

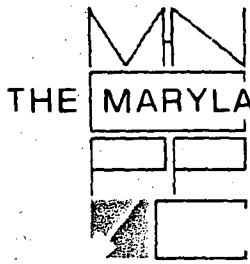
37/03-03C 107 Elm ~~STREET~~ AVENUE
(Takoma Park Historic District)

Client did not supply
a site plan.

He stated he's never
had to supply a site
plan in the past.

12/27/12

Permit Tech
Rebecca Mason



THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION
8787 Georgia Avenue • Silver Spring, Maryland 20910-3760

Date: 1/22/03

MEMORANDUM

TO: Historic Area Work Permit Applicants

FROM: Gwen Wright, Coordinator
Historic Preservation Section

gj

*DPS # 295208
HAWP # 37/03-03C*

SUBJECT: Historic Area Work Permit Application - Approval of Application/Release of Other Required Permits

Enclosed is a copy of your Historic Area Work Permit application, approved by the Historic Preservation Commission at its recent meeting, and a transmittal memorandum stating conditions (if any) of approval.

You may now apply for a county building permit from the Department of Permitting Services (DPS) at 255 Rockville Pike, second floor, in Rockville. Please note that although your work has been approved by the Historic Preservation Commission, it must also be approved by DPS before work can begin.

When you file for your building permit at DPS, you must take with you the enclosed forms, as well as the Historic Area Work Permit that will be mailed to you directly from DPS. These forms are proof that the Historic Preservation Commission has reviewed your project. For further information about filing procedures or materials for your county building permit review, please call DPS at 240-777-6370.

If your project changes in any way from the approved plans, either before you apply for your building permit or even after the work has begun, please contact the Historic Preservation Commission staff at 301-563-3400.

Please also note that you must arrange for a field inspection for conformance with your approved HAWP plans. Please inform DPS/Field Services at 240-777-6210 or online @ permits.emontgomery.org of your anticipated work schedule.

Thank you very much for your patience and good luck with your project!

C:\hawpapr.wpd



THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

January 22, 2002

MEMORANDUM

TO: Robert Hubbard, Director
Department of Permitting Services

FROM: Gwen Wright, Coordinator
Historic Preservation

SUBJECT: Historic Area Work Permit 37/3-03C

The Montgomery County Historic Preservation Commission has reviewed the attached application for a Historic Area Work Permit. This application was:

Approved Denied **Approved with Conditions:**

1. The replacement windows will be 2/2 wood, double hung and be true-divided lites. Staff would encourage that the old windows be kept on site. Staff would also like to recommend that the applicant try to match the original mullion profile in the window, if possible.

and subject to the general conditions that 1) **HPC Staff will review and stamp the construction drawings prior to the applicant's applying for a building permit with DPS.**

THE BUILDING PERMIT FOR THIS PROJECT SHALL BE ISSUED CONDITIONAL UPON ADHERENCE TO THE APPROVED HISTORIC AREA WORK PERMIT (HAWP).

Applicant: Don W. & M.M. Harvey
107 Elm Avenue
Takoma Park, MD 20912



RETURN TO: DEPARTMENT OF PERMITTING SERVICES
288 ROCKEFELLER PIKE, 2nd FLOOR, ROCKVILLE, MD 20850
240777-8100

DPS - #1

HISTORIC PRESERVATION COMMISSION
301/563-3400

APPLICATION FOR HISTORIC AREA WORK PERMIT

Contact Person: _____

Daytime Phone No.: _____

Tax Account No.: _____

Name of Property Owner: DON W. & M.M. HARVEY Daytime Phone No.: (301) 903-7315

Address: 107 ELM AVENUE, TAKOMA PARK, MD 20912
Street Number City State Zip Code

Contractor: _____ Phone No.: _____

Contractor Registration No.: _____

Agent for Owner: _____ Daytime Phone No.: _____

Address: _____

LOCATION OF BUILDING/PREMISE

House Number: 107 Street: ELM AVENUE

Town/City: TAKOMA PARK Nearest Cross Street: ALLEGHENY

Lot: P20 Block: 16 Subdivision: _____

Liber: _____ Folio: _____ Parcel: _____

PART ONE: TYPE OF PERMIT ACTION AND USE

1A. CHECK ALL APPLICABLE:

- Construct
- Extend
- Alter/Renovate
- Move
- Install
- Wreck/Reuse
- Revision
- Repair
- Revocable

CHECK ALL APPLICABLE:

- A/C
- Smb
- Room Addition
- Porch
- Deck
- Shed
- Solar
- Fireplace
- Woodburning Stove
- Single Family
- Fence/Wall (complete Section 4)
- Other: ROOF & WINDOWS

1B. Construction cost estimate: \$ 3500

1C. If this is a revision of a previously approved active permit, see Permit # _____

PART TWO: COMPLETE FOR NEW CONSTRUCTION AND EXTEND/ADDITIONS

2A. Type of sewage disposal: 01 WSSC 02 Septic 03 Other: _____

2B. Type of water supply: 01 WSSC 02 Well 03 Other: _____

PART THREE: COMPLETE ONLY FOR FENCE/RETAINING WALL

3A. Height _____ feet _____ inches

3B. Indicate whether the fence or retaining wall is to be constructed on one of the following locations:
 On party line/property line Entirely on land of owner On public right of way/easement

I hereby certify that I have the authority to make the foregoing application, that the application is correct, and that the construction will comply with plans approved by all agencies listed and I hereby acknowledge and accept this to be a condition for the issuance of this permit.

Don W. Harvey _____ 12/23/02
Signature of owner or authorized agent Date

Approved: with conditions For Chairperson, Historic Preservation Commission

Disapproved: _____ Signature: _____ Date: 1/22/03

Application/Permit No.: 295208 Date Filed: 12/27/02 Date Issued: _____
11:05am

**THE FOLLOWING FORMS MUST BE COMPLETED AND THE
REQUIRED DOCUMENTS MUST ACCOMPANY THIS APPLICATION.**

1. WRITTEN DESCRIPTION OF PROJECT

a. Description of existing structure(s) and environmental setting, including their historical features and significance:

SINGLE FAMILY DWELLING - CLASS 2 RESOURCE IN TAKOMA
PARK HISTORIC DISTRICT

b. General description of project and its effect on the historic resource(s), the environmental setting, and, where applicable, the historic district:

1) REPLACE SHED ROOF ABOVE BACK DOOR. POSTS WILL REPLICATE THOSE
ON FRONT PORCH, ROOF WILL BE ATTACHED AT FLASHING SHOWN IN PHOTO.
2) REMOVE AND REPLACE KITCHEN WINDOWS ON EAST SIDE OF HOUSE.
REPLACEMENT WINDOWS WILL REPLICATE EXISTING WINDOWS (WOOD,
DOUBLE-GLAZED WITH SNAP-IN MUNTINS); STORM WINDOWS WILL BE REMOVED. NEW WINDOW
WILL BE 12" SHORTER TO FACILITATE CABINET INSTALLATION. EXISTING
WINDOWS ARE EXCESSIVELY DRAFTY AND MUST BE ROPE CHALKED
FOR ENERGY EFFICIENCY AND ARE IN NEED MAJOR REPAIR TO

2. SITE PLAN

Site and environmental setting, drawn to scale. You may use your plot. Your site plan must include:

a. the scale, north arrow, and date;

b. dimensions of all existing and proposed structures; and

c. site features such as walkways, driveways, fences, ponds, streams, trash dumpsters, mechanical equipment, and landscaping.

SILLS AND SASHES (SEE PHOTOS)
THERE ARE NO OTHER WINDOWS
ON THE EAST FACADE WHICH
ARE AT THE BOTTOM SASH LEVEL.

3. PLANS AND ELEVATIONS

You must submit 2 copies of plans and elevations in a format no larger than 11" x 17". Plans on 8 1/2" x 11" paper are preferred.

a. Schematic construction plans, with marked dimensions, indicating location, size and general type of walls, window and door openings, and other fixed features of both the existing resource(s) and the proposed work.

b. Elevations (facades), with marked dimensions, clearly indicating proposed work in relation to existing construction and, when appropriate, context. All materials and fixtures proposed for the exterior must be noted on the elevations drawings. An existing and a proposed elevation drawing of each facade affected by the proposed work is required.

4. MATERIALS SPECIFICATIONS

General description of materials and manufactured items proposed for incorporation in the work of the project. This information may be included on your design drawings.

5. PHOTOGRAPHS

a. Clearly labeled photographic prints of each facade of existing resource, including details of the affected portions. All labels should be placed on the front of photographs.

b. Clearly label photographic prints of the resource as viewed from the public right-of-way and of the adjoining properties. All labels should be placed on the front of photographs.

6. TREE SURVEY

If you are proposing construction adjacent to or within the dripline of any tree 6" or larger in diameter (at approximately 4 feet above the ground), you must file an accurate tree survey identifying the size, location, and species of each tree of at least that dimension.

7. ADDRESSES OF ADJACENT AND CONFRONTING PROPERTY OWNERS

For All projects, provide an accurate list of adjacent and confronting property owners (not tenants), including names, addresses, and zip codes. This list should include the owners of all lots or parcels which adjoin the parcel in question, as well as the owner(s) of lot(s) or parcel(s) which lie directly across the street/highway from the parcel in question. You can obtain this information from the Department of Assessments and Taxation, 51 Monroe Street, Rockville, (301/279-1355).

PLEASE PRINT (IN BLUE OR BLACK INK) OR TYPE THIS INFORMATION ON THE FOLLOWING PAGE.
PLEASE STAY WITHIN THE GUIDES OF THE TEMPLATE, AS THIS WILL BE PHOTOCOPIED DIRECTLY ONTO MAILING LABELS.

HAWP APPLICATION: MAILING ADDRESSES FOR NOTICING

[Owner, Owner's Agent, Adjacent and Confronting Property Owners]

Owner's mailing address

107 ELM AVENUE

Owner's Agent's mailing address

Adjacent and confronting Property Owners mailing addresses

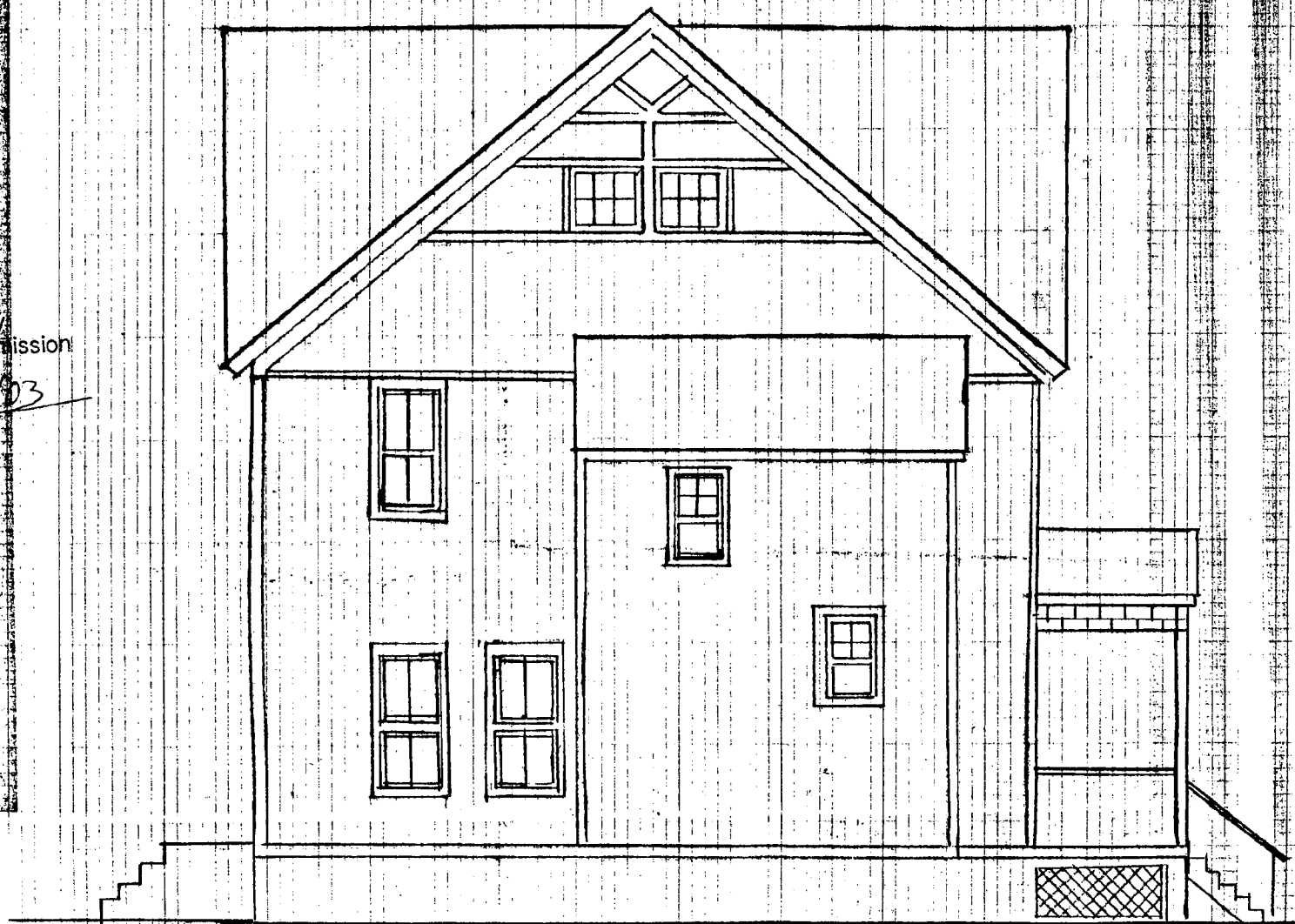
PATRICK FLAKAGAN
105 ELM AVENUE
TAKOMA PARK, MD 20912

STEVE NADELL
109 ELM AVENUE
TAKOMA PARK, MD 20912

WILLIE FISCHER
106 ELM AVENUE
TAKOMA PARK, MD 20912

Montgomery County
Historic Preservation Commission

J. J. 1/22/03

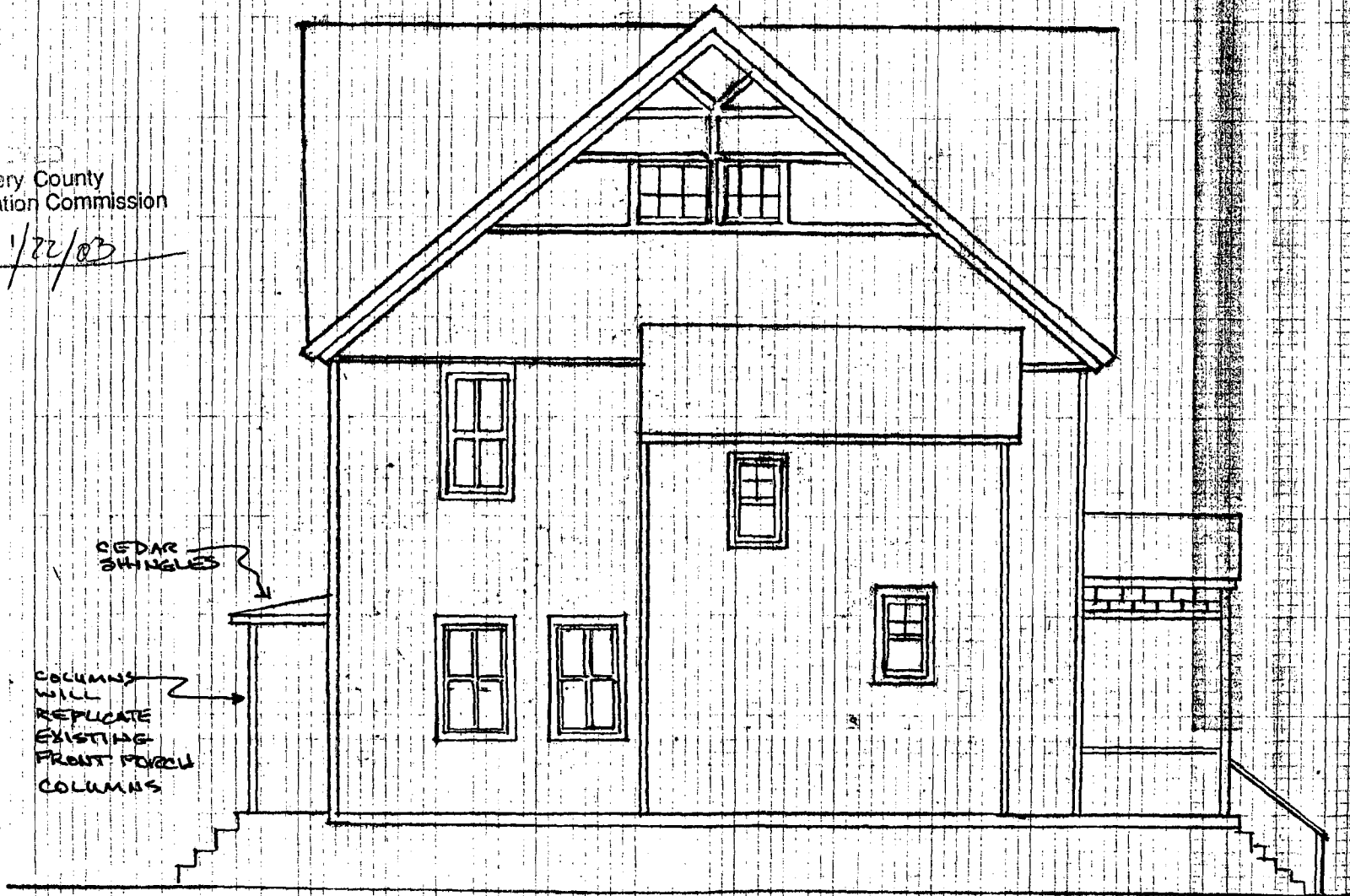


EXISTING EAST ELEVATION
107 ELM AVENUE

1/4" = 1' (APPROX)

Montgomery County
Historic Preservation Commission

Jan J 1/22/03



PROPOSED EAST ELEVATION
107 ELM AVENUE

1/4" = 1' (APPROX)

HISTORIC PRESERVATION COMMISSION STAFF REPORT

Address:	107 Elm Avenue	Meeting Date:	01/22/03
Applicant:	Don W. & M.M. Harvey	Report Date:	01/15/03
Resource:	Takoma Park Historic District	Public Notice:	01/08/03
Review:	HAWP	Tax Credit:	Partial
Case Number:	37/03-03C	Staff:	Corri Jimenez
PROPOSAL:	Portico installation & window replacement		
RECOMMEND:	Approve with conditions		

CONDITIONS

1. The replacement windows will be 2/2 wood, double hung and be true-divided lites. Staff would encourage that the old windows be kept on site. Staff would also like to recommend that the applicant try to match the original mullion profile in the window, if possible.

PROJECT DESCRIPTION

SIGNIFICANCE: Outstanding Resource
STYLE: Queen Anne
DATE: c. 1886

107 Elm Avenue is an outstanding resource to the Takoma Park Historic District as a 2-½ story stucco-covered Queen Anne with wood shingles articulating the front gable.

PROPOSAL

The applicants propose to reconstruct a rear portico on an existing footprint. The addition will be wood frame construction with a ~~composition-asphalt~~ roof and columns that replicate the front porch (see Circle 9). The original portico's roofline is evident, and the new construction will abut this on an existing footprint (see Circle 11).

wood, cedar shingles - Correction

In addition, the applicants wants to replace two 2/2 wood double hung windows on the east side elevation that are shadowed by a two-story, shed roof addition (see Circle 12-13). These windows are both in disrepair and one window is a later addition to the elevation (see Circle 14-17). These windows are located in the kitchen where interior improvements are being completed that will require the windows to be 1' shorter. The proposed new windows will be 2/2 wood double hung thermal windows with snap-in muntins. Two storm windows will also be removed from these two windows.

STAFF DISCUSSION

Staff approves as well as encourages the reconstruction of the rear portico and finds the design compatible with the rest of the house, which is a feature that is just obviously missing from this elevation.

In regards to the windows, the HPC typically does not permit windows for outstanding resources to be replaced. Windows are regarded as essential parts of the architectural fabric of a building. The goal of historic preservation is not only to keep the general exterior appearance of the historic building intact, but also to preserve original building materials. In addition, the Secretary of Interior's Standards state windows should be repaired rather than replaced, regardless of their conditions, which is supported with guidelines for property owners (see Circle 17-24).

Additionally, the Takoma Park Historic District guidelines state "preservation of original windows and doors, particularly those with specific architectural importance, and of original size and shape of openings is encouraged."

Because these windows are located behind a fence and two-story, side shed roof addition, they are not highly visible from the public right-of-way. One of these windows apparently is not original to the house, though is contemporary and probably was added 20-30 years after construction of the house (see Circle 25). Staff recommends to approve of this project with the condition that the replacement windows be 2/2 wood true-divided lites with historic replicated mullions. In addition, staff would like to ask that the applicants store on site in a safe place the removed windows because they are attractive original windows and may have a use in the future.

STAFF RECOMMENDATION

Staff recommends that the Commission *approve with conditions* the HAWP application as being consistent with Chapter 25A-8(b) 2:

The proposal is compatible in character and nature with the historical, archeological, architectural or cultural features of the historic site or the historic district in which an historic resource is located and would not be detrimental thereto or to the achievement of the purposes of this chapter.

and with the Secretary of the Interior's *Standards #6*:

Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

with conditions:

1. The replacement windows will be 2/2 wood, double hung and be true-divided lites. Staff would encourage that the old windows be kept on site. Staff would also like to recommend that the applicant try to match the original mullion profile in the window, if possible.

with the general conditions applicable to all Historic Area Work Permits that the applicant shall also present any permit sets of drawings to HPC staff for review and stamping prior to submission for permits and shall arrange for a field inspection by the Montgomery County Department of Permitting Services (DPS), Field Services Office, five days prior to commencement of work, and within two weeks following completion of work.



RETURN TO: DEPARTMENT OF PERMITTING SERVICES
 260 F. VILLE PIKE, 2ND FLOOR, ROCKVILLE, MD 20850
 2407 870

DPS - #8

HISTORIC PRESERVATION COMMISSION
 301/563-3400

APPLICATION FOR HISTORIC AREA WORK PERMIT

Contact Person: _____

Daytime Phone No.: _____

Tax Account No.: _____

Name of Property Owner: DON W. & M.M. HARVEY Daytime Phone No.: (301) 903-7315

Address: 107 ELM AVENUE, TAKOMA PARK, MD 20912
Street Number City State Zip Code

Contractor: _____ Phone No.: _____

Contractor Registration No.: _____

Agent for Owner: _____ Daytime Phone No.: _____

Address: _____

LOCATION OF BUILDING/PREMISE

House Number: 107 Street: ELM AVENUE

Town/City: TAKOMA PARK Nearest Cross Street: ALLEGHENY

Lot: P20 Block: 16 Subdivision: _____

Liter: _____ Folio: _____ Parcel: _____

PART ONE: TYPE OF PERMIT ACTION AND USE

IA. CHECK ALL APPLICABLE:

CHECK ALL APPLICABLE:

- | | | | | | | | | |
|------------------------------------|--|---|--|--|--|--|-------------------------------|-------------------------------|
| <input type="checkbox"/> Construct | <input type="checkbox"/> Extend | <input type="checkbox"/> Alter/Renovate | <input type="checkbox"/> A/C | <input type="checkbox"/> Slat | <input type="checkbox"/> Room Addition | <input type="checkbox"/> Porch | <input type="checkbox"/> Deck | <input type="checkbox"/> Shed |
| <input type="checkbox"/> Move | <input type="checkbox"/> Install | <input type="checkbox"/> Wreck/Blaze | <input type="checkbox"/> Solar | <input type="checkbox"/> Fireplace | <input type="checkbox"/> Woodburning Stove | <input type="checkbox"/> Single Family | | |
| <input type="checkbox"/> Revision | <input checked="" type="checkbox"/> Repair | <input type="checkbox"/> Revocable | <input type="checkbox"/> Fence/Wall (complete Section 4) | <input checked="" type="checkbox"/> Other: <u>ROOF & WINDOWS</u> | | | | |

IB. Construction cost estimate: \$ 3500

IC. If this is a revision of a previously approved active permit, see Permit # _____

PART TWO: COMPLETE FOR NEW CONSTRUCTION AND EXTEND/ADDITIONS

2A. Type of sewage disposal: 01 WSSC 02 Septic 03 Other: _____

2B. Type of water supply: 01 WSSC 02 Well 03 Other: _____

PART THREE: COMPLETE ONLY FOR FENCE/RETAINING WALL

3A. Height _____ feet _____ inches

3B. Indicate whether the fence or retaining wall is to be constructed on one of the following locations:

- On party line/property line Entirely on land of owner On public right of way/easement

I hereby certify that I have the authority to make the foregoing application, that the application is correct, and that the construction will comply with plans approved by all agencies listed and I hereby acknowledge and accept this to be a condition for the issuance of this permit.

Don W. Harvey
 Signature of owner or authorized agent

12/23/02
 Date

Approved: _____ For Chairperson, Historic Preservation Commission

Disapproved: _____ Signature: _____ Date: _____

Application/Permit No.: 295208 Date Filed: 12/27/02 Date Issued: _____

**THE FOLLOWING ITEMS MUST BE COMPLETED AND THE
REQUIRED DOCUMENTS MUST ACCOMPANY THIS APPLICATION.**

1. WRITTEN DESCRIPTION OF PROJECT

a. Description of existing structure(s) and environmental setting, including their historical features and significance:

**SINGLE FAMILY DWELLING - CLASS 1 RESOURCE IN TAKOMA
PARK HISTORIC DISTRICT**

b. General description of project and its effect on the historic resource(s), the environmental setting, and, where applicable, the historic district:

1) REPLACE SHED ROOF ABOVE BACK DOOR. POSTS WILL REPLICATE THOSE ON FRONT PORCH. ROOF WILL BE ATTACHED AT FLASHING SHOWN IN PHOTO.
2) REMOVE AND REPLACE KITCHEN WINDOWS ON EAST SIDE OF HOUSE. REPLACEMENT WINDOWS WILL REPLICATE EXISTING WINDOWS (WOOD, DOUBLE-GLAZED WITH SNAP-IN MUNTINS); STORM WINDOWS WILL BE REMOVED. NEW WINDOWS WILL BE 12" SHORTER TO FACILITATE CABINET INSTALLATION. EXISTING WINDOWS ARE EXCESSIVELY DRAFTY AND MUST BE ROPE CHALKED FOR ENERGY EFFICIENCY AND ARE IN NEED MAJOR REPAIR TO SILLS AND SASHES (SEE PHOTOS). THERE ARE NO OTHER WINDOWS ON THE EAST FACADE WHICH ARE AT THE BOTTOM SASH LEVEL.

2. SITE PLAN

Site and environmental setting, drawn to scale. You may use your plot. Your site plan must include:

- a. the scale, north arrow, and date;
- b. dimensions of all existing and proposed structures; and
- c. site features such as walkways, driveways, fences, ponds, streams, trash dumpsters, mechanical equipment, and landscaping.

3. PLANS AND ELEVATIONS

You must submit 2 copies of plans and elevations in a format no larger than 11" x 17". Plans on 8 1/2" x 11" paper are preferred.

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- b. Elevations (facades), with marked dimensions, clearly indicating proposed work in relation to existing construction and, when appropriate, context. All materials and fixtures proposed for the exterior must be noted on the elevations drawings. An existing and a proposed elevation drawing of each facade affected by the proposed work is required.

4. MATERIALS SPECIFICATIONS

General description of materials and manufactured items proposed for incorporation in the work of the project. This information may be included on your design drawings.

5. PHOTOGRAPHS

- a. Clearly labeled photographic prints of each facade of existing resource, including details of the affected portions. All labels should be placed on the front of photographs.
- b. Clearly label photographic prints of the resource as viewed from the public right-of-way and of the adjoining properties. All labels should be placed on the front of photographs.

6. TREE SURVEY

If you are proposing construction adjacent to or within the dripline of any tree 6" or larger in diameter (at approximately 4 feet above the ground), you must file an accurate tree survey identifying the size, location, and species of each tree of at least that dimension.

7. ADDRESSES OF ADJACENT AND CONFRONTING PROPERTY OWNERS

For ALL projects, provide an accurate list of adjacent and confronting property owners (not tenants), including names, addresses, and zip codes. This list should include the owners of all lots or parcels which adjoin the parcel in question, as well as the owner(s) of lot(s) or parcel(s) which lie directly across the street/highway from the parcel in question. You can obtain this information from the Department of Assessments and Taxation, 51 Monroe Street, Rockville, (301)279-1355.

PLEASE PRINT (IN BLUE OR BLACK INK) OR TYPE THIS INFORMATION ON THE FOLLOWING PAGE.
PLEASE STAY WITHIN THE GUIDES OF THE TEMPLATE, AS THIS WILL BE PHOTOCOPIED DIRECTLY ONTO MAILING LABELS.

HAWP APPLICATION: MAILING ADDRESSES FOR NOTICING

[Owner, Owner's Agent, Adjacent and Confronting Property Owners]

Owner's mailing address

107 ELM AVENUE

Owner's Agent's mailing address

Adjacent and confronting Property Owners mailing addresses

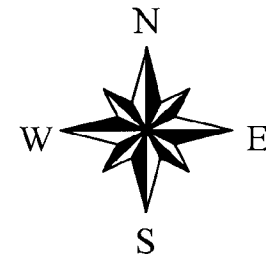
PATRICK FLAHERTY
105 ELM AVENUE
TAKOMA PARK, MD 20912

STEVE NADELL
109 ELM AVENUE
TAKOMA PARK, MD 20912

WILLIE FISCHER
106 ELM AVENUE
TAKOMA PARK, MD 20912

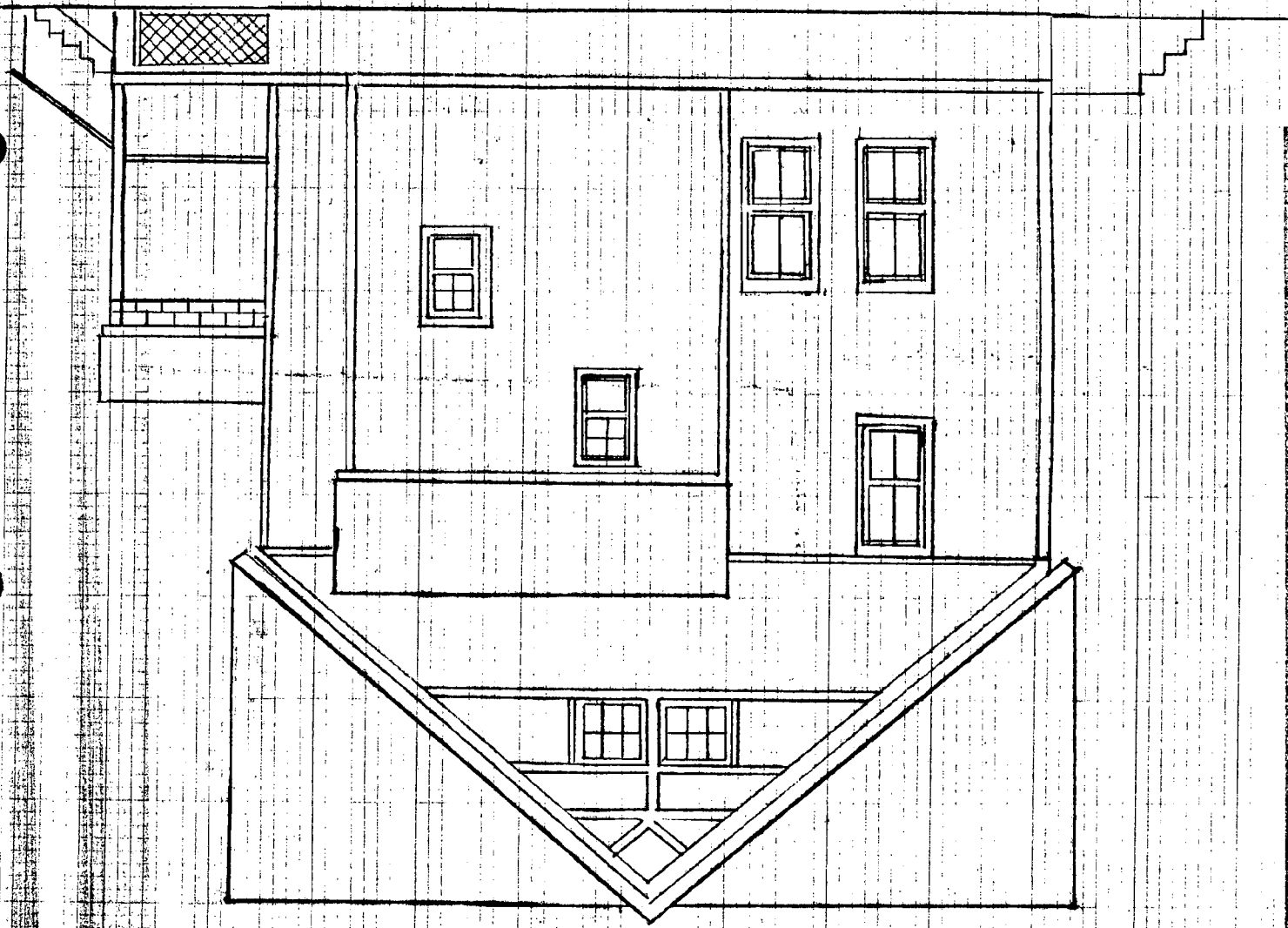
g addresses: noticing table

Takoma Park Historic District



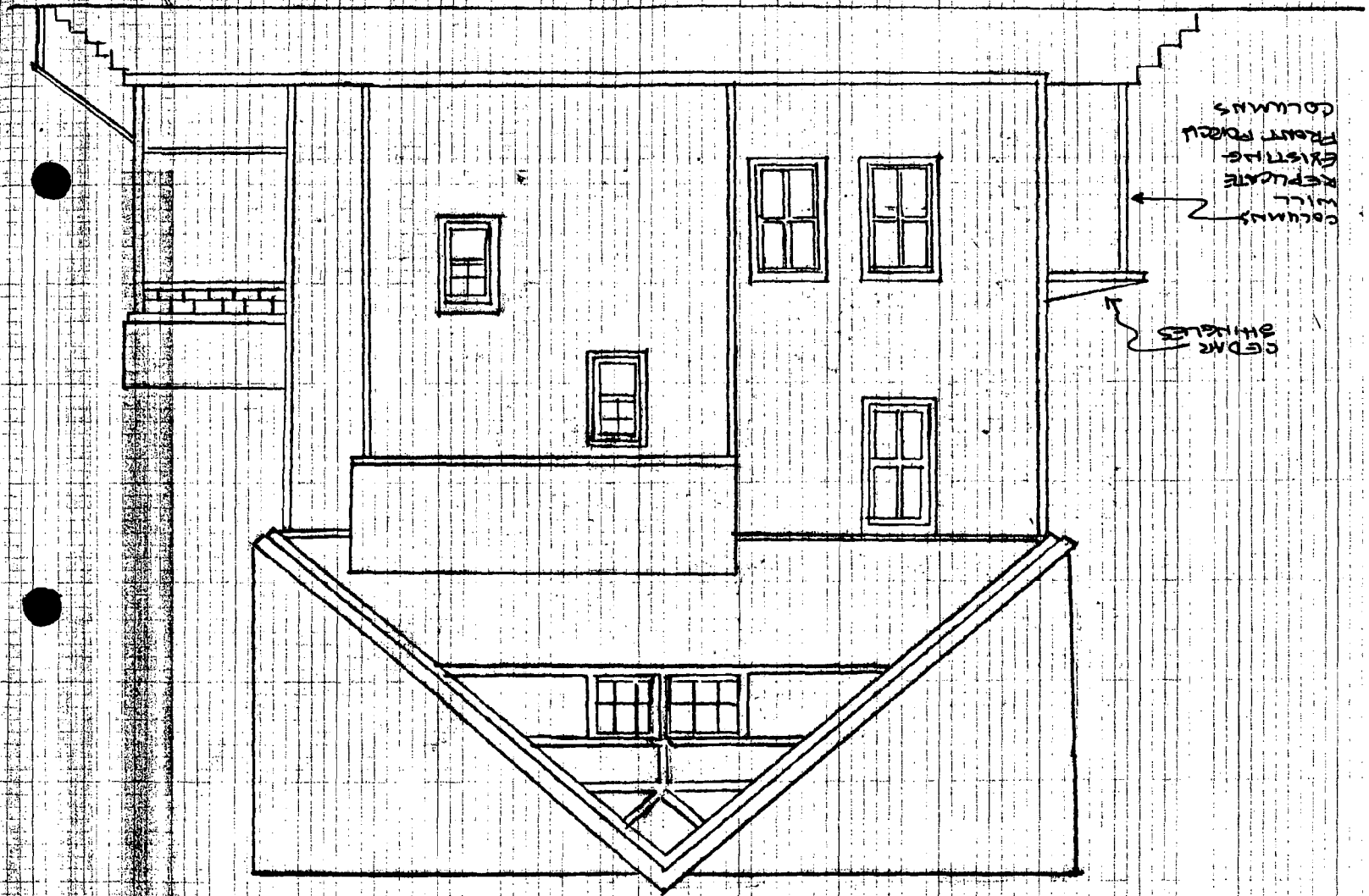
EXISTING EAST ELEVATION
107 ELM AVENUE

1/4" = 1' (APPROX)



PROPOSED EAST ELEVATION
107 ELM AVENUE

1/4" = 1' (APPROX)



COLUMNS
WILL
REPLICATE
EXISTING
FRONT PORCH
COLUMNS

CEDAR
SHINGLES



107 ELM AVENUE
TAKOMA PARK, MD 20912

①

ALL POSTS TO BE USED FOR SHED ROOF TO BE INSTALLED OVER BACK DOOR

PHOTO SHOWING POSTS ON FRONT PORCH.

IDENTICAL POSTS WILL BE USED FOR SHED
ROOF TO BE INSTALLED OVER BACK DOOR

10/10/12

10/10/12

10/10/12

⑩

107 ELM AVENUE
TAKOMA PARK, MD 20912

PHOTO OF BACK DOOR
SHOWING FLASHING FOR
ROOF EMBEDDED IN
STUCCO WALL.

SHED ROOF OF EXISTING
WIDTH OF FLASHING WILL
BE ATTACHED AT THIS
POINT.





107 ELM AVENUE
TAKOMA PARK, MD 20912

PHOTO OF EAST SIDE OF DWELLING,
SHOWING KITCHEN WINDOWS PARTIALLY
OBSCURED BY FENCE. THE TWO
DOUBLE-HUNG WINDOWS WILL BE
REPLACED WITH WOOD DOUBLE-GLAZED
WINDOWS WITH SNAP-IN MUNTINS. NEW
WINDOWS WILL BE ONE FOOT SHORTER
THAN EXISTING TO ALLOW FOR
INSTALLATION OF CABINETS ON
INTERIOR KITCHEN WALL.

PHOTO ALSO SHOWS NO OTHER WINDOWS AT THIS
HEIGHT ON THIS SIDE OF HOUSE.



107 ELM AVENUE
TAKOMA PARK, MD 20912

④

SECOND PHOTO OF WINDOWS TAKEN FROM
SIDEWALK ON EAST SIDE OF HOUSE.

STORM WINDOWS WILL BE REMOVED WHEN
EXISTING WINDOWS ARE RELACED.

(SMALL
WINDOW TO RIGHT WILL REMAIN AS EXIST)



107 ELM AVENUE
TAKOMA PARK, MD 20912

(5)

PHOTO OF BROKEN SILL OF KITCHEN
WINDOW. ALSO SHOWS CORD INSULATION
NEEDED TO CHAULK LEAKS.

(14)



107 ELM AVENUE
TAKOMA PARK, MD 20912

(6)

PHOTO OF DAMAGED WINDOW SILL AND
ROPE CHALKING USED TO REDUCE COLD
AIR INFLOW TO KITCHEN

(15)



107 ELM AVENUE
TAKOMA PARK, MD 20912

11/17/82

11/17/82

16

PHOTO OF KITCHEN WINDOW SHOWING GAP
BETWEEN SASH AND FRAME WHICH LEAKS
COLD AIR INTO HOME.

16

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.

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-

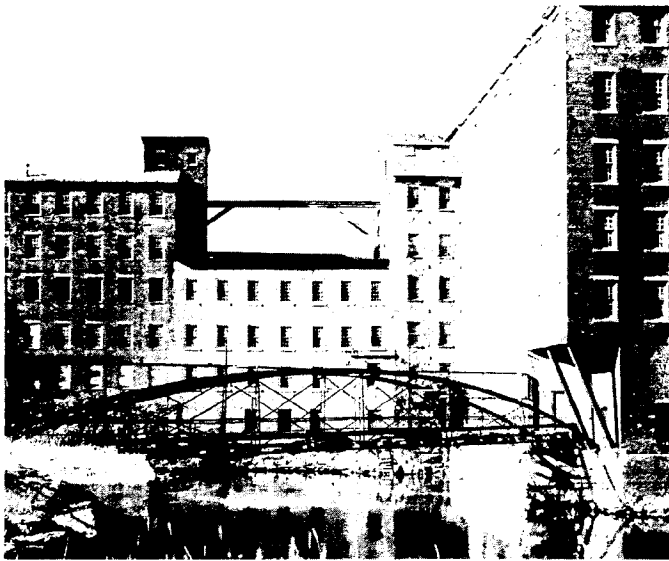


Figure 1. Windows are frequently important visual focal points, especially on simple facades such as this mill building. Replacement of the multi-pane windows here with larger panes could dramatically change the appearance of the building. The areas of missing windows convey the impression of such a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

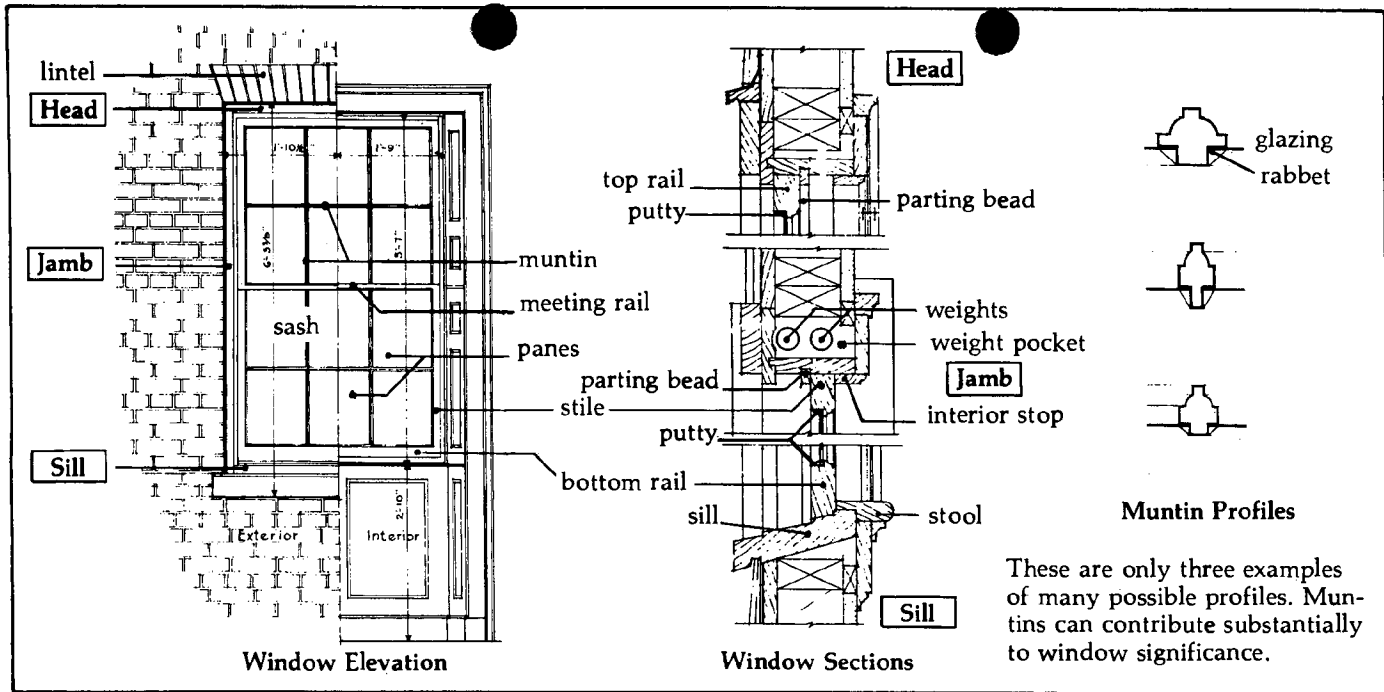


Figure 2. These drawings of window details identify major components, terminology, and installation details for a wooden double-hung window.

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, particu-

larly 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-

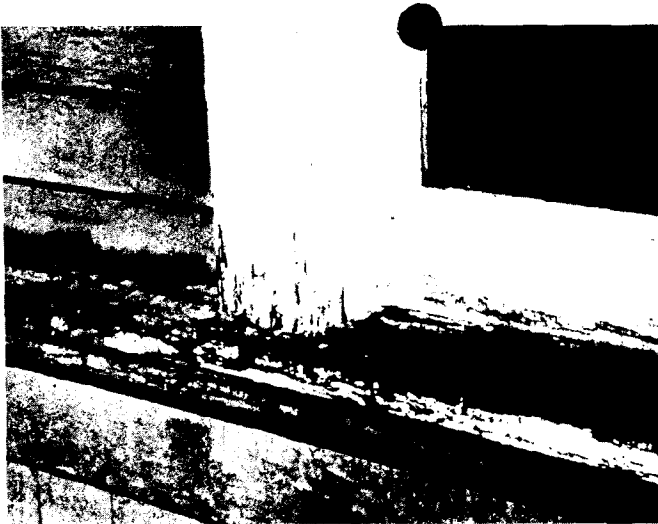


Figure 3. Deterioration of poorly maintained windows usually begins on horizontal surfaces and at joints where water can collect and saturate the wood. The problem areas are clearly indicated by paint failure due to moisture. Photo: Baird M. Smith, AIA

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

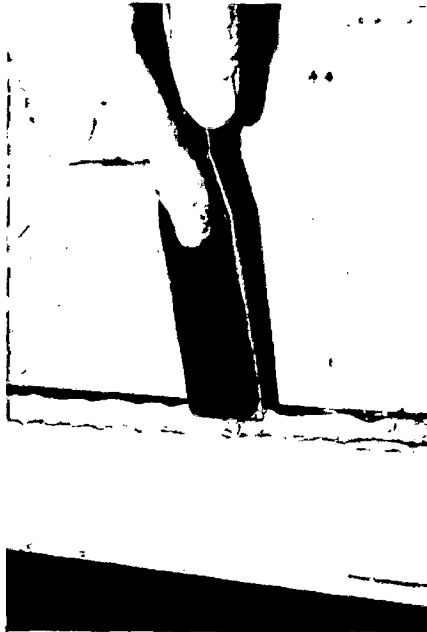


Figure 4d. Reglazing or replacement of the putty requires that the existing putty be removed manually, the glazing points be extracted, the glass removed, and the back putty scraped out. To reglaze, a bed of putty is laid around the perimeter of the rabbet, the pane is pressed into place, glazing points 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 proc-

ess 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

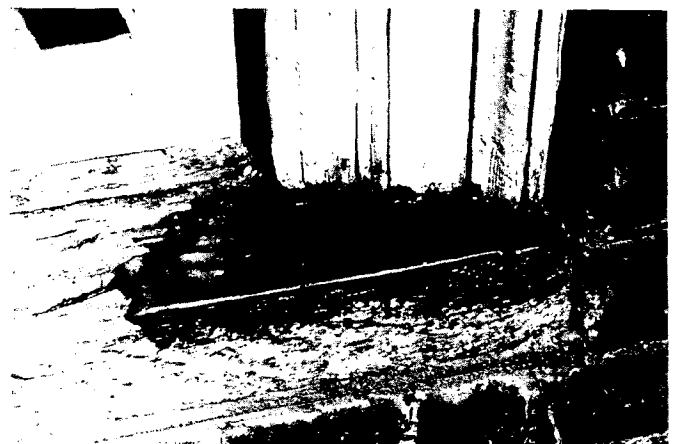


Figure 5. This illustrates a two-part epoxy patching compound used to fill the surface of a weathered sill and rebuild the missing edge. When the epoxy cures, it can be sanded smooth and painted to achieve a durable and waterproof repair. Photo: John H. Myers

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 wood-working 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.

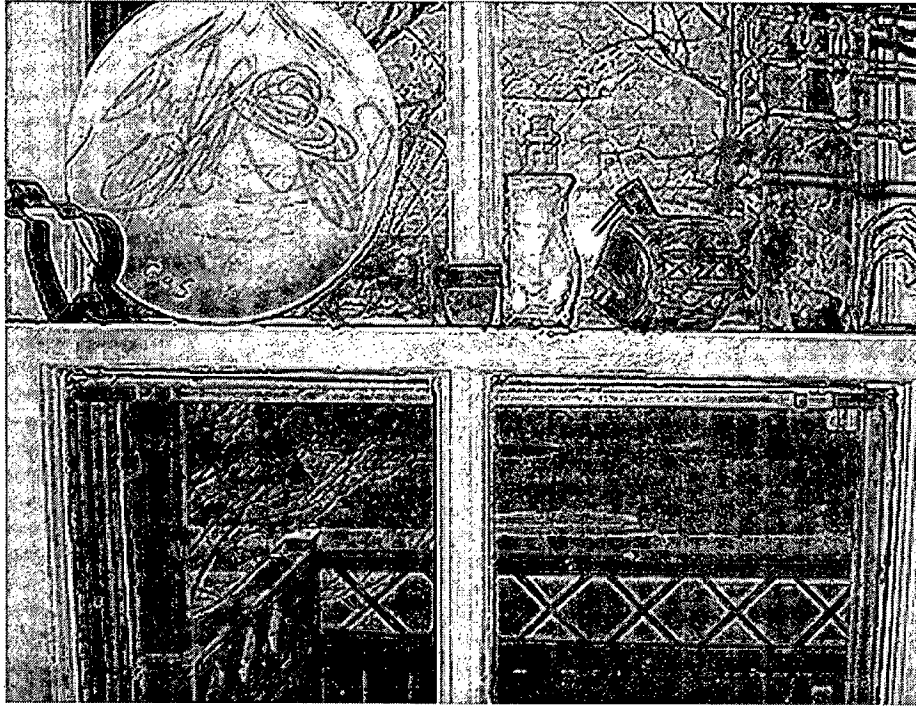
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(24)

Window Comparison for historic accuracy



Window on the Left (Note: large mullion which differs from historic ones)



Window on the Right, historic one



107 ELM AVENUE
TAKOMA PARK, MD 20912

①

PHOTO SHOWING POSTS ON FRONT PORCH.
IDENTICAL POSTS WILL BE USED FOR SHED
ROOF TO BE INSTALLED OVER BACK DOOR

DIANE
TAKOMA PARK

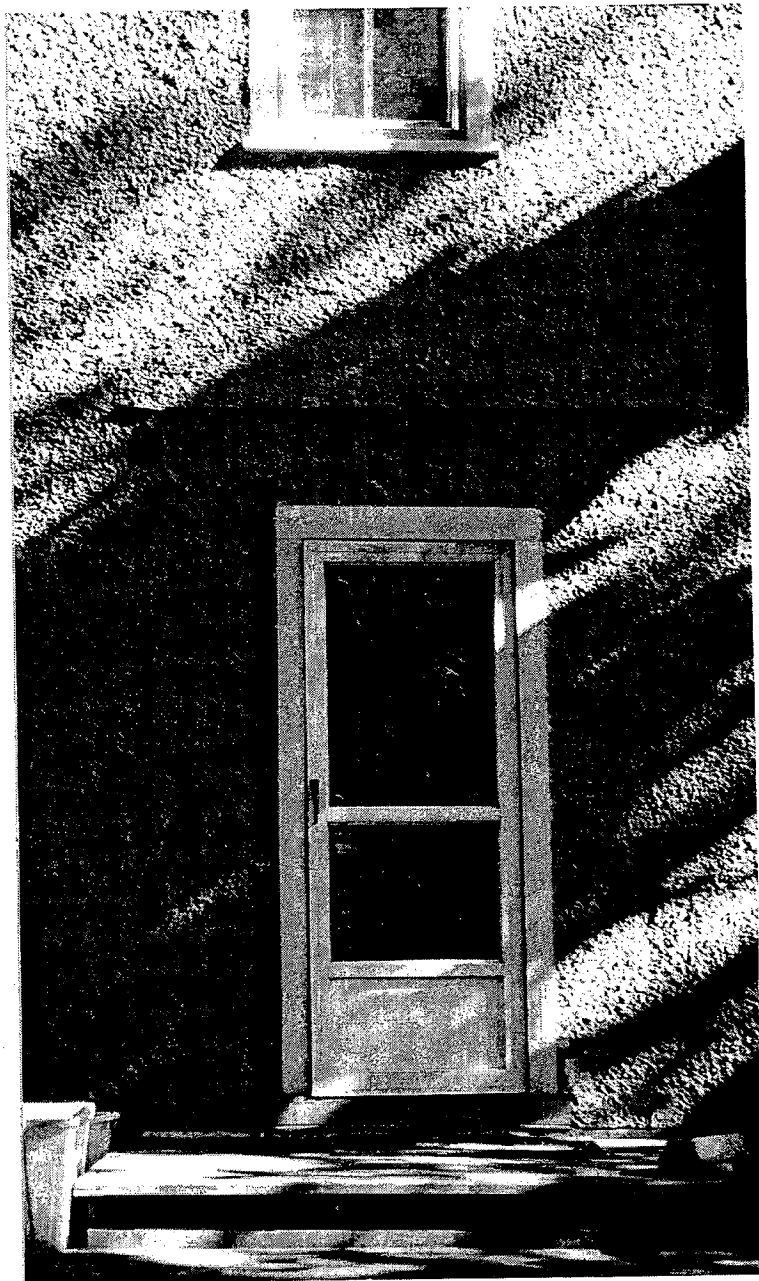
DIANE
TAKOMA PARK

DIANE
TAKOMA PARK

②
107 ELM AVENUE
TAKOMA PARK, MD 20912

PHOTO OF BACK DOOR
SHOWING FLASHING FOR
ROOF EMBEDDED IN
STUCCO WALL.

SHED ROOF OF EXISTING
WIDTH OF FLASHING WILL
BE ATTACHED AT THIS
POINT.





107 ELM AVENUE
TAKOMA PARK, MD 20912

PHOTO OF EAST SIDE OF DWELLING,
SHOWING KITCHEN WINDOWS PARTIALLY
OBSCURED BY FENCE. THE TWO
DOUBLE-HUNG WINDOWS WILL BE
REPLACED WITH WOOD DOUBLE-GLAZED
WINDOWS WITH SNAP-IN MUNTINS. NEW
WINDOWS WILL BE ONE FOOT SHORTER
THAN EXISTING TO ALLOW FOR
INSTALLATION OF CABINETS ON
INTERIOR KITCHEN WALL.

PHOTO ALSO SHOWS NO OTHER WINDOWS AT THIS
HEIGHT ON THIS SIDE OF HOUSE.

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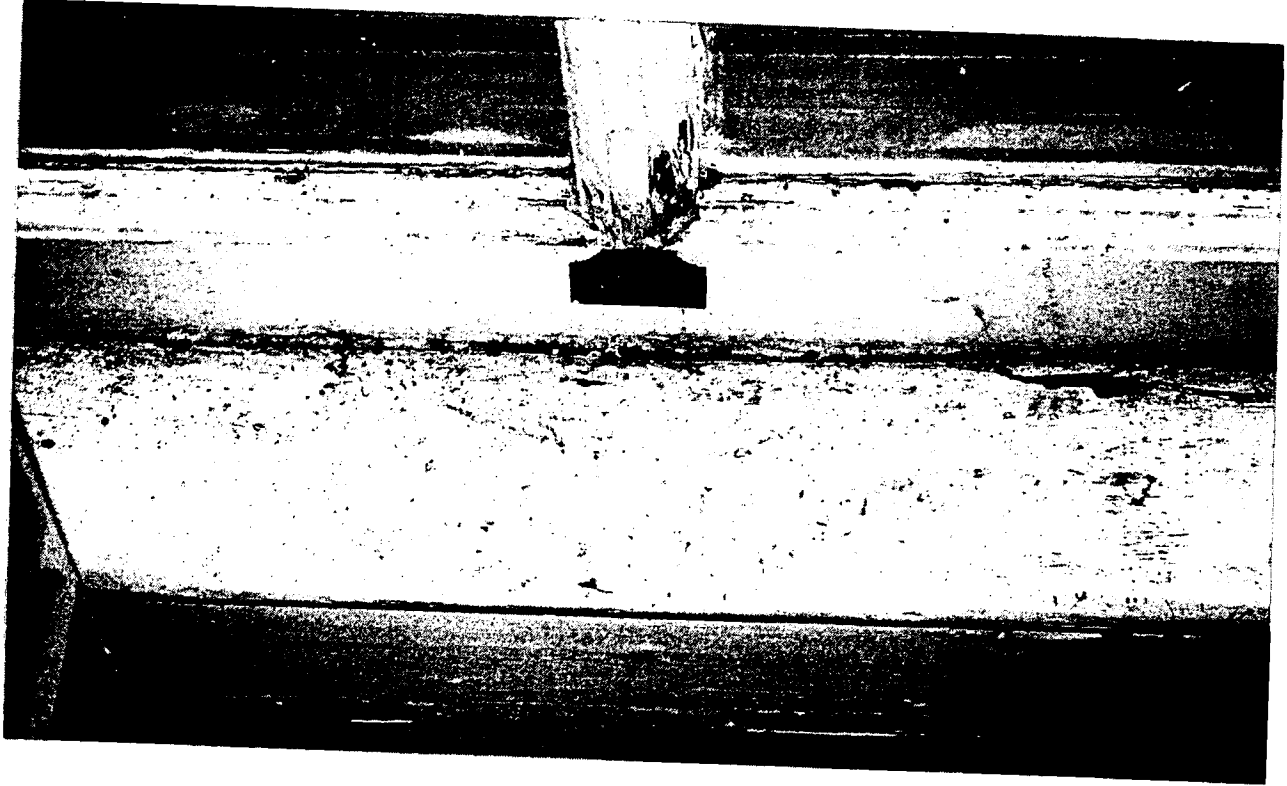
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SECOND PHOTO OF WINDOWS TAKEN FROM
SIDEWALK ON EAST SIDE OF HOUSE.
STORM WINDOWS WILL BE REMOVED WHEN
EXISTING WINDOWS ARE REPLACED.
(SMALL WINDOWS TO RIGHT WILL REMAIN AS EXIST)

107 ELM AVENUE
TAKOMA PARK, MD 20912

④





107 ELM AVENUE
TAKOMA PARK, MD 20912

5

PHOTO OF BROKEN SILL OF KITCHEN
WINDOW, ALSO SHOWS CORD INSULATION
NEEDED TO CHALK LEAKS.



107 ELM AVENUE
TAKOMA PARK, MD 20912

⑥

PHOTO OF DAMAGED WINDOW-SILL AND
ROPE CHAULKING USED TO REDUCE COLD
AIR INFLOW TO KITCHEN



107 ELM AVENUE
TAKOMA PARK, MD 20912

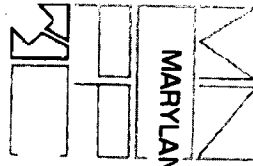
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⑦

PHOTO OF KITCHEN WINDOW SHOWING GAP
BETWEEN SASH AND FRAME WHICH LEAKS
COLD AIR INTO HOME.

8787 Georgia Avenue • Silver Spring, Maryland 20910-3760



THE
MARYLAND-NATIONAL CAPITAL
PARK AND PLANNING
COMMISSION





107 ELM AVENUE
TAKOMA PARK, MD 20912

APR 14 2012 10:09 AM 107 ELM AVENUE TAKOMA PARK

PHOTO SHOWING POSTS ON FRONT PORCH.

IDENTICAL POSTS WILL BE USED FOR SHED
ROOF TO BE INSTALLED OVER BACK DOOR

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107 ELM AVENUE

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PICTURE OF DAMAGED WINDOW SILL AND

ROPE CHAIRING USED TO REDUCE COOL

AIR INFLOW TO KITCHEN

DATE: 11/21/12

BY: [illegible]



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SECOND PHOTO OF WINDOWS TAKEN FROM
SIDEWALK ON EAST SIDE OF HOUSE.

STORM WINDOWS WILL BE REMOVED WHEN
EXISTING WINDOWS ARE RELACED.

(SMALL
WINDOW TO RIGHT WILL REMAIN AS EXIST)



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PHOTO OF EAST SIDE OF DWELLING,
SHOWING KITCHEN WINDOWS PARTIALLY
OBSCURED BY FENCE. THE TWO
DOUBLE-HUNG WINDOWS WILL BE
REPLACED WITH WOOD DOUBLE-GLAZED
WINDOWS WITH SNAP-IN MUNTINS. NEW
WINDOWS WILL BE ONE FOOT SHORTER
THAN EXISTING TO ALLOW FOR
INSTALLATION OF CABINETS ON
INTERIOR KITCHEN WALL.

PHOTO ALSO SHOWS NO OTHER WINDOWS AT THIS
HEIGHT ON THIS SIDE OF HOUSE.



187 ELM AVENUE
TAKOMA PARK, MD 20912

PHOTO OF BACK DOOR
SHOWING FLASHING FOR
ROOF EMBEDDED IN
STUCCO WALL.

SHED ROOF OF EXISTING
WIDTH OF FLASHING WILL
BE ATTACHED AT THIS
POINT.



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PHOTO OF KITCHEN WINDOW SHOWING GAP
BETWEEN SASH AND FRAME WHICH LETS
COLD AIR INTO HOME.

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PHOTO OF BROKEN SILL OF KITCHEN
WINDOW, ALSO SHOWS CORD INSULATION
NEEDED TO CHAULK LEAKS.

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Digital Art
Color

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