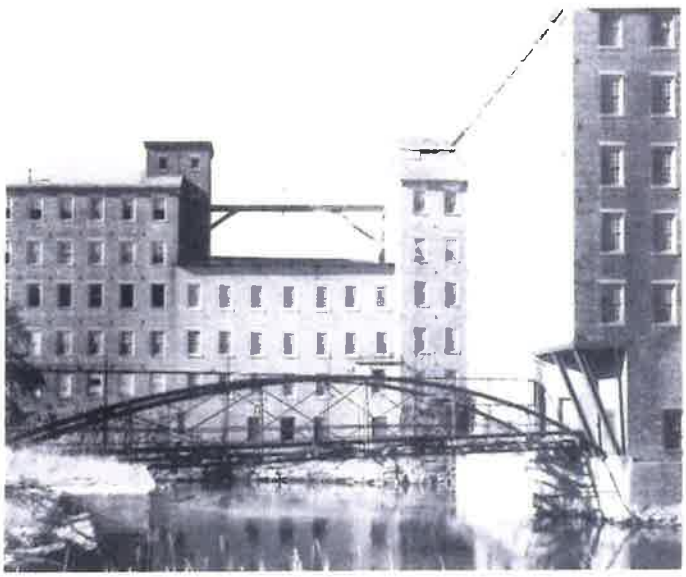


Figure 1. *Windows are frequently important visual focal points, especially on simple facades such as this mill building. Replacement of the multi-pane windows here with larger panes could dramatically change the appearance of the building. The areas of missing windows convey the impression of such a change. Photo: John T. Lowe*

Much of the technical section presents repair techniques as an instructional guide for the do-it-yourselfer. The information will be useful, however, for the architect, contractor, or developer on large-scale projects. It presents a methodology for approaching the evaluation and repair of existing windows, and considerations for replacement, from which the professional can develop alternatives and specify appropriate materials and procedures.

Architectural or Historical Significance

Evaluating the architectural or historical significance of windows is the first step in planning for window treatments, and a general understanding of the function and history of windows is vital to making a proper evaluation. As a part of this evaluation, one must consider four basic window functions: admitting light to the interior spaces, providing fresh air and ventilation to the interior, providing a visual link to the outside world, and enhancing the appearance of a building. No single factor can be disregarded when planning window treatments; for example, attempting to conserve energy by closing up or reducing the size of window openings may result in the use of *more* energy by increasing electric lighting loads and decreasing passive solar heat gains.

Historically, the first windows in early American houses were casement windows; that is, they were hinged at the side and opened outward. In the beginning of the eighteenth century single- and double-hung windows were introduced. Subsequently many styles of these vertical sliding sash windows have come to be associated with specific building periods or architectural styles, and this is an important consideration in determining the significance of windows, especially on a local or regional basis. Site-specific, regionally oriented architectural comparisons should be made to determine the significance of windows in question. Although such comparisons may focus on specific window types and their details, the ultimate determination of significance should be made within the context of the whole building, wherein the windows are one architectural element (see figure 2).

After all of the factors have been evaluated, *windows should be considered significant to a building if they:* 1) are original, 2) reflect the original design intent for the building, 3) reflect period or regional styles or building practices, 4) reflect changes to the building resulting from major periods or events, or 5) are examples of exceptional craftsmanship or design. Once this evaluation of significance has been completed, it is possible to pro-

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402

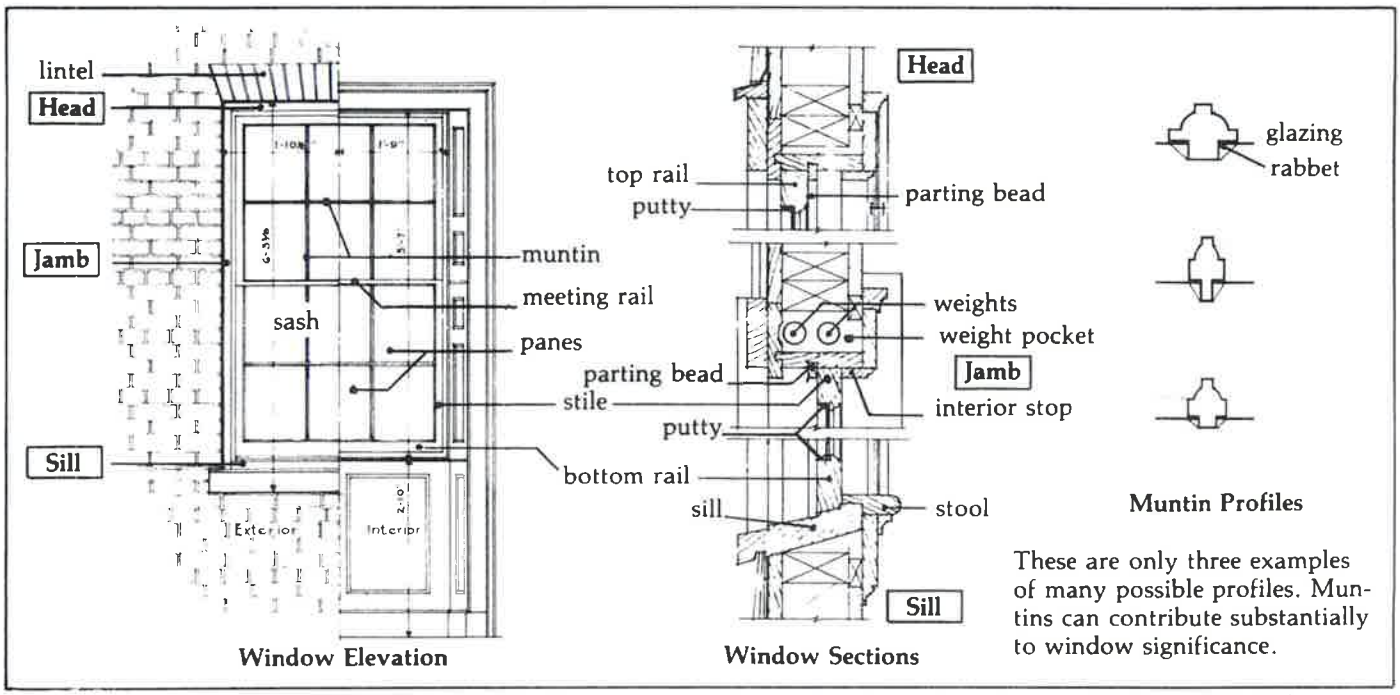


Figure 2. *These drawings of window details identify major components, terminology, and installation details for a wooden double-hung window.*

ceed with planning appropriate treatments, beginning with an investigation of the physical condition of the windows.

Physical Evaluation

The key to successful planning for window treatments is a careful evaluation of existing physical conditions on a unit-by-unit basis. A graphic or photographic system may be devised to record existing conditions and illustrate the scope of any necessary repairs. Another effective tool is a window schedule which lists all of the parts of each window unit. Spaces by each part allow notes on existing conditions and repair instructions. When such a schedule is completed, it indicates the precise tasks to be performed in the repair of each unit and becomes a part of the specifications. In any evaluation, one should note at a minimum, 1) window location, 2) condition of the paint, 3) condition of the frame and sill, 4) condition of the sash (rails, stiles and muntins), 5) glazing problems, 6) hardware, and 7) the overall condition of the window (excellent, fair, poor, and so forth).

Many factors such as poor design, moisture, vandalism, insect attack, and lack of maintenance can contribute to window deterioration, but moisture is the primary contributing factor in wooden window decay. All window units should be inspected to see if water is entering around the edges of the frame and, if so, the joints or seams should be caulked to eliminate this danger. The glazing putty should be checked for cracked, loose, or missing sections which allow water to saturate the wood, especially at the joints. The back putty on the interior side of the pane should also be inspected, because it creates a seal which prevents condensation from running down into the joinery. The sill should be examined to insure that it slopes downward away from the building and allows water to drain off. In addition, it may be advisable to cut a dripline along the underside of the sill. This almost invisible treatment will insure proper water run-off, particularly if the bottom of the sill is flat. Any conditions, including poor original design, which permit water to come in contact with the wood or to puddle on the sill must be corrected as they contribute to deterioration of the window.

One clue to the location of areas of excessive moisture is the condition of the paint; therefore, each window should be examined for areas of paint failure. Since excessive moisture is detrimental to the paint bond, areas of paint blistering, cracking, flaking, and peeling usually identify points of water penetration, moisture saturation, and potential deterioration. Failure of the paint should not, however, be mistakenly interpreted as a sign that the wood is in poor condition and hence, irreparable. Wood is frequently in sound physical condition beneath unsightly paint. After noting areas of paint failure, the next step is to inspect the condition of the wood, particularly at the points identified during the paint examination.

Each window should be examined for operational soundness beginning with the lower portions of the frame and sash. Exterior rainwater and interior condensation can flow downward along the window, entering and collecting at points where the flow is blocked. The sill, joints between the sill and jamb, corners of the bottom rails and muntin joints are typical points where water collects and deterioration begins (see figure 3). The operation of the window (continuous opening and closing over the years and seasonal temperature changes) weakens the joints, causing movement and slight separation. This process makes the joints more vulnerable to water which is readily absorbed into the end-grain of the wood. If severe deterioration exists in these areas, it will usually be apparent on visual inspection, but other less severely deteriorated areas of the wood may be tested by two traditional methods using a small ice pick.

An ice pick or an awl may be used to test wood for soundness. The technique is simply to jab the pick into a wetted wood surface at an angle and pry up a small sec-

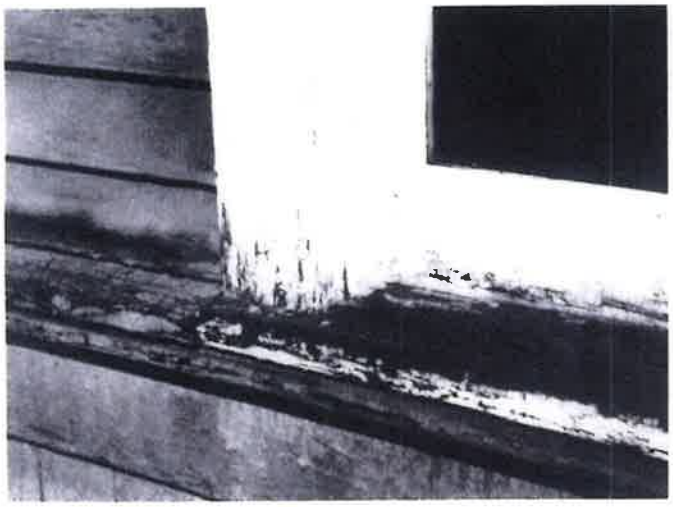


Figure 3. *Deterioration of poorly maintained windows usually begins on horizontal surfaces and at joints where water can collect and saturate the wood. The problem areas are clearly indicated by paint failure due to moisture. Photo: Baird M. Smith, AIA*

tion of the wood. Sound wood will separate in long fibrous splinters, but decayed wood will lift up in short irregular pieces due to the breakdown of fiber strength.

Another method of testing for soundness consists of pushing a sharp object into the wood, perpendicular to the surface. If deterioration has begun from the hidden side of a member and the core is badly decayed, the visible surface may appear to be sound wood. Pressure on the probe can force it through an apparently sound skin to penetrate deeply into decayed wood. This technique is especially useful for checking sills where visual access to the underside is restricted.

Following the inspection and analysis of the results, the scope of the necessary repairs will be evident and a plan for the rehabilitation can be formulated. Generally the actions necessary to return a window to "like new" condition will fall into three broad categories: 1) routine maintenance procedures, 2) structural stabilization, and 3) parts replacement. These categories will be discussed in the following sections and will be referred to respectively as Repair Class I, Repair Class II, and Repair Class III. Each successive repair class represents an increasing level of difficulty, expense, and work time. Note that most of the points mentioned in Repair Class I are routine maintenance items and should be provided in a regular maintenance program for any building. The neglect of these routine items can contribute to many common window problems.

Before undertaking any of the repairs mentioned in the following sections all sources of moisture penetration should be identified and eliminated, and all existing decay fungi destroyed in order to arrest the deterioration process. Many commercially available fungicides and wood preservatives are toxic, so it is extremely important to follow the manufacturer's recommendations for application, and store all chemical materials away from children and animals. After fungicidal and preservative treatment the windows may be stabilized, retained, and restored with every expectation for a long service life.

Repair Class I: Routine Maintenance

Repairs to wooden windows are usually labor intensive and relatively uncomplicated. On small scale projects this allows the do-it-yourselfer to save money by repairing all or part of the windows. On larger projects it presents the opportunity for time and money which might otherwise be spent on the removal and replacement of existing windows, to be spent on repairs, subsequently saving all or part of the material cost of new window units. Regardless of the actual costs, or who performs the work, the evaluation process described earlier will provide the knowledge from which to specify an appropriate work program, establish the work element priorities, and identify the level of skill needed by the labor force.

The routine maintenance required to upgrade a window to "like new" condition normally includes the following steps: 1) some degree of interior and exterior paint removal, 2) removal and repair of sash (including reglazing where necessary), 3) repairs to the frame, 4) weatherstripping and reinstallation of the sash, and 5) repainting. These operations are illustrated for a typical double-hung wooden window (see figures 4a-f), but they may be adapted to other window types and styles as applicable.

Historic windows have usually acquired many layers of paint over time. Removal of excess layers or peeling and flaking paint will facilitate operation of the window and restore the clarity of the original detailing. Some degree of paint removal is also necessary as a first step in the proper surface preparation for subsequent refinishing (if paint color analysis is desired, it should be conducted prior to the onset of the paint removal). There are several safe and effective techniques for removing paint from wood, depending on the amount of paint to be removed. Several techniques such as scraping, chemical stripping, and the use of a hot air gun are discussed in "Preservation Briefs: 10 Paint Removal from Historic Woodwork" (see Additional Reading section at end).

Paint removal should begin on the interior frames, being careful to remove the paint from the interior stop and the parting bead, particularly along the seam where these stops meet the jamb. This can be accomplished by running a utility knife along the length of the seam, breaking the paint bond. It will then be much easier to remove the stop, the parting bead and the sash. The interior stop may be initially loosened from the sash side to avoid visible scarring of the wood and then gradually pried loose using a pair of putty knives, working up and down the stop in small increments (see figure 4b). With the stop removed, the lower or interior sash may be withdrawn. The sash cords should be detached from the sides of the sash and their ends may be pinned with a nail or tied in a knot to prevent them from falling into the weight pocket.

Removal of the upper sash on double-hung units is similar but the parting bead which holds it in place is set into a groove in the center of the stile and is thinner and more delicate than the interior stop. After removing any paint along the seam, the parting bead should be carefully pried out and worked free in the same manner as the interior stop. The upper sash can be removed in the same manner as the lower one and both sash taken to a convenient work area (in order to remove the sash the interior stop and parting bead need only be removed from one side of the window). Window openings can be covered with polyethylene sheets or plywood sheathing while the sash are out for repair.

The sash can be stripped of paint using appropriate techniques, but if any heat treatment is used (see figure 4c), the glass should be removed or protected from the sudden temperature change which can cause breakage. An

Figure 4a. *The following series of photographs of the repair of a historic double-hung window use a unit which is structurally sound but has many layers of paint, some cracked and missing putty, slight separation at the joints, broken sash cords, and one cracked pane. Photo: John H. Myers*

Figure 4b. *After removing paint from the seam between the interior stop and the jamb, the stop can be pried out and gradually worked loose using a pair of putty knives as shown. To avoid visible scarring of the wood, the sash can be raised and the stop pried loose initially from the outer side. Photo: John H. Myers*

Figure 4c. *Sash can be removed and repaired in a convenient work area. Paint is being removed from this sash with a hot air gun while an asbestos sheet protects the glass from sudden temperature change. Photo: John H. Myers*

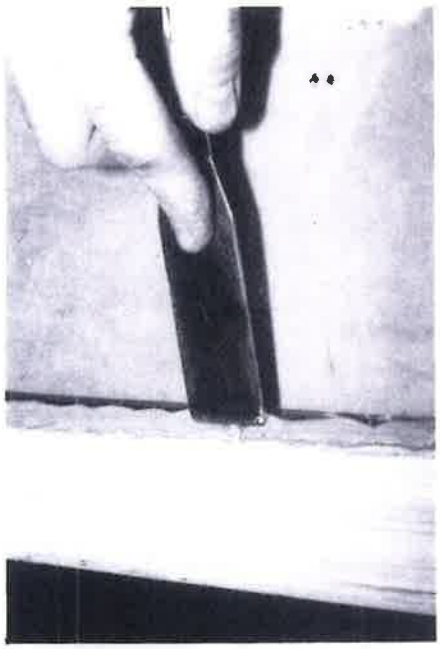


Figure 4d. *Reglazing or replacement of the putty requires that the existing putty be removed manually, the glazing points be extracted, the glass removed, and the back putty scraped out. To reglaze, a bed of putty is laid around the perimeter of the rabbet, the pane is pressed into place, glazing points are inserted to hold the pane (shown), and a final seal of putty is beveled around the edge of the glass. Photo: John H. Myers*

Figure 4e. *A common repair is the replacement of broken sash cords with new cords (shown) or with chains. The weight pocket is often accessible through a removable plate in the jamb, or by removing the interior trim. Photo: John H. Myers*

Figure 4f. *Following the relatively simple repairs, the window is weathertight, like new in appearance, and serviceable for many years to come. Both the historic material and the detailing and craftsmanship of this original window have been preserved. Photo: John H. Myers*

overlay of aluminum foil on gypsum board or asbestos can protect the glass from such rapid temperature change. It is important to protect the glass because it may be historic and often adds character to the window. Deteriorated putty should be removed manually, taking care not to damage the wood along the rabbet. If the glass is to be removed, the glazing points which hold the glass in place can be extracted and the panes numbered and removed for cleaning and reuse in the same openings. With the glass panes out, the remaining putty can be removed and the sash can be sanded, patched, and primed with a preservative primer. Hardened putty in the rabbets may be softened by heating with a soldering iron at the point of removal. Putty remaining on the glass may be softened by soaking the panes in linseed oil, and then removed with less risk of breaking the glass. Before reinstalling the glass, a bead of glazing compound or linseed oil putty should be laid around the rabbet to cushion and seal the glass. Glazing compound should only be used on wood which has been brushed with linseed oil and primed with an oil based primer or paint. The pane is then pressed into place and the glazing points are pushed into the wood around the perimeter of the pane (see figure 4d). The final glazing compound or putty is applied and beveled to complete the seal. The sash can be refinished as desired on the inside and painted on the outside as soon as a "skin" has formed on the putty, usually in 2 or 3 days. Exterior paint should cover the beveled glazing compound or putty and lap over onto the glass slightly to complete a weathertight seal. After the proper curing times have elapsed for paint and putty, the sash will be ready for reinstallation.

While the sash are out of the frame, the condition of the wood in the jamb and sill can be evaluated. Repair and refinishing of the frame may proceed concurrently with repairs to the sash, taking advantage of the curing times for the paints and putty used on the sash. One of the most common work items is the replacement of the sash cords with new rope cords or with chains (see figure 4e). The weight pocket is frequently accessible through a door on the face of the frame near the sill, but if no door exists, the trim on the interior face may be removed for access. Sash weights may be increased for easier window operation by elderly or handicapped persons. Additional repairs to the frame and sash may include consolidation or replacement of deteriorated wood. Techniques for these repairs are discussed in the following sections.

The operations just discussed summarize the efforts necessary to restore a window with minor deterioration to "like new" condition (see figure 4f). The techniques can be applied by an unskilled person with minimal training and experience. To demonstrate the practicality of this approach, and photograph it, a Technical Preservation Services staff member repaired a wooden double-hung, two over two window which had been in service over ninety years. The wood was structurally sound but the window had one broken pane, many layers of paint, broken sash cords and inadequate, worn-out weatherstripping. The staff member found that the frame could be stripped of paint and the sash removed quite easily. Paint, putty and glass removal required about one hour for each sash, and the reglazing of both sash was accomplished in about one hour. Weatherstripping of the sash and frame, replacement of the sash cords and reinstallation of the sash, parting bead, and stop required an hour and a half. These times refer only to individual operations; the entire process took several days due to the drying and curing times for putty, primer, and paint, however, work on other window units could have been in progress during these lag times.

Repair Class II: Stabilization

The preceding description of a window repair job focused on a unit which was operationally sound. Many windows will show some additional degree of physical deterioration, especially in the vulnerable areas mentioned earlier, but even badly damaged windows can be repaired using simple processes. Partially decayed wood can be waterproofed, patched, built-up, or consolidated and then painted to achieve a sound condition, good appearance, and greatly extended life. Three techniques for repairing partially decayed or weathered wood are discussed in this section, and all three can be accomplished using products available at most hardware stores.

One established technique for repairing wood which is split, checked or shows signs of rot, is to: 1) dry the wood, 2) treat decayed areas with a fungicide, 3) waterproof with two or three applications of boiled linseed oil (applications every 24 hours), 4) fill cracks and holes with putty, and 5) after a "skin" forms on the putty, paint the surface. Care should be taken with the use of fungicide which is toxic. Follow the manufacturers' directions and use only on areas which will be painted. When using any technique of building up or patching a flat surface, the finished surface should be sloped slightly to carry water away from the window and not allow it to puddle. Caulking of the joints between the sill and the jamb will help reduce further water penetration.

When sills or other members exhibit surface weathering they may also be built-up using wood putties or homemade mixtures such as sawdust and resorcinol glue, or whiting and varnish. These mixtures can be built up in successive layers, then sanded, primed, and painted. The same caution about proper slope for flat surfaces applies to this technique.

Wood may also be strengthened and stabilized by consolidation, using semi-rigid epoxies which saturate the porous decayed wood and then harden. The surface of the consolidated wood can then be filled with a semi-rigid epoxy patching compound, sanded and painted (see figure 5). Epoxy patching compounds can be used to build up

Figure 5. *This illustrates a two-part epoxy patching compound used to fill the surface of a weathered sill and rebuild the missing edge. When the epoxy cures, it can be sanded smooth and painted to achieve a durable and waterproof repair. Photo: John H. Myers*

missing sections or decayed ends of members. Profiles can be duplicated using hand molds, which are created by pressing a ball of patching compound over a sound section of the profile which has been rubbed with butcher's wax. This can be a very efficient technique where there are many typical repairs to be done. Technical Preservation Services has published *Epoxies for Wood Repairs in Historic Buildings* (see Additional Reading section at end), which discusses the theory and techniques of epoxy repairs. The process has been widely used and proven in marine applications; and proprietary products are available at hardware and marine supply stores. Although epoxy materials may be comparatively expensive, they hold the promise of being among the most durable and long lasting materials available for wood repair.

Any of the three techniques discussed can stabilize and restore the appearance of the window unit. There are times, however, when the degree of deterioration is so advanced that stabilization is impractical, and the only way to retain some of the original fabric is to replace damaged parts.

Repair Class III: Splices and Parts Replacement

When parts of the frame or sash are so badly deteriorated that they cannot be stabilized there are methods which permit the retention of some of the existing or original fabric. These methods involve replacing the deteriorated parts with new matching pieces, or splicing new wood into existing members. The techniques require more skill and are more expensive than any of the previously discussed alternatives. It is necessary to remove the sash and/or the affected parts of the frame and have a carpenter or woodworking mill reproduce the damaged or missing parts. Most millwork firms can duplicate parts, such as muntins, bottom rails, or sills, which can then be incorporated into the existing window, but it may be necessary to shop around because there are several factors controlling the practicality of this approach. Some woodworking mills do not like to repair old sash because nails or other foreign objects in the sash can damage expensive knives (which cost far more than their profits on small repair jobs); others do not have cutting knives to duplicate muntin profiles. Some firms prefer to concentrate on larger jobs with more profit potential, and some may not have a craftsman who can duplicate the parts. A little searching should locate a firm which will do the job, and at a reasonable price. If such a firm does not exist locally, there are firms which undertake this kind of repair and ship nationwide. It is possible, however, for the advanced do-it-yourselfer or craftsman with a table saw to duplicate moulding profiles using techniques discussed by Gordie Whittington in "Simplified Methods for Reproducing Wood Mouldings," *Bulletin* of the Association for Preservation Technology, Vol. III, No. 4, 1971, or illustrated more recently in *The Old House*, Time-Life Books, Alexandria, Virginia, 1979.

The repairs discussed in this section involve window frames which may be in very deteriorated condition, possibly requiring removal; therefore, caution is in order. The actual construction of wooden window frames and sash is not complicated. Pegged mortise and tenon units can be disassembled easily, *if* the units are out of the building. The installation or connection of some frames to the surrounding structure, especially masonry walls, can complicate the work immeasurably, and may even require dismantling of the wall. It may be useful, therefore, to take the following approach to frame repair: 1) conduct regular maintenance of sound frames to achieve the longest life possible, 2) make necessary repairs in place wherever possible, using stabilization and splicing techniques, and 3) if removal is necessary, thoroughly investigate the structural detailing and seek appropriate professional consultation.

Another alternative may be considered if parts replacement is required, and that is sash replacement. If extensive replacement of parts is necessary and the job becomes prohibitively expensive it may be more practical to purchase new sash which can be installed into the existing frames. Such sash are available as exact custom reproductions, reasonable facsimiles (custom windows with similar profiles), and contemporary wooden sash which are similar in appearance. There are companies which still manufacture high quality wooden sash which would duplicate most historic sash. A few calls to local building suppliers may provide a source of appropriate replacement sash, but if not, check with local historical associations, the state historic preservation office, or preservation related magazines and supply catalogs for information.

If a rehabilitation project has a large number of windows such as a commercial building or an industrial complex, there may be less of a problem arriving at a solution. Once the evaluation of the windows is completed and the scope of the work is known, there may be a potential economy of scale. Woodworking mills may be interested in the work from a large project; new sash in volume may be considerably less expensive per unit; crews can be assembled and trained on site to perform all of the window repairs; and a few extensive repairs can be absorbed (without undue burden) into the total budget for a large number of sound windows. While it may be expensive for the average historic home owner to pay seventy dollars or more for a mill to grind a custom knife to duplicate four or five bad muntins, that cost becomes negligible on large commercial projects which may have several hundred windows.

Most windows should not require the extensive repairs discussed in this section. The ones which do are usually in buildings which have been abandoned for long periods or have totally lacked maintenance for years. It is necessary to thoroughly investigate the alternatives for windows which do require extensive repairs to arrive at a solution which retains historic significance and is also economically feasible. Even for projects requiring repairs identified in this section, if the percentage of parts replacement per window is low, or the number of windows requiring repair is small, repair can still be a cost effective solution.

Weatherization

A window which is repaired should be made as energy efficient as possible by the use of appropriate weatherstripping to reduce air infiltration. A wide variety of products are available to assist in this task. Felt may be fastened to the top, bottom, and meeting rails, but may have the disadvantage of absorbing and holding moisture, particularly at the bottom rail. Rolled vinyl strips may also be tacked into place in appropriate locations to reduce infiltration. Metal strips or new plastic spring strips may be used on the rails and, if space permits, in

the channels between the sash and jamb. Weatherstripping is a historic treatment, but old weatherstripping (felt) is not likely to perform very satisfactorily. Appropriate contemporary weatherstripping should be considered an integral part of the repair process for windows. The use of sash locks installed on the meeting rail will insure that the sash are kept tightly closed so that the weatherstripping will function more effectively to reduce infiltration. Although such locks will not always be historically accurate, they will usually be viewed as an acceptable contemporary modification in the interest of improved thermal performance.

Many styles of storm windows are available to improve the thermal performance of existing windows. The use of exterior storm windows should be investigated whenever feasible because they are thermally efficient, cost-effective, reversible, and allow the retention of original windows (see "Preservation Briefs: 3"). Storm window frames may be made of wood, aluminum, vinyl, or plastic; however, the use of unfinished aluminum storms should be avoided. The visual impact of storms may be minimized by selecting colors which match existing trim color. Arched top storms are available for windows with special shapes. Although interior storm windows appear to offer an attractive option for achieving double glazing with minimal visual impact, the potential for damaging condensation problems must be addressed. Moisture which becomes trapped between the layers of glazing can condense on the colder, outer prime window, potentially leading to deterioration. The correct approach to using interior storms is to create a seal on the interior storm while allowing some ventilation around the prime window. In actual practice, the creation of such a durable, airtight seal is difficult.

Window Replacement

Although the retention of original or existing windows is always desirable and this **Brief** is intended to encourage that goal, there is a point when the condition of a window may clearly indicate replacement. The decision process for selecting replacement windows should *not* begin with a survey of contemporary window products which are available as replacements, but should begin with a look at the windows which are being replaced. Attempt to understand the contribution of the window(s) to the appearance of the facade including: 1) the pattern of the openings and their size; 2) proportions of the frame and sash; 3) configuration of window panes; 4) muntin profiles; 5) type of wood; 6) paint color; 7) characteristics of the glass; and 8) associated details such as arched tops, hoods, or other decorative elements. Develop an understanding of how the window reflects the period, style, or regional characteristics of the building, or represents technological development.

Armed with an awareness of the significance of the existing window, begin to search for a replacement which retains as much of the character of the historic window as possible. There are many sources of suitable new windows. Continue looking until an acceptable replacement can be found. Check building supply firms, local woodworking mills, carpenters, preservation oriented magazines, or catalogs or suppliers of old building materials, for product information. Local historical associations and state historic preservation offices may be good sources of information on products which have been used successfully in preservation projects.

Consider energy efficiency as one of the factors for replacements, but do not let it dominate the issue. Energy conservation is no excuse for the wholesale destruction of historic windows which can be made thermally efficient by historically and aesthetically acceptable means. In fact, a historic wooden window with a high quality storm window added should thermally outperform a new double-glazed metal window which does not have thermal breaks (insulation between the inner and outer frames intended to break the path of heat flow). This occurs because the wood has far better insulating value than the metal, and in addition many historic windows have high ratios of wood to glass, thus reducing the area of highest heat transfer. One measure of heat transfer is the U-value, the number of Btu's per hour transferred through a square foot of material. When comparing thermal performance, the lower the U-value the better the performance. According to *ASHRAE 1977 Fundamentals*, the U-values for single glazed wooden windows range from 0.88 to 0.99. The addition of a storm window should reduce these figures to a range of 0.44 to 0.49. A non-thermal break, double-glazed metal window has a U-value of about 0.6.

Conclusion

Technical Preservation Services recommends the retention and repair of original windows whenever possible. We believe that the repair and weatherization of existing wooden windows is more practical than most people realize, and that many windows are unfortunately replaced because of a lack of awareness of techniques for evaluation, repair, and weatherization. Wooden windows which are repaired and properly maintained will have greatly extended service lives while contributing to the historic character of the building. Thus, an important element of a building's significance will have been preserved for the future.

Additional Reading

ASHRAE Handbook-1977 Fundamentals. New York: American Society of Heating, Refrigerating and Air-conditioning Engineers, 1978 (chapter 26).

Ferro, Maximillian. *Preservation: Present Pathway to Fall River's Future*. Fall River, Massachusetts: City of Fall River, 1979 (chapter 7).

"Fixing Double-Hung Windows." *Old House Journal* (no. 12, 1979): 135.

Look, David W. "Preservation Briefs: 10 Paint Removal from Historic Woodwork." Washington, DC: Technical Preservation Services, U.S. Department of the Interior, forthcoming.

Morrison, Hugh. *Early American Architecture*. New York: Oxford University Press, 1952.

Phillips, Morgan, and Selwyn, Judith. *Epoxies for Wood Repairs in Historic Buildings*. Washington, DC: Technical Preservation Services, U.S. Department of the Interior (Government Printing Office, Stock No. 024-016-00095-1), 1978.

Rehab Right. Oakland, California: City of Oakland Planning Department, 1978 (pp. 78-83).

"Sealing Leaky Windows." *Old House Journal* (no. 1, 1973): 5.

Smith, Baird M. "Preservation Briefs: 3 Conserving Energy in Historic Buildings." Washington, DC: Technical Preservation Services, U.S. Department of the Interior, 1978.

1981

CITY OF FERNANDINA BEACH **Michelle D. Forstrom**
Code Enforcement Department Code Enforcement Manager

CODE ENFORCEMENT & APPEALS BOARD
NOTICE OF VIOLATION/NOTICE OF HEARING

March 21, 2018 Case Number: 18-00044

Cert. #:7012 1640 0001 5937 9623

IN THE MATTER OF:

Front Street Property LLC
2970 New Paces Ferry Road
Atlanta, GA 30339

PREMISES: 101 North 2nd Street, Fernandina Beach, FL 32034

The brief legal description of the real property upon which this violation occurred is: **BLOCK 2 LOTS 1 THRU 34 PT OR 1916/391 CITY OF FDNA BEACH, Fernandina Beach, FL 32034.**

The Code Enforcement office of the City of Fernandina Beach has previously notified you of alleged violation(s) of the City of Fernandina Beach Code of Ordinances and contends that the following violation(s) exist: **42-116 (a & b) Cleaning of lots; Maintenance of Structures; and 8.03.07 Demolition by Neglect** of the City of Fernandina Beach Land Development Code (These can be found on the City's website: www.fbfl.us/code). This letter specifically addresses the overgrown grounds, and the disrepair of the structure, which includes: graffiti; failing paint; missing window sashes; broken window panes; deterioration of window frames; biological growth on the walls; vegetation against the building and in paved areas; missing downspouts (which is shedding water directly onto masonry walls/foundation); damaged scuppers; and roof failure.

Therefore, you are hereby directed to remedy and discontinue the problems by: cutting the grounds; repairing the structure by removing the graffiti; painting the structure; replace the missing window sashes, the window panes, and window frames; remove the biological growth on the walls; remove the vegetation against the building and in the paved areas; replace the missing downspouts and damage scuppers; and replace the roof (please be sure to apply for a certificate of approval from the Historic District Council, and apply for all required building permits), by April 20th, 2017 thirty (30) days from the date of this notice, and if this office is not notified of compliance by you, this department will refer this matter to the Code Enforcement & Appeals Board for legal action at the date and time listed below.

DATE: May 2, 2018
TIME: 5:30 p.m.
LOCATION: City Commission Chambers, 204 Ash Street
Fernandina Beach, Florida 32034

YOU HAVE THE RIGHT to appear before the Board at that time to answer and defend the allegations that you have violated the above cited provision(s) of the Code of Ordinances.

If the Board finds that you are in violation, they will consider all appropriate actions required to bring the property into compliance, which may include, but is not limited to demolition; the recovery of fees, and fines which may be imposed for the duration of the non-compliance (NOT TO EXCEED $250.00 per day, per violation).

Please be advised that the Rules of the Code Enforcement & Appeals Board and the Code of Ordinances of the City of Fernandina Beach govern the procedures of the Board.

PLEASE GOVERN YOUR SELF ACCORDINGLY.

If you have any questions, please feel free to contact me (please see my attached business card for contact information).

Michelle D. Forstrom
Code Enforcement Manager

Hearing impaired or non-English speaking individuals may request a language or sign interpreter at least (10) ten working days prior to this hearing. Please contact the City Clerk's office at (904) 310-3115.

U.S. Postal Service™ Code Enf. COFB.
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com®
OFFICIAL USE

Postage	$ .47
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.75
Restricted Delivery Fee (Endorsement Required)	
Total	6.67

Postmark Here
MAR 21 2018
USPS 32034
ATLANTA GA BCH FL

7012 1640 0001 5937 9623

Sent To FRONT STREET PROPERTY LLC
Street or PO 2970 NEW PACES FERRY ROAD
City, S ATLANTA, GA 30339

PS Form ... Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

FRONT STREET PROPERTY LLC
2970 NEW PACES FERRY ROAD
ATLANTA, GA 30339

9590 9402 3035 7124 0450 35

2. Article Number *(Transfer from service label)*
7012 1640 0001 5937 9623

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Richard Goodrich ☐ Agent ☒ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery 3-26-18

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☑ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

estricted Delivery
(over $500)

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

Preservation & Restoration of the Standard Marine Building
Amounts spent to date

Engineering Evaluation

Construction Solutions, Inc. 12/12/16	$ 2,500

Interior cleanup, restoration, roof repair & Securing the building

Chism Development Company	$ 4,531
Starfish Design	$ 1,415
Starfish Design	$ 1,300
Chism Development Co.	$ 250
Bruce Porter (interior cleanup)	$10,260
Cliff Brock (exterior securing & cleanup)	$ 3,229
Advance Disposal (4 dumpsters)	$ 1,425

Fencing & ground maintenance

Armstrong Fence	$ 610
Armstrong Fence	$ 610
Cliff Brock	$ 1,826
Grass & Grass (mowing 6 invoices)	$ 1,000
Shawn Deluca (bush hogging)	$ 200
Total (work)	$29,156

Management & Supervision (of the above 7/16-7/17) $12,000

Total including management & supervision $41,156

CONSTRUCTION SOLUTIONS, INC
ENGINEERING • TESTING • PROJECT MANAGEMENT
www.constructionsolutions.cc

December 12, 2016

Mr. Anthony S. Quattrochi, Broker Manager
JDM Real Estate Services, LLC
1866 Carnation Street
Fernandina Beach, Florida 32034

via electronic mail: tquattrochi@comcast.net

Engineering Evaluation Report
Standard Marine Building
101 North 2nd Street
Fernandina Beach, Florida 32034

Construction Solutions, Inc. ("CSI") was recently requested to provide an opinion of the condition of one of the existing buildings at the address noted above. There are three buildings on the site; a two-story building, a one-story block building, and a one-story metal framed building. This report only covers the two-story building. The following is a summary of our findings as well as our recommendations.

Observations:

Jeff Sellers and Al Henderson, of CSI, visited the site on December 7, 2016 to collect information about the building and observe the present conditions. The building in question was constructed about 1882. The exterior walls are brick with direct applied stucco on the outside. The roof and second floor are constructed using wood framing. It currently has a concrete slab on the first floor, but most likely had a wood framed floor originally.

There is a row of columns with beams running down the center of the building supporting the second floor framing. The roof framing spans completely across the building. It is our understanding that the second floor and roof framing will be removed and replaced, so we will not comment on the existing framing.

The exterior wall is a triple wythe solid brick wall that is approximately 13 inches thick. No excavations were performed around the perimeter of the building, but it is normal to find a brick foundation at least twice as wide as the width of the wall in a building of this age.

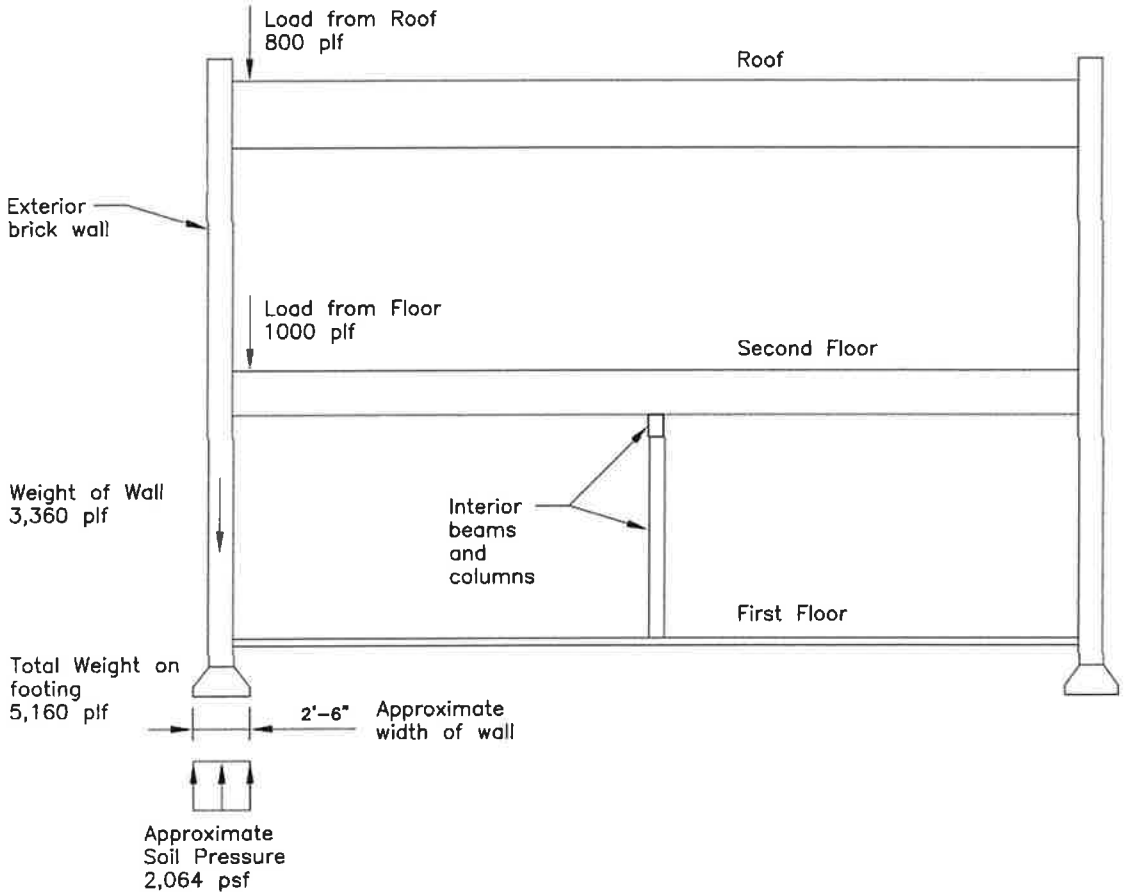
The outside of the exterior walls is visible on all sides. Some cracking was noted in the exterior stucco. This cracking likely goes through into the brick. Some of the brick was visible on the interior. Erosion of the mortar between the bricks was evident at some locations on the interior walls in these exposed areas.

Findings:

Calculations were performed to determine the loads on the walls and foundations. We used the following parameters.

We considered:

- 20 psf dead load (DL) for the roof and floor each
- 20 psf live load (LL) on the roof
- 80 psf live load (LL) on the floor
- The exterior wall will weigh approximately 120 psf



From the results, one can see that just the weight of the wall greatly exceeds the floor and roof loads.

No digging was performed around the existing footings, but we can assume that it is approximately 2'-6" wide. Considering this, the soil pressure under the footing is: 5,160 plf / 2.5 ft = 2,064 pounds per square foot. This soil pressure of approximately 2000 pounds per square foot bearing pressure is reasonable for this area and the type of building construction.

A preliminary geotechnical investigation was performed on this site by Universal Engineering Sciences of Jacksonville, Florida. Their report is dated February 22, 2006. Boring B-6 is directly adjacent to the west wall of the two-story building. In the boring, dense sand is found down to a depth of approximately 12 feet below the grade, underlain with soft clay. While no specifics were given for allowable soil pressures, the report did indicate that some areas of the site could support lightly loaded structures on shallow foundations. Boring B-6 is included in this suggestion. The underlying soft clay can be the reason that the building has experienced some settling over the years.

Conclusions:

- The existing walls appear to be performing adequately for their age. They have supported loads for many years and will continue to do so as long as there are no catastrophic events and as long as the loads do not change perceptibly.
- Some cracking is visible in the exterior walls. These cracks can be injected with epoxy to help with the strength of the wall and for weather tightness.
- Soft mortar and/or loss of mortar between the bricks was noted on the interior of the building. This can be remedied by digging out the soft mortar and replacing it with new mortar.

Recommendations:

We recommend that when the floor and roof get rebuilt, the same configuration as exists be used for the new framing. In other words, the second-floor framing should be broken into two equal halves with beams and columns running down the center of the building. We do not recommend spanning the floor all the way across and connecting to the exterior walls. The load would be too much for the old brick and connections would be very hard to make. We also recommend that the building continue to be used in as a similar purpose with the same types of floor loads noted previously.

Should the owner want more open space near the center of the floor plan, or want to support special or extra heavy loads on the second floor we recommend that new framing be designed to support these loads while keeping the reactions from this new framing approximately the same or less than the existing loads on the existing walls. Any new columns added need to be far enough inside the existing walls so that the new footings do not interfere with the existing wall footings or exert soil bearing pressure on the existing footings.

We appreciate the opportunity to provide our professional services. If you have any questions concerning this report, please do not hesitate to contact us.

Sincerely,

Richard M. Renstrom, PE
Florida P. E. 37061
Construction Solutions, Inc.

Preservation & Restoration of the Standard Marine Building
Amounts spent to date

Engineering Evaluation

Construction Solutions, Inc. 12/12/16	$ 2,500

Interior cleanup, restoration, roof repair & Securing the building

Chism Development Company	$ 4,531
Starfish Design	$ 1,415
Starfish Design	$ 1,300
Chism Development Co.	$ 250
Bruce Porter (interior cleanup)	$10,260
Cliff Brock (exterior securing & cleanup)	$ 3,229
Advance Disposal (4 dumpsters)	$ 1,425

Fencing & ground maintenance

Armstrong Fence	$ 610
Armstrong Fence	$ 610
Cliff Brock	$ 1,826
Grass & Grass (mowing 6 invoices)	$ 1,000
Shawn Deluca (bush hogging)	$ 200
Total (work)	$29,156

Management & Supervision (of the above 7/16-7/17) $12,000

Total including management & supervision $41,156

Before Cleanup

Stan Mar
MARINE SUPPLIES
ENTRANCE

Tony Quattrochi

To: Richard (Dick) Goodsell

Dry as a bone!!

February 6, 2017 at 2:33 PM
Inbox - Gmail

TQ

After Cleanup

From: **Tquattrochi** tquattrochi@comcast.net
Subject: Dry as a bone!!
Date: February 6, 2017 at 2:33 PM
To: Goodsell Dick dickgoodsell5@gmail.com

CONSTRUCTION SOLUTIONS, INC
ENGINEERING • TESTING • PROJECT MANAGEMENT
www.constructionsolutions.cc

April 18, 2018

Mr. Richard Goodsell
2970 New Paces Ferry Road
Atlanta, Georgia 30339

via electronic mail: dickgoodsell5@gmail.com

Engineering Evaluation Report
Standard Marine Building
101 North 2nd Street
Fernandina Beach, Florida 32034

Construction Solutions, Inc. ("CSI") was recently requested to provide a follow up report with our opinion of the current condition of one of the existing buildings at the address noted above. Our original report is from December of 2016 and that report concerns this same building.

There are three buildings on the site; a two-story building, a one-story block building, and a one-story metal framed building. This report only covers the two-story building. The following is a summary of our findings as well as our recommendations.

Observations:
Myself and Nathan Cutajar, of CSI, visited the site on April 18, 2018 to observe the present conditions. The building in question was constructed about 1882 and has plan dimensions of approximately 100' by 40'.

The exterior walls are solid brick approximately 13" thick, with direct applied stucco on the outside. The roof and second floor are constructed using wood framing. It currently has a concrete slab on the first floor, but most likely it originally had a wood framed floor. There is a row of columns with beams running down the center of the building supporting the second floor framing. The roof framing spans completely across the building.

The cracking seen in the exterior stucco during our previous visit does not appear to have gotten worse since our last visit to the site.

Several places were visible where the roofing has failed and water has leaked through the roof and floor framing down to the first floor. At the locations of water intrusion, the water has caused the deck and ceiling members to become decayed, but none of the floor or roof joists have fallen into the space.

A few spots on the first floor had missing ceiling boards that allowed us to see the floor joists. There were extremely rotted floor joists visible in these few locations. Because of the damage visible from the first floor, we

did not walk around on the second floor. However, we would expect to see rotted joists in select locations on the roof framing also.

Currently, the floor and roof joists have not rotted to the point of falling. We did not see any joists that had come completely loose from the brick wall and fallen or sagged.

Building Stability:
A building relies on the combined effect of walls, floors and roofs, vertical and horizontal elements, to be stable. These elements need to remain connected to each other to provide a stable building. If you lose the connections between elements, the building becomes unstable.

In buildings of this era, the floor and roof joists were often built into the brick walls as the building was being constructed. The joists being placed tightly into these pockets in the brick formed the connection between the brick and joist. Since most of the joists are still intact, this connection between wall and floor is still mostly intact.

Conclusions:
The building did survive Hurricane Irma last year which indicates more than any observations or calculations can tell us, that the overall building is still fairly solid. Currently, we feel that the building is stable and not on the verge of collapse. Although, with the holes in the roof and the constant wetting of the wood members, it is unknown how long the floor or roof framing will remain intact. Loss of a large section of either the floor or the roof framing could allow the building to become unstable if left unattended. We recommend that the owner continue to monitor this condition to ensure the building does not become unstable.

Recommendations:
While the building is in need of repair and/or renovation, is still in a fairly solid structural condition and there is no immediate risk of collapse. We recommend that the owner formulate a long term plan to preserve this historic building. We would not recommend walking on the second floor or the roof without first shoring up the framing.

We suggest that the repairs and renovations of the exterior of the building be incorporated into the long-term plans for the building. At present, we have not noted any deterioration in the exterior walls of the building since our last site visit in December of 2016, which, considering an intervening Hurricane, indicates that the exterior walls remain structurally sound.

We appreciate the opportunity to provide our professional services. If you have any questions concerning this report, please do not hesitate to contact us.

Sincerely,

Richard M. Renstrom
4-18-18

RICHARD MICHAEL RENSTROM LICENSE No. 37061 STATE OF FLORIDA PROFESSIONAL ENGINEER

Richard M. Renstrom, PE
Florida P. E. 37061
Construction Solutions, Inc.

Photo 1 – Southeast corner of building.

Photo 2 – First floor showing ceiling damage and where water has pooled.

Photo 3 – Wood beam above first floor still in good condition.

Photo 4 – Wider view of first floor with ceiling damage.

Photo 5 – Second floor damage due to water intrusion.

Photo 6 – Wider view of second floor.

4 26 2018 07 24

4 26.2018 07:27

4 26 2018 07 24

4.26.2018 07:26

4.26.2018 07:28

4 26.2018 07:29

4.26.2018 07:28

4 26.2018 07:29

4 26 2018 07 33

4 26 2018 07 30

4 26 2018 07 33

City of Fernandina Beach

FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER OF ENFORCEMENT

Date: May 2, 2018
Case Number: 18-00044

IN THE MATTER OF: Respondent Name: Richard Goodsell, Front Street Property LLC
Respondent Address: 2970 New Paces Ferry Road, Atlanta, GA 30339

This case having come before the Code Enforcement & Appeals Board of the City of Fernandina Beach on May 2, 2018, a violation hearing having been held, and the Board having heard testimony, does hereby make the following finding of facts, and conclusions of law therefore imposing the following order and penalty:

SECTION 1 - FINDINGS OF FACT

1. The Respondent was properly served notice of these proceedings as required by law on March 21, 2018, and the Respondent's representative was present at the hearing.

2. The real property on which the violations occurred at 101 North 2nd Street, Fernandina Beach, FL and a brief legal description being **BLOCK 2 LOTS 1 THRU PT 34 PT OR 1916/391 CITY OF FDNA BEACH, Fernandina Beach, FL 32034.**

3. The Respondent is the owner of record of the aforementioned real property.

4. The Respondent violated sections of the Fernandina Beach Code of Ordinances: **Section 42-116 (a & b) cleaning of lots; maintenance of structures.**

SECTION 2 - CONCLUSION OF LAW & IMPOSITION OF FINE

1. Based on the foregoing findings of fact, the **Board voted to find the property in violation of Section 42-116 (a & b), to assess administrative fees, and to give the property owner until June 7, 2018, to complete the following remedies: to board up broken windows, clean vegetation, and remove or repair downspouts and scuppers. If this work is not completed by June 7, 2018, the Board may impose a fine of $250 per violation per day, beginning June 8, 2018.**

2. The City of Fernandina Beach shall record a certified copy of this order in the public records.

3. The Code Enforcement and Appeals Board shall review this determination at its June 7, 2018 meeting and determine whether the imposition of fines and/or other penalties is necessary.

SECTION 3 - CERTIFICATION OF VOTE

Done and ordered May 2, 2018 at the City of Fernandina Beach, Nassau County, Florida Code Enforcement & Appeals Board Hearing.

By: _____
Chair, Buddy Boyd

**Florida Statute 162.11 Appeals.—An aggrieved party, including the local governing body, may appeal a final administrative order of an enforcement board to the circuit court. Such an appeal shall not be a hearing de novo but shall be limited to appellate review of the record created before the enforcement board. An appeal shall be filed within 30 days of the execution of the order to be appealed.*

May 11, 2018

Code Enforcement

I David Cook would like to ask for a FINE reduction, due to the city Property is in similar condition As my property was in 2010, I was waiting for disclaimer from State of Fla City is Now waiting for Permits from State DEP

Thanks

David Cook

904-753-1703

INSTR # 201008776, Book 1670, Page 1267 Doc Type UNK, Pages 2, Recorded 04/07/2010 at 09:25 AM, John A Crawford, Nassau County Clerk of Circuit Court, Rec. Fee $18.50

City Of Fernandina Beach
204 Ash Street
Fernandina Beach, Florida 32034

City of Fernandina Beach

CODE ENFORCEMENT

FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER OF ENFORCEMENT

Date: April 1, 2010
Case Number: 07-00080

IN THE MATTER OF: Respondent Name: David Emmett Cook, Jr.
Respondent Address: 500 Front Street, Fernandina Beach, FL 32034

This case having come before the Code Enforcement & Appeals Board of the City of Fernandina Beach on April 1, 2010 a violation hearing having been held, and the Board having heard, under oath, the testimony of the respective parties not present and the evidence presented, the respondent having not appeared, does hereby make the following finding of facts, and conclusions of law therefore imposing the following order and penalty:

SECTION 1
FINDINGS OF FACT

1. The Respondent was properly served notice of these proceedings as required by law on February 25, 2010, and he was not resent at the hearing.

2. The real property on which the alleged violation occurred is located at 500 Front Street, Fernandina Beach, FL and a brief legal description being **LOTS 37, 38, 39, 40, & PT OF LOT 41 PT L/E OR 479/482 & PT OR 1303/1 & OR 1303/7 & OR 1303/9 WATER LOTS, Fernandina Beach, FL.**

3. The Respondent is the owner of record of the aforementioned real property.

4. The Respondent is charged with a building in the state of disrepair (i.e. roof & structure).

5. Section 42-116(b) of the City of Fernandina Beach Code of Ordinances, Cleaning of lots; maintenance of structures.

   (b) All owners of property where structures have been placed shall maintain their structures in such a manner as not to present an unsightly appearance nor create a hazard to the public, provide a sanctuary for illegal activities, or be a danger to surrounding property.

6. Upon re-inspection on April 1, 2010, the code compliance officer found that this property was in violation.

7. Pursuant to Section 42-116(b) of the City of Fernandina Beach Code of Ordinances, the respondent is in continued violation.

FINES AND FEES INCURRED FROM 500 SOUTH FRONT STREET AS OF 01/10/11

DATES	# OF DAYS	FINE PER DAY	TOTAL
APRIL 8 THROUGH APRIL 30, 2010	29	$25.00	**$725.00**
MAY 1 THROUGH MAY 4, 2010	4	$25.00	**$100.00**

TOTAL FINES	**$825.00**
TOTAL FEES	**$383.79**
GRAND TOTAL DUE AS OF JANUARY 10, 2011	**$1,208.79**

PAID

Code Case # 07-00080

Pd. in Full

Pd ck # 353

4/5/2018

$ 1208.79

STAFF REPORT
Case 17-00069
City of Fernandina Beach Code Enforcement & Appeals Board
January 4, 2018

Violation Information

Owner	Dale Hair & Steven Hair & Larissa H Kwiatkowski ET AL, 818 San Fernando Street, Fernandina Beach, FL 32034
Violation	City of Fernandina Beach Code of Ordinances, Section 42-116 (a&b), cleaning of lots; maintenance of structures; 42-173 Wrecked or Inoperable motor vehicles on private property declared a nuisance and prohibited; and 7.01.05 C & D, Specific Parking Restrictions of Commercial Vehicles, Recreation Vehicles, Boats, and Trailers of the City of Fernandina Beach Land Development Code.
Location:	818 San Fernando Street, Fernandina Beach FL 32034

Summary and Background Information

September 26, 2017, I received a complaint that this property had junk, inoperable vehicles, trailers, and boats in the yard; that the house was falling apart through neglect. I inspected the property and confirmed that the roof & windows needed repair; many inoperable vehicles in the yard; junk in the yard; overgrown yard; and a boat on a trailer and another trailer with inoperable vehicles on it, parked in the front yard. I took pictures. I left a "Notice of Visit" door hanger and gave them twenty-one (21) days to bring the property into compliance.

October 17, 2017, I received a voicemail from Dale, the property owner, to call him. I returned his call and left a message. He never called me back again.

November 29, 2017, I re-inspected the property and found the property was still in violation. It appeared that no attempt has been made to bring this property into compliance. I took pictures.

December 4, 2017, I sent a Notice of Violation/Notice of Hearing letter with fourteen (14) days to bring the property into compliance.

December 18, 2017, I re-inspected the property. No progress had been made. I took pictures.

Conclusion

I have not heard anything back from the property owner. The property is still in violation.

Recommendation

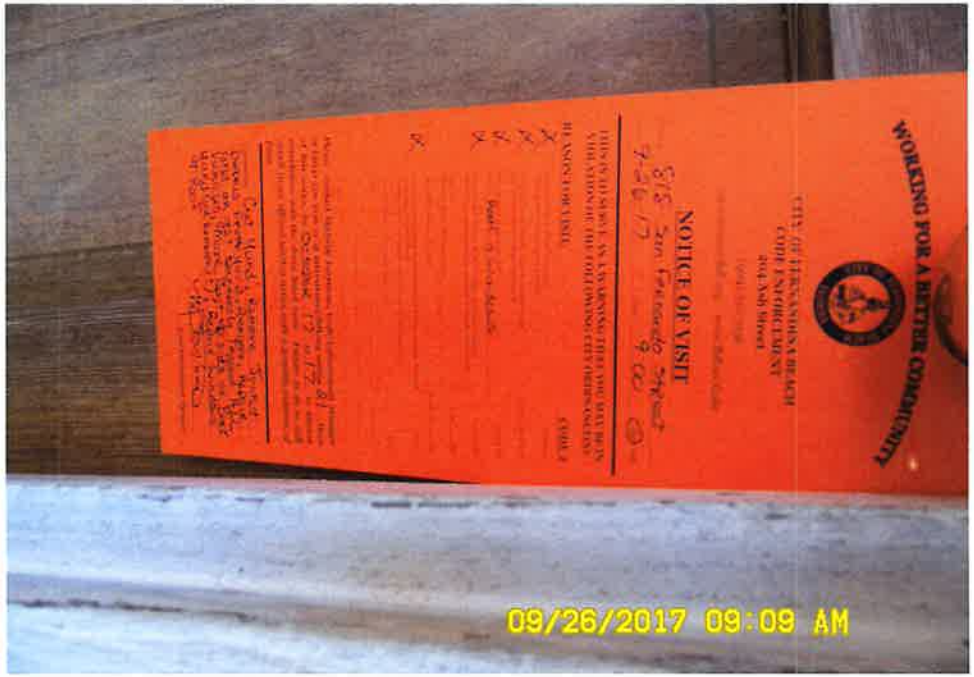
Staff recommends assessing a $50.00 fine per day, per vehicle; a $100.00 fine per day, per violation (overgrown yard, junk in the yard, disrepair of structure/house, boat and trailers parked in front yard) and administrative fees incurred until compliance is achieved.

Submitted by:

Michelle D. Forstrom
Code Enforcement Manager

09/26/2017 09:00 AM

09/26/2017 08:59 AM


WORKING FOR A BETTER COMMUNITY
NOTICE OF VISIT
09/26/2017 09:09 AM

09/26/2017 08:59 AM

09/26/2017 08:57 AM

818
09/26/2017 08:57 AM

09/26/2017 08:57 AM

09/26/2017 08:58 AM

FLORIDA
11-15
BK7 787
ANTIQUE
09/26/2017 08:59 AM

09/26/2017 08:58 AM

10.19.2017 09:19

10.19.2017 09:20

818
10.19.2017 09:19

STOP
10.19.2017 09:20

10. 19. 2017 09:20

10. 19. 2017 09:21

10. 19. 2017 09:21

10. 19. 2017 09:21

10 19 2017 09:22

10 19 2017 09:21

11 29 2017 11 16

11 29 2017 11 17

818
11 29 2017 11 16

11 29 2017 11 17

11.29.2017 11:17

11.29.2017 11:18

WRANGLER
11.29.2017 11:17

11.29.2017 11:18

11 29 2017 11 18

11 29 2017 11 19

11 29 2017 11 19

FLORIDA
BK7 787
ANTIQUE
11 29 2017 11 19

11 29 2017 11 21

11.29.2017 11:22

11 29 2017 11:20

11 29 2017 11:22

11.29.2017 11:23

11.29.2017 11:23

CITY OF FERNANDINA BEACH **Michelle D. Forstrom**
Code Enforcement Department Code Enforcement Manager

CODE ENFORCEMENT & APPEALS BOARD
NOTICE OF VIOLATION/NOTICE OF HEARING

December 4, 2017 Case Number: 17-00069

Cert. #:7012 1640 0001 5937 9609

IN THE MATTER OF:

Dale Hair & Steven Hair &
Larissa H Kwiatkowski ET AL
818 San Fernando Street
Fernandina Beach, FL 32034

PREMISES: 818 San Fernando Street, Fernandina Beach, FL 32034

The brief legal description of the real property upon which this violation occurred is: **BLK 5 LOTS 1, 2 & 5 IN OR 2141/1501 OLD TOWN S/D UNR, Fernandina Beach, FL 32034.**

The Code Enforcement office of the City of Fernandina Beach has previously notified you of alleged violation(s) of the City of Fernandina Beach Code of Ordinances and contends that the following violation(s) exist: **42-116 (a & b) Cleaning of lots; Maintenance of Structures; 42-173 Wrecked or Inoperable motor vehicles on private property declared a nuisance and prohibited; and 7.01.05 C & D Specific Parking Restrictions of Commercial Vehicles, Recreational Vehicles, Boats, and Trailers** of the City of Fernandina Beach Land Development Code (These can be found on the City's website: www.fbfl.us/code). This letter specifically addresses the overgrown back yard; the junk and debris in the yard; the inoperable vehicles in the yard and on trailers; the trailers and boats parked in the front yard with expired or no tags; and the disrepair of the structure (windows and roof).

Therefore, you are hereby directed to remedy and discontinue the problems by: cutting the yard; removing of the all junk and debris in the yard; removing, repairing and/or currently tag the vehicles, the trailers and the boats that are parked on this property (all permanently parked boats & trailers on this property must be legal & operational, and parked in the side or back yard or in an enclosed structure); and repairing the structure (please be sure to apply for all required building permits), by December 18th, 2017 fourteen (14) days from the date of this notice, and if this office is not notified of compliance by you, this department will refer this matter to the Code Enforcement & Appeals Board for legal action at the date and time listed below.

DATE: January 4, 2018
TIME: 5:30 p.m.
LOCATION: City Commission Chambers, 204 Ash Street
Fernandina Beach, Florida 32034

YOU HAVE THE RIGHT to appear before the Board at that time to answer and defend the allegations that you have violated the above cited provision(s) of the Code of Ordinances.

If the Board finds that you are in violation, they will consider all appropriate actions required to bring the property into compliance, which may include, but is not limited the recovery of fees, and fines which may be imposed for the duration of the non-compliance (NOT TO EXCEED $250.00 per day, per violation).

Please be advised that the Rules of the Code Enforcement & Appeals Board and the Code of Ordinances of the City of Fernandina Beach govern the procedures of the Board.

PLEASE GOVERN YOUR SELF ACCORDINGLY.

If you have any questions, please feel free to contact me (please see my attached business card for contact information).

Michelle D. Forstrom
Code Enforcement Manager

Hearing impaired or non-English speaking individuals may request a language or sign interpreter at least (10) ten working days prior to this hearing. Please contact the City Clerk's office at (904) 310-3115.

U.S. Postal Service™ COFB code ENF
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

OFFICIAL USE

Postage	$ .46
Certified Fee	3.35
Return Receipt Fee (Endorsement Required)	2.75
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.56

FERNANDINA BCH FL 32034 DEC 04 2015 Postmark Here

7012 1640 0001 5937 9609

Sent To
Street, A
or PO Bo
City, Sta

DALE HAIR & STEVEN HAIR &
LARISSA H KWIATKOWSKI ET AL
818 SAN FERNANDO STREET
FERNANDINA BEACH, FL 32034

PS Form ctions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

DALE HAIR & STEVEN HAIR &
LARISSA H KWIATKOWSKI ET AL
818 SAN FERNANDO STREET
FERNANDINA BEACH, FL 32034

9590 9402 3035 7124 0450 11

2. Article Number *(Transfer from service label)*
7012 1640 0001 5937 9609

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
☐ Agent
☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☒ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

l Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

12 18 2017 09:37

12 18 2017 09:37

12 18 2017 09:37

12 18 2017 09:38

12 18 2017 09:38

12 18 2017 09:39

Jeep
12 18 2017 09:38

12 18 2017 09:39

12 18 2017 09 40

12 18 2017

12 18 2017 09 39

12 18 2017 09 40

12.18.2017 09:40

FLORIDA
BK7 787
ANTIQUE
12.18.2017 09:40

City of Fernandina Beach

FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER OF ENFORCEMENT

Date: January 5, 2018
Case Number: 17-00069

IN THE MATTER OF: Respondent Name: Dale Hair & Steven Hair & Larissa H Kwiatkowski ET AL
Respondent Address: 818 San Fernando Street, Fernandina Beach, FL 32034

This case having come before the Code Enforcement & Appeals Board of the City of Fernandina Beach on January 4, 2018, a violation hearing having been held, and the Board having heard testimony, does hereby make the following finding of facts, and conclusions of law therefore imposing the following order and penalty:

SECTION 1 - FINDINGS OF FACT

1. The Respondent was properly served notice of these proceedings as required by law on December 4, 2017 and the Respondent was not present at the hearing.

2. The real property on which the violations occurred at 818 San Fernando Street, Fernandina Beach, FL and a brief legal description being **BLK 5 LOTS 1, 2 & 5 IN OR 2141/1501 OLD TOWN S/D UNR, Fernandina Beach, FL 32034.**

3. The Respondent is the owner of record of the aforementioned real property.

4. The Respondent violated sections of the Fernandina Beach Code of Ordinances as of January 4, 2018: **Section 42-116 (a & b), Cleaning of lots; maintenance of structures; Section 42-173 Wrecked or inoperable motor vehicles on private property declared a nuisance and prohibited; and 7.01.05 C&D Specific Parking Restrictions of Commercial Vehicles, Recreational Vehicles, Boats, and Trailers** of the City of Fernandina Beach Land Development Code.

SECTION 2 - CONCLUSION OF LAW & IMPOSITION OF FINE

1. Based on the foregoing findings of fact, the Board voted to find the property in violation of Section 42-116 (a&b), and if not brought into compliance by January 15, 2018, then assess fines of $100.00 per day until brought into compliance; Section 42-173; and if not brought into compliance by January 15, 2018, then assess fines of $125.00 per day until brought into compliance; and 7.01.05 C&D of the Land Development Code; and if not brought into compliance by January 15, 2018, then assess fines of $125.00 per day until brought into compliance; and collect administrative fees.

2. The City of Fernandina Beach shall record a certified copy of this order in the public records and this Order shall constitute a lien against the real property on which the violations exist and upon any other real or personal property owned by the Respondent if fines are not paid within thirty (30) days.

3. If the lien remains unpaid for a period of three (3) months from the date of the filing of the lien, the City of Fernandina Beach may foreclose on the lien or sue to recover a money judgment for the amount of the lien plus accrued interest.

SECTION 3 - CERTIFICATION OF VOTE

Done and ordered January 4, 2018 at the City of Fernandina Beach, Nassau County, Florida Code Enforcement & Appeals Board Hearing.

By: _____
Chair, Buddy Boyd

*Florida Statute 162.11 Appeals.—An aggrieved party, including the local governing body, may appeal a final administrative order of an enforcement board to the circuit court. Such an appeal shall not be a hearing de novo but shall be limited to appellate review of the record created before the enforcement board. An appeal shall be filed within 30 days of the execution of the order to be appealed.

From: Michelle Forstrom
To: ltilda@aol.com
Cc: Katie Newton
Subject: Re: 818 San Fernando house
Date: Wednesday, May 30, 2018 10:33:50 AM

Katie, would you please add this to the June agenda?

Larissa,
Whoever is asking for the reduction needs to be there.

Sent from my iPhone

On May 29, 2018, at 10:43 AM, "ltilda@aol.com" <ltilda@aol.com> wrote:

> Michelle,
>
> Good Morning! I called the office this morning and realized you were out of town. I then spoke with George to get his advice. George recommended I email you. Here is the most recent update on the San Fernando house. On May 18, my sister and I filled out the forms for a permit/approval on roof. We have not heard back from them but may not need the approval anymore. We have an offer on the house to buy "as is" from a cash buyer. The buyer want to restore the house to its original form in the 60's (before the fire). The share owners are hoping to be added to the June 7th hearing in order to receive a reduction in fines. The fines will then be paid at the closing on the San Fernando house. We realize not all fines will be dropped but feel they should be taken care of before the sale. The buyer will then start with a clean slate and hopefully a grace period to make the necessary repairs. I am also passing your email off to the realtor, Shannon Smith. Thank you so much for your help. We are working hard to make things right and satisfy city request. Please let me know if you are able to add us on the agenda for the June 7th hearing. What time is it held and who all needs to be in attendance? Thank you again!
>
> Larissa Kwiatkowski
> 904-583-5287

To Whom It May Concern:

I am putting together a timeline to help explain the recent activity of the 818 San Fernando house. I am hoping this will paint a clearer picture to the committee reviewing our request.

Fall of 2017- Diana Foreman and Tony Hair were removed from the deed. Hunter, David, Kimberly, Alicia and Larissa were added.

2016/2017/beginning of 2018- Diana Foreman allowed Dale to live in the 818 San Fernando house with the agreement he would take care of it. He slowly filled the yard with cars/junk and did not take care of the house.

February-Alicia Watson (share owner) spoke with Dale Hair and found out he had moved out. He made mention of fines but did not fully disclose the full extent.

March-Larissa Kwiatkowski (share owner) called Michelle Forstrom to find out about possible fines on house. She explained everything and said she would send a copy to me of the violations when the document was complete/updated.

March 7, 2018- Larissa Kwiatkowski received the email from Michelle Forstrom with all of the details of the violations. Larissa forwarded the email from Michelle to everyone on the deed. This was the first official document the share owners (except Dale Hair) had seen of the complaints on 818 San Fernando. Dale had received certified mail in December about the fines but did not tell the other share owners.

March 8, 2018- Steve Hair, Larissa Kwiatkowski, Dale Hair and Alicia Watson met at the 818 San Fernando house to make plans to stop fines and prepare it to sale. We set up cleaning dates and assigned task to each person.

March -Several days (March 9th, March 17th and March 24th) Alicia, Larissa (and our 14 kids) met Dale at the 818 San Fernando house to begin clearing the yard and inside the house.

March 29, 2018- Charlie Deberry gave us an estimate for the roof. We had one other guy look at the house for a tin roof estimate but he was unable to do it.

April 2, 2018 Steve Hair work on a second estimate for the roof. He called Parliament Roofing. They were schedule to come out on 4/5/18. They did not show. Steve also called K&D Roofing and left message. No one returned call. Steve mentioned 2 others and they did not return his call.

May 18, 2018- Alicia and Larissa filled out the paperwork for a permit/approval on the roof from the city.

May 26, 2018 An offer was made on house through Shannon Smith. The buyer has rented in old town and also owns a house in old town. He has a lot of interest in the area.

May 30, 2018- Larissa Kwiatkowski wrote Michelle Forstrom explaining the offer and requesting to be added to the June 7th meeting.

May 30, 2018- Larissa Kwiatkowski received a call from the city for the approval of the roof.

I (Larissa Kwiatkowski) will be attending the meeting on June 7th hoping to receive a reduction of fines on the 818 San Fernando house along with a grace period for the buyer to make the requested repairs. Thank you so much for your time reviewing this request. We look forward to meeting you all.

Larissa Kwiatkowski

Shorebreak Inc
1997 Sadler Rd Unit 16705 , Fernadina Beach , FL
Phone: (904) 624-0225

Company Representative
Charlie DeBerry
Phone: (904) 624-0225
Charlie@shorebreakservices.com

ESTIMATE

03/29/2018

Alicia Watson
818 San Fernando Street, Fernandina Beach, FL 32034
(904) 583-2378

Job: Alicia Watson

Roofing Section

	Qty	Unit
Secure Roofing Permit	1.00	EA
Deliver Roofing Material to Rooftop	1.00	EA
Protect Landscaping & Pick Up Nails With Magnet	1.00	EA
Remove & Dispose of Current Roof Material	2.00	EA
Remove 2 layers of shingles	1.00	SQ
Install GAF Architectural Shingles	20.00	EA
Install Material On 11/12 Pitch and Two Story House	16.00	EA
Install GAF Ridge Cap	4.00	EA
Install Starter Strips	1.00	EA
Install Shingles With Building Code 1-1/4" Roofing Nails	2.00	EA
Install Underlayment With Building Code Simplex Nails	2.00	EA
Nail Decking With Building Code 8D Ring Shank Nails	1.00	EA
Install Synthetic Underlayment (Rhino Guard)	3.00	EA
Install Peel & Stick Underlayment In All Valleys	1.00	EA
Install 16" Galvalume Valley Metal	1.00	EA
Install 6" Drip Edge	30.00	EA
Install On Ridge Vent	3.00	EA
Install GAF Ridge Runner (On Ridge Vent)		
Install Lead Pipe Boot - 1.5"	2.00	EA
Install Lead Pipe Boot 3"	1.00	EA
Apply Roofing Cement To Appropriate Areas	1.00	EA
Includes Two Sheets of Plywood/OSB	1.00	EA
Replace Any Damaged 1X2, or 1X3 Wood @ 4.92 Per LF	0.00	EA
Replace Any Damaged 2X4, or 2X6 Wood @ 5.34 Per LF	0.00	EA
Additional Plywood/OSB To Be Replaced @ 55.00 Per Sheet	0.00	EA
5X5 Wall Flashing To Be Replaced @ 6.10 Per LF	0.00	EA
Provide Home Owner A Wind Mitigation Form (Insurance Discount)	1.00	EA
5 Year Workmanship Warranty	1.00	EA

$9,429.34

TOTAL	$9,429.34

Company Authorized Signature

Date

Customer Signature

Date

Customer Signature

Date

STAFF REPORT
Case 18-00039
City of Fernandina Beach Code Enforcement & Appeals Board
May 30, 2018

Violation Information

Owner	Bessie M. Lawyer 223 N. 8th Street Fernandina Beach, Florida 32034
Violation	City of Fernandina Beach – 42-173 Wrecked Or Inoperable Motor Vehicles On Private Property Declared A Nuisance And Prohibited.
Location:	223 N. 8th Street, Fernandina Beach, Florida 32034

Summary and Background Information

February 5, 2018, During a proactive sweep I observed and confirmed a blue Chevrolet automobile parked on the left side of the house that looked to be inoperable. I asked the owner if the vehicle ran and had a current tag. She stated that the key to the vehicle was an issue and that it did not have a current tag on it. I gave her a verbal warning giving her 10 days to correct the violation. I recorded a photograph of the vehicle.

February 15, 2018, 2nd inspection-no change-Mrs. Lawyer requested a thirty (30) extension, which I granted.

March 15, 2018, 3rd inspection showed no change from original violation.

March 16, 2018, I mailed a NOV/NOH letter via certified mail to Mrs. Lawyer. Signature card came back with an authorized signature.

April 23, 2018, I received a phone call from Mrs. Lawyer. She was being very arguementive about my first visit. She wants to claim I trespassed on her property to see that the tag was expired. The first visit I asked Mrs. Lawyer if the vehicle ran and had a current tag on it. She stated that it did not. I asked her today if I could with her permission to come and inspect the vehicle. She again stated the vehicle needed a key and did not have a current tag.
May 29, 2018, I conducted a preboard inspection-no change to original violation.

Conclusion

As of May 29, 2018, Mrs. Lawyer has not made any further contact with code enforcement or to comply with the violation.

Recommendation

Staff recommends a $25.00 per day for the violation, along with administrative fees incurred.

Submitted by:

George Wells
Code Compliance Officer

ADMINISTRATIVE FEES INCURRED FROM
223 North 8th Street
AS OF 06/07/18
CODE CASE #18-00039

STAFF PERSONNEL OR ITEMS	# OF UNITS OR HOURS	PRICE OR RATE PER HOUR	TOTAL
Michelle Forstrom, Code Enforcement Manager	1	$23.13	$23.13
George Wells, Code Compliance Officers	5	$20.80	$104.00
Katie Newton, Board Secretary/Legal Assistant	1.5	$21.63	$32.45
Record Findings of Facts with the Clerk of Circuit Court of Nassau County	1	$10.00	$10.00
Certified letters mailed	1	$6.48	$6.48
First Class letters mailed	1	$0.48	$0.48

TOTAL ADMINISTRATIVE FEES DUE **$176.54**

***** TOTAL AMOUNT DUE MUST BE PAID IN FULL TO CLOSE THIS CASE AND AVOID A LIEN ON THIS PROPERTY***

2 5 2018 11:00

3
2
2
2 5 2018 10:59

CITY OF FERNANDINA BEACH **George Wells**
Code Enforcement Department Code Compliance Officer

CODE ENFORCEMENT & APPEALS BOARD
NOTICE OF VIOLATION/NOTICE OF HEARING

March 16, 2018 Case Number: 18-00039

Cert. #:7014 0150 0002 0092 6243

IN THE MATTER OF:

Bessie M. Lawyer
223 N. 8th Street
Fernandina Beach, Florida 32034

PREMISES: 223 N. 8th Street, Fernandina Beach, FL 32034

The brief legal description of the real property upon which this violation occurred is: **BLOCK 68 S ½ OF LOT 5 IN OR 1001/1091 CITY OF FDNA BEACH, FERNANDINA BEACH, FL 32034.**

The Code Enforcement office of the City of Fernandina Beach has previously notified you of alleged violation(s) of the City of Fernandina Beach Code of Ordinances and contends that the following violation(s) exist: **42-173 Wrecked or inoperable motor vehicles on private property declared a nuisance and prohibited.** (These can be found on the City's website: www.fbfl.us/code). This letter specifically addresses a Dark Blue Chevrolet Car parked on the left side of the house, which is inoperable and has an expired license tag.

Therefore, you are hereby directed to remedy and discontinue the problems by: Remove, repair, or register vehicles and put current tags on it by April 16, 2018 thirty (30) days from the date of this notice, and if this office is not notified of compliance by you, this department will refer this matter to the Code Enforcement & Appeals Board for legal action at the date and time listed below.

DATE:	June 7, 2018
TIME:	5:30 p.m.
LOCATION:	City Commission Chambers, 204 Ash Street Fernandina Beach, Florida 32034

YOU HAVE THE RIGHT to appear before the Board at that time to answer and defend the allegations that you have violated the above cited provision(s) of the Code of Ordinances.

If the Board finds that you are in violation, they will consider all appropriate actions required to bring the property into compliance, which may include, but is not limited the recovery of fees, and fines which may be imposed for the duration of the non-compliance (NOT TO EXCEED $250.00 per day, per violation).

Please be advised that the Rules of the Code Enforcement & Appeals Board and the Code of Ordinances of the City of Fernandina Beach govern the procedures of the Board.

PLEASE GOVERN YOUR SELF ACCORDINGLY.

If you have any questions, please feel free to contact me (please see my attached business card for contact information).

George Wells
Code Compliance Officer

Hearing impaired or non-English speaking individuals may request a language or sign interpreter at least (10) ten working days prior to this hearing. Please contact the City Clerk's office at (904) 310-3115.

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Bessie M. Lawyer
223 N. 8th Street
Fernandina Beach, Florida 32034

9590 9402 3035 7124 0462 78

2. Article Number (Transfer from service label)
7014 0150 0002 0092 6243

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Bessie Lawyer ☐ Agent ☑ Addressee

B. Received by (Printed Name) | C. Date of Delivery 3/20/21

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

223 N. 8th St

3. Service Type
- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☑ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Mail
- ☐ Mail Restricted Delivery
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

(over $500)

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

7014 0150 0002 0092 6243

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

OFFICIAL USE

Postage	$ .47
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.75
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.67

Postmark Here

3/16/21

Sent To: Bessie M. Lawyer
Street and Apt. No., or PO Box No.: 223 N. 8th Street
City, State, ZIP+4®: Fernandina Beach, Florida 32034

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Bessie M. Lawyer
223 N. 8th Street
Fernandina Beach, Florida 32034

9590 9402 3035 7124 0462 78

2. Article Number (Transfer from service label)

7014 0150 0002 0092 6243

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

223 N. 8th St

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☒ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Mail
- ☐ Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT OF THE RETURN ADDRESS, FOLD AT DOTTED LINE

CERTIFIED MAIL™

7014 0150 0002 0092 6243

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

Cost Ent

For delivery information visit our website at www.usps.com®

OFFICIAL USE

Postage	$ .47
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.75
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.67

Postmark Here

Sent
Stree
or P
City,

Bessie M. Lawyer
223 N. 8th Street
Fernandina Beach, Florida 32034

PS F

structions

STAFF REPORT
Case 18-00057
City of Fernandina Beach Code Enforcement & Appeals Board
May 30, 2018

Violation Information

Owner	Memeoria Quarterman 517 South 12th Street Fernandina Beach, Florida 32034
Violation	City of Fernandina Beach – 42-173 Wrecked Or Inoperable Motor Vehicles On Private Property Declared A Nuisance And Prohibited.
Location:	517 South 12th Street, Fernandina Beach, Florida 32034

Summary and Background Information

April 4, 2018, During a proactive sweep I observed and confirmed a silver Honda Pilot SUV parked on the driveway with an expired tag. I left a door hanger giving 10 days to correct the violation. I recorded a photograph of the vehicle.

April 17, 2018, 2nd inspection-no change.

April 19, 2018, I mailed a NOV/NOH letter via certified mail to Mrs. Quarterman. Signature card came back with an authorized signature.

.

May 29, 2018, I conducted a preboard inspection-no change to original violation.

Conclusion

As of May 29, 2018, Mrs. Quarterman has not made any contact with code enforcement or to comply with the violation.

Recommendation

Staff recommends a $25.00 per day for the violation, along with administrative fees incurred.

Submitted by:

George Wells
Code Compliance Officer

ADMINISTRATIVE FEES INCURRED FROM
517 South 12th Street
AS OF 06/07/18
CODE CASE #18-00057

STAFF PERSONNEL OR ITEMS	# OF UNITS OR HOURS	PRICE OR RATE PER HOUR	TOTAL
Michelle Forstrom, Code Enforcement Manager	1	$23.13	$23.13
George Wells, Code Compliance Officers	4	$20.80	$83.20
Katie Newton, Board Secretary/Legal Assistant	1.5	$21.63	$32.45
Record Findings of Facts with the Clerk of Circuit Court of Nassau County	1	$10.00	$10.00
Certified letters mailed	1	$6.48	$6.48
First Class letters mailed	1	$0.48	$0.48

TOTAL ADMINISTRATIVE FEES DUE **$155.74**

***** TOTAL AMOUNT DUE MUST BE PAID IN FULL TO CLOSE THIS CASE AND AVOID A LIEN ON THIS PROPERTY***

4.4.2018 11:04

WORKING FOR A SAFER COMMUNITY
4.4.2018 11:05

COGGINAUTO.COM
MYFLORIDA.COM
11-17
BPY D54
COGGIN
HONDA ON ATLANTIC
4.4.2018 11:04

517
4.4.2018 11:04

CITY OF FERNANDINA BEACH **George Wells**
Code Enforcement Department Code Compliance Officer

CODE ENFORCEMENT & APPEALS BOARD
NOTICE OF VIOLATION/NOTICE OF HEARING

April 19, 2018

Cert. #: 7014 0150 0002 0092 6397 Case Number: 18-00057

IN THE MATTER OF:

Memeoria Quarterman
517 S. 12th Street
Fernandina Beach, Florida 32034

PREMISES: 517 S. 12th Street, Fernandina Beach, FL 32034

THE BRIEF LEGAL DESCRIPTION OF THE REAL PROPERTY UPON WHICH THIS VIOLATION OCCURRED IS: BLOCK 215 N 22FT OF TRACT D OF LOT 6 & S 70 FT OF TRACT C OF LOT 7 IN OR 695/886, FERNANDINA BEACH, FL 32034.

The Code Enforcement office of the City of Fernandina Beach has previously tried to notify you of alleged violation(s) of the City of Fernandina Beach Code of Ordinances and contends that the following violation(s) exist: **42-173 Wrecked Or Inoperable Motor Vehicles On Private Property Declared A Nuisance And Prohibited** (These can be found on the City's website: www.fbfl.us/code). This letter specifically addresses the Silver Honda Pilot SUV parked on the front driveway with an expired tag.

Therefore, you are hereby directed to remedy and discontinue the problems by: Remove, repair, or register vehicle and put current tag on it by April 29, 2018 ten (10) days from the date of this notice, and if this office is not notified of compliance by you, this department will refer this matter to the Code Enforcement & Appeals Board for legal action at the date and time listed below.

DATE:	June 7, 2018
TIME:	5:30 p.m.
LOCATION:	City Commission Chambers, 204 Ash Street Fernandina Beach, Florida 32034

YOU HAVE THE RIGHT to appear before the Board at that time to answer and defend the allegations that you have violated the above cited provision(s) of the Code of Ordinances.

If the Board finds that you are in violation, they will consider all appropriate actions required to bring the property into compliance, which may include, but is not limited the recovery of fees, and fines which may be imposed for the duration of the non-compliance (NOT TO EXCEED $250.00 per day, per violation).

Please be advised that the Rules of the Code Enforcement & Appeals Board and the Code of Ordinances of the City of Fernandina Beach govern the procedures of the Board.

PLEASE GOVERN YOUR SELF ACCORDINGLY.

If you have any questions, please feel free to contact me (please see my attached business card for contact information).

George Wells
Code Compliance Officer

Hearing impaired or non-English speaking individuals may request a language or sign interpreter at least (10) ten working days prior to this hearing. Please contact the City Clerk's office at (904) 310-3115.

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Memeoria Quarterman
517 S. 12th Street
Fernandina Beach, Florida 32034

9590 9402 3035 7124 0463 77

7014 0150 0002 0092 6397

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

☐ Agent
☐ Addressee

B. Received by (Printed Name) | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

517 S 12th St

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☑ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Mail
- ☐ Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

7014 0150 0002 0092 6397

517 S. 12th

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

OFFICIAL USE

Postage	$ .47
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.75
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.67

FERNANDINA BCH FL
APR 19 2018
Postmark Here
USPS - 32034

Memeoria Quarterman
517 S. 12th Street
Fernandina Beach, Florida 32034

See Reverse for Instructions

7014 0150 0002 0092 6397

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Memeoria Quarterman
517 S. 12th Street
Fernandina Beach, Florida 32034

9590 9402 3035 7124 0463 77

7014 0150 0002 0092 6397

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

517 S 12th St

3. Service Type
- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☑ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Mail
- ☐ Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT OF THE RETURN ADDRESS, FOLD AT DOTTED LINE

CERTIFIED MAIL™

7014 0150 0002 0092 6397

7014 0150 0002 0092 6397

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

517 S. 12th St
Code Enf.

For delivery information visit our website at www.usps.com®

OFFICIAL USE

Postage	$ .47
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.75
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.67

Postmark Here

Memeoria Quarterman
517 S. 12th Street
Fernandina Beach, Florida 32034

See Reverse for Instructions

STAFF REPORT
Case 18-00043
City of Fernandina Beach Code Enforcement & Appeals Board
May 31, 2018

Violation Information

Owner	Scott A. Rivenbark & Mary Beth Jones (JT/RS) 1504 Broome Street Fernandina Beach, Florida 32034
Violation	City of Fernandina Beach – 7.01.05 LDC Specific Parking Restrictions For Commercial Vehicles, Recreational Vehicles, Boats, and Trailers.
Location:	1504 Broome Street, Fernandina Beach, Florida 32034

Summary and Background Information

March 6, 2018, During a proactive sweep I observed and confirmed an recreational vehicle parked on the front driveway and a utility trailer parked on the right front of the house. I left a door hanger giving 10 days to correct the violation. I recorded a photograph of the recreational vehicle and utility trailer.

March 19, 2018, 2nd inspection-no change.

March 20, 2018, I mailed a NOV/NOH letter via certified mail to this residence. Signature card came back with an authorized signature.

May 29, 2018, I conducted a pre-board inspection-both the recreational vehicle and the utility trailer were parked on the front driveway.

Conclusion

As of May 29, 2018, the owners of this house have not made any contact with the code enforcement office and are still in violation.

Recommendation

Staff recommends a $25.00 per day per vehicle for the violation, along with administrative fees incurred.

Submitted by:

George Wells
Code Compliance Officer

ADMINISTRATIVE FEES INCURRED FROM
1504 Broome Street
AS OF 06/07/18
CODE CASE #18-00043

STAFF PERSONNEL OR ITEMS	# OF UNITS OR HOURS	PRICE OR RATE PER HOUR	TOTAL
Michelle Forstrom, Code Enforcement Manager	1	$23.13	$23.13
George Wells, Code Compliance Officers	4	$20.80	$83.20
Katie Newton, Board Secretary/Legal Assistant	1.5	$21.63	$32.45
Record Findings of Facts with the Clerk of Circuit Court of Nassau County	1	$10.00	$10.00
Certified letters mailed	1	$6.48	$6.48
First Class letters mailed	1	$0.48	$0.48

TOTAL ADMINISTRATIVE FEES DUE **$155.74**

***** TOTAL AMOUNT DUE MUST BE PAID IN FULL TO CLOSE THIS CASE AND AVOID A LIEN ON THIS PROPERTY***

3.6.2018 10:50

3.6.2018 10:50
WORKING FOR A SAFER COMMUNITY
NOTICE OF VISIT

1504
3.6.2018 10:49

CITY OF FERNANDINA BEACH **George Wells**
Code Enforcement Department Code Compliance Officer

CODE ENFORCEMENT & APPEALS BOARD
NOTICE OF VIOLATION/NOTICE OF HEARING

March 20, 2018

Cert. #: 7014 0150 0002 0092 6281 Case Number: 18-00043

IN THE MATTER OF:

Scott A. Riven & Mary Beth Jones (JT/RS)
1504 Broome Street
Fernandina Beach, Florida 32034

PREMISES: 1504 Broome Street, Fernandina Beach, FL 32034

THE BRIEF LEGAL DESCRIPTION OF THE REAL PROPERTY UPON WHICH THIS VIOLATION OCCURRED IS: LOT W71 FT OF E143 FT OF S136.5 FT OF N1/2 OF OUTLOT 3 IN OR 1996/1627, FERNANDINA BEACH, FL 32034.

The Code Enforcement office of the City of Fernandina Beach has previously tried to notify you of alleged violation(s) of the City of Fernandina Beach Code of Ordinances and contends that the following violation(s) exist: **7.01.05 LDC SPECIFIC PARKING RESTRICTIONS FOR COMMERICIAL VEHICLES, RECREATIONAL VEHICLES, BOATS, AND TRAILERS** (These can be found on the City's website: www.fbfl.us/code). This letter specifically addresses a recreational vehicle parked on the driveway and a utility trailer that is parked in the grass next to the RV.

Therefore, you are hereby directed to remedy and discontinue the problems by: remove or store the recreational vehicle and utility trailer in a proper structure or in side or rear yard by April 20, 2018 thirty (30) days from the date of this notice, and if this office is not notified of compliance by you, this department will refer this matter to the Code Enforcement & Appeals Board for legal action at the date and time listed below.

DATE:	June 7, 2018
TIME:	5:30 p.m.
LOCATION:	City Commission Chambers, 204 Ash Street Fernandina Beach, Florida 32034

YOU HAVE THE RIGHT to appear before the Board at that time to answer and defend the allegations that you have violated the above cited provision(s) of the Code of Ordinances.

If the Board finds that you are in violation, they will consider all appropriate actions required to bring the property into compliance, which may include, but is not limited the recovery of fees, and fines which may be imposed for the duration of the non-compliance (NOT TO EXCEED $250.00 per day, per violation).

Please be advised that the Rules of the Code Enforcement & Appeals Board and the Code of Ordinances of the City of Fernandina Beach govern the procedures of the Board.

PLEASE GOVERN YOUR SELF ACCORDINGLY.

If you have any questions, please feel free to contact me (please see my attached business card for contact information).

George Wells
Code Compliance Officer

Hearing impaired or non-English speaking individuals may request a language or sign interpreter at least (10) ten working days prior to this hearing. Please contact the City Clerk's office at (904) 310-3115.

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Scott A. Riven & Mary Beth Jones
(JT/RS)
1504 Broome Street
Fernandina Beach, Florida 32034

9590 9402 3035 7124 0461 31

2. Article Number (Transfer from service label)
7014 0150 0002 0092 6281

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☑ Addressee

B. Received by (Printed Name) Scott Riven C. Date of Delivery 3-30-18

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

1504 Broome St

3. Service Type
- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☑ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

7014 0150 0002 0092 6281

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

OFFICIAL USE

Postage	$ .47
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.75
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.67

FERNANDINA BCH FL
MAR 30 2018
Postmark Here
USPS

Scott A. Riven & Mary Beth Jones (JT/R
1504 Broome Street
Fernandina Beach, Florida 32034

or Instructions

7014 0150 0002 0092 6281

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Scott A. Riven & Mary Beth Jones
(JT/RS)
1504 Broome Street
Fernandina Beach, Florida 32034

9590 9402 3035 7124 0461 31

2. Article Number (Transfer from service label)
7014 0150 0002 0092 6281

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
☐ Agent
☐ Addressee

B. Received by (Printed Name) | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

1504 Broome St

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Mail
☐ Mail Restricted Delivery
(over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT OF THE RETURN ADDRESS, FOLD AT DOTTED LINE
CERTIFIED MAIL™

7014 0150 0002 0092 6281
7014 0150 0002 0092 6281

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

OFFICIAL USE

Postage	$ .47
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.75
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.67

Postmark Here

Scott A. Riven & Mary Beth Jones (JT/R
1504 Broome Street
Fernandina Beach, Florida 32034

or Instructions

STAFF REPORT
Case 18-00063
City of Fernandina Beach Code Enforcement & Appeals Board
May 31, 2018

Violation Information

Owner	Janice A. O'Connell Trustee of Janice O'Connell Revocable Living Trust 4035 Dunewood Place Fernandina Beach, Florida 32034
Violation	City of Fernandina Beach – 42-173 Wrecked Or Inoperable Motor Vehicles On Private Property Declared A Nuisance And Prohibited.
Location:	2727 Ocean Drive, Fernandina Beach, Florida 32034

Summary and Background Information

March 22, 2018, during a proactive sweep I observed and confirmed a grey Jeep Grand Cherokee, a silver Ford van, and a dark blue Jeep Cherokee parked in front of this residence without current tags on them. I spoke with a tenant that lived there giving her a verbal warning of ten (10) days to correct the violation. She expressed that she did not own but one of the vehicles, that other tenant owned the other vehicles. I left a door hanger on the other door giving the other tenant ten (10) days to correct violation. I photographed the vehicles and the door hanger.

April 23, 2018, 2nd inspection- silver Ford van and the dark blue Jeep Cherokee had been removed, but the grey Jeep Grand Cherokee remained.

April 30, 2018, I mailed a NOV/NOH letter via certified mail to the owner of this house. Signature card came back with an authorized signature.

May 16, 2018, I posted a 2nd NOV/NOH letter on the front door at the owner's residence at 4035 Dunewood Place, FB 32034. I recorded a photograph of posting and completed a notarized affidavit of service.

.

May 29, 2018, I conducted a pre-board inspection-grey Jeep Grand Cherokee is still present in front of this house without a current tag on it.

Conclusion

As of May 29, 2018, The Grey Jeep Grand Cherokee is now the only vehicle in violation, but during the course of this case there have been numerous inoperable vehicles dropped off at this address that have come and gone...

Recommendation

Staff recommends a $25.00 per day for the violation, along with administrative fees incurred.

Submitted by:

George Wells
Code Compliance Officer

ADMINISTRATIVE FEES INCURRED FROM
2727 Ocean Drive
AS OF 06/07/18
CODE CASE #18-00063

STAFF PERSONNEL OR ITEMS	# OF UNITS OR HOURS	PRICE OR RATE PER HOUR	TOTAL
Michelle Forstrom, Code Enforcement Manager	1	$23.13	$23.13
George Wells, Code Compliance Officers	5	$20.80	$104.00
Katie Newton, Board Secretary/Legal Assistant	1.5	$21.63	$32.45
Record Findings of Facts with the Clerk of Circuit Court of Nassau County	1	$10.00	$10.00
Certified letters mailed	1	$6.48	$6.48
First Class letters mailed	1	$0.48	$0.48

TOTAL ADMINISTRATIVE FEES DUE **$176.54**

***** TOTAL AMOUNT DUE MUST BE PAID IN FULL TO CLOSE THIS CASE AND AVOID A LIEN ON THIS PROPERTY***

3.22.2018 14:27

3.22.2018 14:26

5 16 2018 09:19

3.22.2018 14:27

3.22.2018 14:27

CITY OF FERNANDINA BEACH
CODE ENFORCEMENT
204 Ash Street
(904) 310-3117
www.fbfl.us/Code
NOTICE OF VISIT
Ocean Dr
3:25
3/22/18
THIS IS TO SERVE AS A WARNING THAT YOU MAY BE IN VIOLATION OF THE FOLLOWING CITY ORDINANCE(S):
CODE #
REASON FOR VISIT:
Please contact George Wells, Code Compliance Officer at (904)
by 4/1 , 2018 to discuss compliance with
the above listed issue. Failure to do so will result in an official
written notice with a possible outcome of fines.
Comments: Multiple untagged Vehicles
Wells
Code Compliance Officer
3.22.2018 14:29

5.15.2018 09:56

4035
5.16.2018 09:19

5.15.2018 09:56

BHL R25
5.15.2018 09:53

DODGE
5.15.2018 09:55

DODGE
5.15.2018 09:56

5.15.2018 09:54

5.15.2018 09:55

CITY OF FERNANDINA BEACH **George Wells**
Code Enforcement Department Code Compliance Officer

CODE ENFORCEMENT & APPEALS BOARD

NOTICE OF VIOLATION/NOTICE OF HEARING

2ND NOTICE OF VIOLATION
POSTED COPY ON FRONT DOOR

May 16, 2018 Case Number: 18-00063

IN THE MATTER OF:

Janice A. O'Connell
Trustee of Janice O'Connell Revocable Living Trust
4035 Dunewood Place
Fernandina Beach, Florida 32034

PREMISES: 2727 Ocean Drive, Fernandina Beach, FL 32034

The brief legal description of the real property upon which this violation occurred is: **LOT 13 IN OR 1217/9 OCEANSIDE SUB PB 4/68, FERNANDINA BEACH, FL 32034.**

The Code Enforcement office of the City of Fernandina Beach has previously notified you of alleged violation(s) of the City of Fernandina Beach Code of Ordinances and contends that the following violation(s) exist: **42-173 Wrecked or inoperable motor vehicles on private property declared a nuisance and prohibited.** (These can be found on the City's website: www.fbfl.us/code). This letter specifically addresses numerous inoperable vehicles that are in front of this house without license tags. The three (3) vehicles are a grey Jeep Cherokee SUV, a silver Dodge 1500 pick-up truck, and a white Jeep or Ford pick-up with the engine missing.

Therefore, you are hereby directed to remedy and discontinue the problems by: Remove, repair, or register vehicles and put current tags on it by May 26, 2018 ten (10) days from the date of this notice, and if this office is not notified of compliance by you, this department will refer this matter to the Code Enforcement & Appeals Board for legal action at the date and time listed below.

DATE:	June 7, 2018
TIME:	5:30 p.m.
LOCATION:	City Commission Chambers, 204 Ash Street Fernandina Beach, Florida 32034

YOU HAVE THE RIGHT to appear before the Board at that time to answer and defend the allegations that you have violated the above cited provision(s) of the Code of Ordinances.

If the Board finds that you are in violation, they will consider all appropriate actions required to bring the property into compliance, which may include, but is not limited the recovery of fees, and fines which may be imposed for the duration of the non-compliance (NOT TO EXCEED $250.00 per day, per violation).

Please be advised that the Rules of the Code Enforcement & Appeals Board and the Code of Ordinances of the City of Fernandina Beach govern the procedures of the Board.

PLEASE GOVERN YOUR SELF ACCORDINGLY.

If you have any questions, please feel free to contact me (please see my attached business card for contact information).

George Wells
Code Compliance Officer

Hearing impaired or non-English speaking individuals may request a language or sign interpreter at least (10) ten working days prior to this hearing. Please contact the City Clerk's office at (904) 310-3115.

AFFIDAVIT OF SERVICE

State of Florida
County of Nassau

Code Enforcement Case Number: 18-00063

I, George Wells, being first duly sworn, depose and state as follows:

1. That I am an employee of the City of Fernandina Beach, Code Enforcement;

2. That part of my duties include posting Notice of Violation/Notice of Hearing letters, and other correspondence; and

3. That on the 16th Day of May , 2018, at 9:19 A.M., I posted the 2nd Notice of Violation/Notice of Hearing letter for **Case 18-00063, O'Connell, Janice A., 2727 Ocean Drive, Fernandina Beach, FL 32034** to Janice A. O'Connell, 4035 Dunewood Place, Fernandina Beach, FL 32034.

FURTHER AFFIANT SAYETH NAUGHT.

Signature: George Wells

George Wells
(Printed name of Code Compliance Officer)

Subscribed and sworn to before me, a notary public in and for the State of Florida, this 16th day of May, 2018.

(SEAL)

HARRIET DAVIS
MY COMMISSION # GG86124
EXPIRES: March 22, 2021

Signature: Harriet Davis

Harriet Davis
(Printed name of Notary)

CITY OF FERNANDINA BEACH **George Wells**
Code Enforcement Department Code Compliance Officer

CODE ENFORCEMENT & APPEALS BOARD
NOTICE OF VIOLATION/NOTICE OF HEARING

April 30, 2018 Case Number: 18-00063

Cert. #:7014 0150 0002 0092 6434

IN THE MATTER OF:

Janice A. O'Connell
Trustee of Janice O'Connell Revocable Living Trust
4035 Dunewood Place
Fernandina Beach, Florida 32034

PREMISES: 2727 Ocean Drive, Fernandina Beach, FL 32034

The brief legal description of the real property upon which this violation occurred is: **LOT 13 IN OR 1217/9 OCEANSIDE SUB PB 4/68, FERNANDINA BEACH, FL 32034.**

The Code Enforcement office of the City of Fernandina Beach has previously notified you of alleged violation(s) of the City of Fernandina Beach Code of Ordinances and contends that the following violation(s) exist: **42-173 Wrecked or inoperable motor vehicles on private property declared a nuisance and prohibited.** (These can be found on the City's website: www.fbfl.us/code). This letter specifically addresses a grey Jeep Cherokee SUV parked in front of the house without a license tag.

Therefore, you are hereby directed to remedy and discontinue the problems by: Remove, repair, or register vehicles and put current tags on it by May 10, 2018 ten (10) days from the date of this notice, and if this office is not notified of compliance by you, this department will refer this matter to the Code Enforcement & Appeals Board for legal action at the date and time listed below.

DATE:	June 7, 2018
TIME:	5:30 p.m.
LOCATION:	City Commission Chambers, 204 Ash Street Fernandina Beach, Florida 32034

YOU HAVE THE RIGHT to appear before the Board at that time to answer and defend the allegations that you have violated the above cited provision(s) of the Code of Ordinances.

If the Board finds that you are in violation, they will consider all appropriate actions required to bring the property into compliance, which may include, but is not limited the recovery of fees, and fines which may be imposed for the duration of the non-compliance (NOT TO EXCEED $250.00 per day, per violation).

Please be advised that the Rules of the Code Enforcement & Appeals Board and the Code of Ordinances of the City of Fernandina Beach govern the procedures of the Board.

PLEASE GOVERN YOUR SELF ACCORDINGLY.

If you have any questions, please feel free to contact me (please see my attached business card for contact information).

George Wells
Code Compliance Officer

Hearing impaired or non-English speaking individuals may request a language or sign interpreter at least (10) ten working days prior to this hearing. Please contact the City Clerk's office at (904) 310-3115.

SENDER: *COMPLETE THIS SECTION*

- **Complete items 1, 2, and 3.**
- **Print your name and address on the reverse so that we can return the card to you.**
- **Attach this card to the back of the mailpiece, or on the front if space permits.**

1. Article Addressed to:

Janice A. O'Connell
Trustee of Janice O'Connell Revocable
Living Trust
4035 Dunewood Place
Fernandina Beach, Florida 32034

9590 9402 3035 7124 0452 19

2. Article Number (Transfer from service label)

7014 0150 0002 0092 6434

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

2727 Ocean Dr.

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☑ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

(over $500)

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT OF THE RETURN ADDRESS, FOLD AT DOTTED LINE

CERTIFIED MAIL™

7014 0150 0002 0092 6434

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

2727 Ocean Dr. Code Enf

For delivery information visit our website at www.usps.com®

OFFICIAL USE

Postage	$ .47
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.75
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.67

Postmark Here

Janice A. O'Connell
Trustee of Janice O'Connell Revocable
Living Trust
4035 Dunewood Place
Fernandina Beach, Florida 32034

See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Janice A. O'Connell
Trustee of Janice O'Connell Revocable
Living Trust
4035 Dunewood Place
Fernandina Beach, Florida 32034

9590 9402 3035 7124 0452 19

2. Article Number (Transfer from service label)

7014 0150 0002 0092 6434

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Janice A O'Connell ☐ Agent ☒ Addressee

B. Received by (Printed Name) Janice A O'Connell | C. Date of Delivery 1/5/11/18

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

2727 Ocean Dr.

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☑ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

2727 Ocean Dr.

For delivery information visit our website at www.usps.com®

OFFICIAL USE

Postage	$ .47
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.75
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.67

Postmark Here

FERNANDINA BEACH FL 32034 JAN 05 2018

Janice A. O'Connell
Trustee of Janice O'Connell Revocable
Living Trust
4035 Dunewood Place
Fernandina Beach, Florida 32034

See Reverse for Instructions

7014 0150 0002 0092 6434