

Meeting Date:

August 20, 2026

Location:

88 N Main Street

Parcel Number:

3201390

Request:

Appeal of AHBR decision

Appellant:

Joseph Kernan

Property/Business

Owner: Declan

Thomas LTD

Zoning:

D5 – Village Core
Gateway

Case Manager:

Mary Rodack,
Associate Planner

Contents

- Application 7-12-2026
- AHBR Meeting
Minutes from 4-22-
2026
- AHBR 25-1478
documents from 4-22-
2026 AHBR meeting
- AHBR Final Decision,
6-12-2025
- NPS Preservation
Briefs #14 and #16



Location Map, City of Hudson GIS

Request:

The subject of this hearing is a request for an appeal, pursuant to Section 1212.01(b), from the final decision made by the Architectural and Historic Board of Review (AHBR) on June 12, 2026, for a request for an exterior alteration to Kepner's Tavern, including the replacement of a commercial front door per AHBR case No. 2025-1478.

The appellant is Attorney Joseph Kernan of PO Box 1456, Norton, Ohio 44203. The property owner is Declan Thomas LTD, 88 N Main Street, Hudson, Ohio 44236.

Adjacent Development:

The site is adjacent to commercial development to the north and west and city-owned property to the south and east.

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Background

The property is located in District 5 – Village Core Gateway. The property is situated on N Main St and is within the historic district. The lot is approximately 0.09 acres, and the owners purchased the property in 2017.

Staff was coordinating with the property owner on an exterior maintenance violation case for the business' hanging sign when it was observed that the front and side doors of the building had been replaced in the summer of 2025. Staff confirmed a permit had not been obtained and pursued code enforcement for the sign and door replacements at the property. The property is located within the historic district. Any exterior alteration within the historic district requires a zoning certificate and approval by the AHBR. The owners applied for a permit for the door replacements in addition to a new sign to address the code violations.

The requests were presented to the AHBR under application #25-1478 with the following timeline:

- January 28, 2026: The case was not discussed as the applicant was unable to attend due to a personal matter. The case was continued.
- February 11, 2026: The applicant and Board discussed design elements for both the sign and door replacements. The AHBR moved to approve the sign alteration work at the February 11th meeting; however, the door replacement work was continued to a future meeting for the applicant to revise the design to appear more historically appropriate. A suggestion was made by the city to apply divided lites/window divides to the glass to achieve this goal.
- February 25, 2026: The case was continued without discussion at the request of the applicant.
- March 11, 2026: The case was continued without discussion at the request of the applicant.
- April 8, 2026: The case was continued without discussion at the request of the applicant.
- April 22, 2026: The applicant stated they were no longer pursuing the divided lite alteration and proposed a glass etching in its place. After discussion with the applicant, The AHBR entered executive session. The board emerged and reaffirmed their decision to approve the hanging sign alteration at the February 11, 2026, AHBR meeting and approved the design of the side door. However, the AHBR moved to deny the design of the front door replacement.

The replaced front door is depicted below.

Front door before replacement



Front door after replacement



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Staff has summarized the AHBR's findings regarding the front door replacement below, and the detailed findings can be found in the attached Final Decision.

- The building on the property is applicable for review according to the Secretary of the Interior Standards for Historic Rehabilitation and National Park Service Preservation Briefs #14 and #16.
- The board acknowledged the front door's public facing location on N Main Street.
- The board found the previous door contained traditional window lites, hardware and trim.
- The board found the proposed front door altered the historic appearance of the building and does not have compatible visual elements.
- The board found the contemporary design of the front door is not compatible with the overall architecture and historic character of the building.
- The board found the applicant did not retain elements of the previous door that would be appropriate for the historic district.
- The board found the front door alteration did not comply with Preservation Brief #16 in retaining the overall historic character of the building.
- The applicant mentioned several properties containing metal doors along N Main St during the April 22, 2026, AHBR meeting. Staff reviewed archival imagery and records to address the properties with metal doors.

In the appellant's application for the appeal, they questioned the AHBR's application of Architectural Design Standards and other code sections, the AHBR's consideration of exigent circumstances, and the board entering into an executive session. The full AHBR packet and additional submitted documents are included in this staff report.

[January 28th, 2026 AHBR Meeting Minutes](#)

[February 11th, 2026 AHBR Meeting Minutes](#)

[April 22nd, 2026 AHBR Meeting Minutes](#) (The April 22, 2026 AHBR meeting minutes are also attached to this report)

The video recordings of the three AHBR meetings discussing the application can be viewed at <https://www.hudson.oh.us/816/AHBR-Agendas-Minutes-Videos>.

Overview of AHBR Standards of Review

Architectural Design Standards Section III-2(b)(3)(i)

Hudson's Historic District and Historic Landmarks contain a wealth of properties with well preserved and maintained high quality historic building materials. The preservation of these materials is essential to the distinguishing character of individual properties and of the district. Deteriorated materials shall be repaired where feasible rather than replaced. In the event that replacement is appropriate, the new material should be compatible in composition, design, color, and texture.

(i). *Use of Substitute materials for Historic Properties (as defined in Section III-2. b.).*

(a.) *The AHBR shall review detailed documentation of the existing site conditions.*

Architectural Design Standards Section III-2(b)(3)(i)(d)

If the AHBR concurs that the condition of the material requires replacement in some or all portions of the structure, like materials should be used. Substitute materials may be considered when the proposed materials do not alter the historic appearance of the structure, and the proposed materials are compatible in

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proportion, size, style, composition, design, color, and texture with the existing historic materials.

Secretary of Interior's Standards for Rehabilitation criteria #2 & #6

2 - The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.

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.

National Park Service Preservation Briefs #16

16 – When it is necessary to replace a less distinctive, secondary feature that is less important in defining the historic character of the property, there is more flexibility in how it can be replaced. While it may be less important to find an exact match in materials when replacing such a feature, the retention of the overall historic character should still guide selection of an appropriate replacement material.

Staff Comments:

- Preservation Briefs are developed by the National Park Service and provide information and standards on preserving historic buildings.
- Preservation Briefs #14 and #16 were adopted by Hudson's LDC Section Appendix D. – Architectural Design Standards Section III-2(b)(1) and are attached to this staff report.

Architectural Design Standards Section II-1 Approval and Discretion of the AHBR

- Proposals which the AHBR determines comply with the Standards shall be approved. Without limiting the discretion of the AHBR to make judgements rendered in accordance with these Standards, in no case shall an applicant be required to make changes to a proposal which are not supported by these Standards. The AHBR may offer additional advice and suggestions, at its discretion; however, such advice shall be clearly stated as such.*
- In making architectural review decisions, the AHBR shall rely on the Standards and, where it is unclear that a project fulfills the Standards, the AHBR shall refer to the principles enumerated in Section I-2.*
- The AHBR may waive any requirement of the Design Standards if the proposed project meets the above-mentioned principles and one of the following conditions:*
 - (1) The project is an exceptional design, meaning that it is either especially creative or it is designed in response to unique situation, such as a very difficult site or an unusual program requirement.*
 - or*
 - (2) Exceptional and unique conditions exist that create a practical difficulty in complying with the requirements of these Standards. The AHBR should consider the factors enumerated in as defined in the Land Development Code in determining "practical difficulty".*

Staff Comment: The AHBR did not grant a waiver consideration and documented within the Findings of Fact. Please see the provided final Decision for 88 N Main Street to review the board's Findings of Fact.

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Appeal Review Process

1212.01(b) Appeals: Final Actions and Decisions by the Architectural and Historic Board of Review

Any party-in-interest aggrieved by any final action, decision, or order by the Architectural and Historic Board of Review pursuant to this Code may appeal to the Board of Zoning and Building Appeals. All appeals shall be governed by Section 1202.03, including the time period for the filing the appeal.

1202.03(b)(4) BZBA Operations: Filing of appeals

A. An appeal to the BZBA may be taken by any party-in-interest or by any officer of the City affected by any decision of the Architecture and Historic Board of Review, Zoning Inspector, City Manager, Community Development Director, Planning Commission, or any decision in which the BZBA has original jurisdiction.

B. All appeals shall be filed with the BZBA within twenty days after the decision by filing with the City Manager a notice of appeal specifying the grounds thereof.

C. The City Manager shall transmit a copy of the notice of appeal to the BZBA, together with all the documents and other materials constituting the record upon which the action appealed from was taken.

1212.01 (f) Standards of Review

When examining any administrative decision on appeal under this Code, a reviewing body must affirm unless that decision is unlawful, unreasonable, or against the manifest weight of the evidence. A reviewing body shall give deference to the underlying body or decisionmaker's findings of fact. Findings of fact on appeal shall be presumed to be reasonable and may be overturned only if the reviewing body finds that no reasonable fact-finder could have reached the same conclusions.

1212.01(g) (Record of Review)

(g) A reviewing body shall be confined to the underlying body or decisionmaker's record.

(1) The rule found in this subsection (g) applies unless, in the first level of an appeal from any final original order or decision, an appellant requests to submit additional evidence and it appears, on the face of the record, that one of the following applies:

A. The record does not contain a report of all evidence admitted or proffered by the appellant at the original hearing;

B. The appellant or its attorney was not permitted to appear and be heard in person and requested but was not permitted to do at least one of the following:

- 1. Present the appellant's position, arguments, and contentions;*
- 2. Offer and examine witnesses and present evidence in support;*
- 3. Cross-examine witnesses purporting to refute the appellant's position, arguments, and contentions;*

4. Offer evidence to refute evidence and testimony offered in opposition to the appellant's position, arguments, and contentions; or

5. Proffer any such evidence into the record, if the admission of it is denied by the officer or body appealed from;

C. The testimony adduced was not given under oath;

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D. The appellant was unable to present evidence by reason of a lack of the power of subpoena by the reviewing body or decisionmaker, or the refusal, after request, of that reviewing body or decisionmaker to afford the appellant an opportunity to use the power of subpoena when possessed by that body or official; or

E. The underlying body or decisionmaker failed to file with the record conclusions of fact supporting the final order, adjudication, or decision.

(2) If any circumstance described in paragraphs (g)(1)B.1. to 5. of this section applies, the reviewing body may hear the appeal upon the record and consider any additional evidence as may be introduced by any party. The reviewing body shall have all necessary subpoena power, and at the hearing, any party may call, as if on cross-examination, any witness who previously gave testimony in opposition to that party.

(3) The failure of an appellant to request a hearing under paragraphs (g)(1) and (g)(2) of this section shall constitute a waiver of the right to submit additional evidence.

Staff comment: The BZBA shall review the above procedure to determine if additional evidence from the appellant can be submitted to the Board for the appeal.

1212.01(h) Remand Orders for Additional Findings of Fact

Upon examining an administrative decision on appeal, a reviewing body may remand the matter to the underlying body or decisionmaker if the original findings in the appealed decision are determined to be incomplete, unclear, or not supported by sufficient evidence. The remand order shall include instructions for the underlying body or decisionmaker to gather more evidence, conduct further analysis, explain its reasoning more clearly, or reexamine the facts and issue a new, more thorough and well-supported explanation for its factual determinations.

Staff Comment: Attached is the adopted Final Decision from the AHBR April 22, 2026, meeting.

1202.03(b)(b) BZBA Operations: Decisions

A. The BZBA shall take final action on an appeal or application within thirty days after the conclusion of the public hearing thereon.

B. All decisions of the BZBA shall be based on written findings of fact related to the relevant standards or criteria set forth in this Code.

C. A certified copy of the BZBA's decision shall be transmitted to the applicant or appellant and to the board, commission, or officer from whose decision an appeal was taken. Such decision shall be binding on such board, commission, or officer, and the terms and conditions of the BZBA action shall be incorporated into the approval, permit, or certificate, whenever an approval, permit, or certificate is authorized by the BZBA.

26-906

Submitted On: Jul 12, 2026

Applicant and Property Owner Information

Applicant Relationship to Property Owner:

Property Owner Name

Type of Hearing Request

Type of Request:

Appeal

Year Property Purchased

2017

Type of Appeal

Architectural and Historic Board of Review Decision

Land Development Code Sections applicable to the Appeal

1201.03, 1201.06, 1204.03, applicant reserves the right to supplement.

Reason or Justification for the Appeal

AHBR did not correctly apply code sections, did not take into consideration other exigent circumstances, did not consider overriding reasons for variance, entered into unlawful executive session. Applicant reserves the right to supplement.

BZBA Meeting Information

The following persons are authorized to represent this application with respect to all matters associated with the project

Kevin Arnold, Samantha Arnold, Attorney Joseph Kernan

By checking this box, I do hereby certify that I am authorized to represent the property owner and to accept any conditions that the Board may impose.

true

By checking this box, I do hereby certify that the information to the City of Hudson in and with this application is true and accurate and consents to employees and/or agents of the City of Hudson entering upon the premises of this application for purposes of inspection and verification of information pertaining to the application, and if this application is approved, to verify conformance to requirements and conditions of such approval. I acknowledge that City reviews or approvals do not absolve the subject property from deed restrictions, easements, or homeowner association covenants, restrictions, or regulations regarding structures and uses on the property.

true

Law Office of
Joseph M. Kernan, Esq.

PO Box 1456, Norton, OH 44203

(330) 607-9318

josephkernanlaw@yahoo.com

July 9, 2026

City of Hudson
Board of Zoning Appeals

Re: Appeal of Case 2025-1478
88 N. Main Street, Hudson, OH

To Whom It May Concern:

Please take notice that the owners of the property captioned above enter their appeal of the decision contained in Item #3 of the decision rendered in Case 2025-1478 and issued on June 24, 2026.

Very Truly Yours,

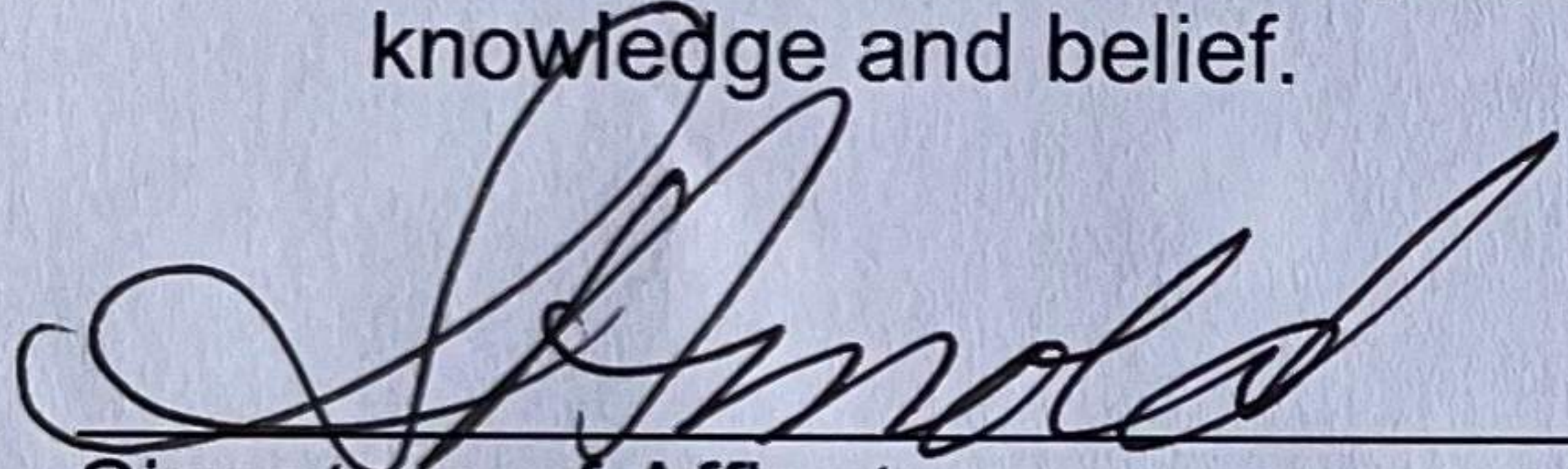
/s/ *Joseph M. Kernan*

JOSEPH M. KERNAN
Attorney at Law

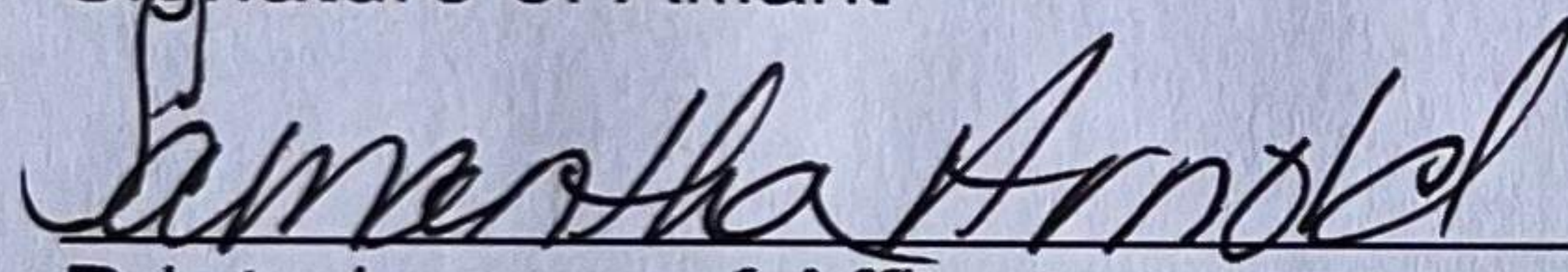
State of Ohio)
)ss
County of Summit)

I, Samantha Arnold, being first duly cautioned and sworn, state and depose as follows:

1. That Declan Thomas, Ltd. Is the owner of the property located at 88 North Main Street, Hudson, OH 44236.
2. That Kevin Arnold and Samantha Arnold are the principles of Declan Thomas, Ltd.
3. That all materials and information submitted with the instant appeal to the Hudson Board of Zoning Appeals is true and accurate to the best of our knowledge and belief.



Signature of Affiant

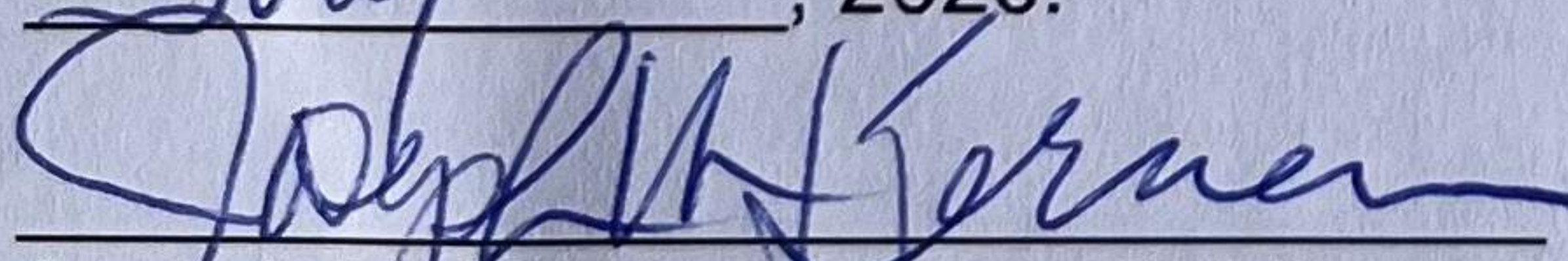


Printed name of Affiant

State of Ohio)
)ss
County of Summit)

Before me, a notary public, in and for said County, personally appeared the above named Samantha Arnold who acknowledges that she did sign the foregoing instrument and that the same is her free act.

In testimony whereof I have hereunto set my hand and official seal, this 9 day of July, 2026.



Joseph M. Kernan, Notary Public

My commission expires: No expiration, ORC 147.03





City of Hudson, Ohio

Meeting Minutes - Final Architectural & Historic Board of Review

John Caputo, Chair
Allyn Marzulla, Vice Chair
John Workley, Secretary
Andrew Brown
Amy Manko
Françoise Massardier-Kenney
Jamie Sredinski

Nicholas Sugar, City Planner
Lauren Coffman, Associate Planner

Wednesday, April 22, 2026

7:30 PM

Town Hall
27 East Main Street

I. Call To Order

Chair Caputo called to order the regularly scheduled meeting of the Architectural & Historic Board of Review of the City of Hudson at 7:30 p.m., in accordance with the Sunshine Laws of the State of Ohio, O.R.C. Section 121.22.

II. Roll Call

Present: 6 - Mr. Caputo, Ms. Kenney, Ms. Marzulla, Mr. Workley, Ms. Sredinski and Mr. Brown

Absent: 1 - Ms. Manko

III. Public Comment

Chair Caputo opened the meeting to public comments for anyone wanting to address the Board. There were no comments.

IV. Consent Applications

A motion was made by Mr. Workley, seconded by Ms. Kenney, to approve the Consent Agenda. The motion carried by the following vote:

Aye: 6 - Mr. Caputo, Ms. Kenney, Ms. Marzulla, Mr. Workley, Ms. Sredinski and Mr. Brown

Absent: 1 - Ms. Manko

[AHBR 26-234](#) 67 Division Street (Historic District)

Alteration (Roof Replacement)

Attachments: [67 Division St - AHBR Packet](#)

This AHBR agenda item was approved on the Consent Agenda.

[AHBR 26-263](#) 30 Ravenna Street

Sign (Ground and Wall Sign)

Attachments: [30 Ravenna Street - AHBR Packet](#)

This AHBR agenda item was approved on the Consent Agenda.

V. Old Business

[AHBR
2025-1478](#)

88 N Main Street (Historic District)

Alterations (Door Replacement)

Attachments: [88 N. Main Street - Letter to AHBR](#)
[88 N Main Street - Proposed Door Photos](#)
[88 N Main St - AHBR Packet 3.11.2026](#)

Ms. Coffman opened the discussion by reviewing the previous meeting comments and referencing the applicant's letter to the Board.

Mr. Joseph Kernan, counsel for the applicant, explained that during the earlier AHBR review, the applicant was asked to add detailing to the door so it would better align with other doors along the street. After reviewing the surrounding properties and photographing nearby storefronts, Mr. Kernan noted that many of the adjacent businesses, including both neighboring properties, use metal-frame doors like the one at 88 N. Main Street. The distinguishing feature on those doors is the etched glass displaying the business name. He proposed adding a similar etching to the door in question while otherwise keeping it unchanged.

The Board, the applicant, and staff noted the applicant's proposed wood door replacement has been withdrawn after he determined the current door is consistent with several others on the block. Mr. Kernan questioned why other businesses on Main Street were permitted metal doors. The Board asked staff whether those other doors were formally permitted. Mr. Kernan also raised the historical example of The Gap, questioning why its door was allowed at that time.

Board members responded that they did not have information regarding why certain doors were approved in the past, but emphasized that the current application could not be approved without a formal plan. They also reiterated the importance of preserving the historic character of Main Street. Mr. Kernan expressed concern that his client was not being treated in a fair and impartial manner that is consistent with neighboring businesses. The Board noted that differences in architectural context may play a role and also clarified that enforcement of prior approvals is beyond its authority.

Following an extended discussion about the apparent inconsistencies in past door approvals, the Board reiterated that it could not act without a submitted plan.

Ms. Marzulla moved, and Mr. Workley seconded, to enter executive session. The Board

approved the motion unanimously.

The Board returned from executive session at 7:50 p.m.

After the Board decision, Mr. Kernan thanked the Board for its time and stated his belief that the application had not received equal protection under the law, noting that the applicant would consider its next steps.

A motion was made by Mr. Workley, seconded by Ms. Marzulla, stating that because the first component of this application included signage, the Board intends to remain consistent with its comments from February 11, 2026, regarding approval of the signage. With respect to the second part of the application concerning the door, the Board moves to DENY the request under Section 2.1, Approval and Discretion of the AHBR, based on the applicant not meeting the required criteria for exceptional design. The Board found that the proposal does not demonstrate creativity, is not responsive to a unique situation involving site difficulty or unusual program requirements, and does not present an exceptional or unique condition that would create practical difficulty in complying with the standards. These factors are considered as defined in the Land Development Code for determining practical difficulty.

The motion to DENY was approved by the following vote:

Aye: 6 - Mr. Caputo, Ms. Kenney, Ms. Marzulla, Mr. Workley, Ms. Sredinski and Mr. Brown

Absent: 1 - Ms. Manko

VI. New Business

[AHBR 26-197](#) 6492 Elmcrest Dr

Alteration (Applied Stone & Siding)

Attachments: [6492 Elmcrest Dr - AHBR Packet](#)

Ms. Coffman introduced the application by displaying photos of the structure and reviewing the staff comments and recommendations.

Mr. Bob Zickenfoose and Mr. Dominic Andrews of Hometown Roofing and Construction responded to the staff comments by distributing written responses to the Board and then walking through each item. They explained that wrapping the stone around the back of the house would add an additional \$5,000 to \$6,000 in cost for an area that would not be visible. They also clarified that vertical siding is proposed for the front elevation. In addition, they stated that all existing brick on the front of the house would be replaced with stone, and noted that the current brick does not terminate at an inside corner.

The Board, applicant, and staff discussed several points, including the fact that the chimney is gray brick and the stone course would wrap around it. The applicant explained that the Infinity Stone material cannot be installed on the three-season room due to weight limitations. The Board expressed concern about the stone not wrapping fully around the structure and

questioned whether it should extend to the sunroom. It was noted that a privacy fence would make the sunroom largely not visible from view. The discussion also included clarification that the proposed product is a siding material rather than real stone, consideration of placing the stone only on the front elevation, and the importance of not creating new non-compliant conditions. The Board also explored whether lowering the height of the stone on the side elevations could help reduce costs for the homeowner, and acknowledged that unique existing conditions affect the project.

Recognizing that unique existing conditions exist at this house, a motion was made by Mr. Workley, seconded by Ms. Kenney, to grant an exception and approve the AHBR application as amended, with the following conditions: The brick material on the right side will be matched, and the new stone will wrap around the corner to the chimney. The motion was approved by the following vote:

Aye: 6 - Mr. Caputo, Ms. Kenney, Ms. Marzulla, Mr. Workley, Ms. Sredinski and Mr. Brown

Absent: 1 - Ms. Manko

[AHBR 26-262](#) **85 Division Street (Historic District)**

Accessory Structure (Pergola)

Attachments: [85 Division Street - AHBR Packet](#)

Ms. Coffman introduced the application by displaying elevations of the proposed pergola and reviewing the staff comments.

Mr. Perry Demming, the applicant, explained that the structure will be wrapped in Azek material designed to resemble wood, and presented photographs illustrating the intended appearance of the pergola.

Mr. Ryan Coffman of Coffman Lawn Company added that both the aluminum components and the Azek material are maintenance-free.

The Board, the applicant, and staff discussed several points, including that Azek has been approved in other projects within the Historic District, and that the photographs show the aluminum elements of the structure will not be visible once wrapped in Azek. It was noted that the top of the pergola is aluminum and that a color more compatible with the surrounding neighborhood would be preferred for that exposed portion. Discussion also addressed the fact that Azek is not used elsewhere on the house, and that the overall appearance of the pergola is more modern than the historic character of the home and nearby outdoor structures. The Board acknowledged that the pergola has a slatted roof that will visually blend into the yard. It was also noted that Azek offers a post-wrap product suitable for this type of installation, and that the garage features a black metal roof.

A motion was made by Mr. Workley, seconded by Ms. Sredinski, that this AHBR Application be approved as amended, with Azek wrap and a black or dark tone moveable roof. The motion carried by the following vote:

Aye: 6 - Mr. Caputo, Ms. Kenney, Ms. Marzulla, Mr. Workley, Ms. Sredinski and Mr. Brown

Absent: 1 - Ms. Manko

[AHBR 26-259](#) **1597 Hines Hill Rd**

Accessory Structure (Carriage House)

Attachments: [1597 Hines Hill Rd - AHBR Packet 4.22.2026](#)

Ms. Coffman introduced the application and reviewed the staff comments and recommendations.

Mr. Leon Sampat, LS Architects, noted that the north elevation will have additional windows, the low-hung windows will be casement, and all the materials will match the existing materials. Mr. Sampat also noted that the architect who did the previous work is attempting to find the spec sheets used before.

A motion was made by Ms. Kenney, seconded by Ms. Sredinski, that this AHBR Application be approved. The motion carried by the following vote:

Aye: 6 - Mr. Caputo, Ms. Kenney, Ms. Marzulla, Mr. Workley, Ms. Sredinski and Mr. Brown

Absent: 1 - Ms. Manko

[AHBR 25-554](#) **670 Terex Rd**

Addition (Living Room, Kitchen, & Garage)

Attachments: [670 Terex Rd - AHBR Packet 4.22.2026](#)
 [670 Terex Rd - AHBR Packet 10.8.2025](#)

Ms. Coffman introduced the application by displaying the elevations, describing the project, and noting revised elevations where submitted following the informal review on October 8, 2025, and reviewed the staff comments.

Mr. Andrew Heilmair, and William Heilmair, applicants, stated that the entire structure will receive a new metal roof, and reviewed the rest of the staff comments with their comments.

The Board, applicant, and staff discussed the column not going to the roof, the door not centered under the overhang - which are drawing mistakes, and the siding material.

Mr. Workley made a motion, seconded by Ms. Kenney, to approve with the following conditions: Modify the left elevation where brick is required, the foundation material changed to brick to match the existing foundation, and any other modification submitted to staff. The motion was approved by the following vote:

Aye: 6 - Mr. Caputo, Ms. Kenney, Ms. Marzulla, Mr. Workley, Ms. Sredinski and Mr. Brown

Absent: 1 - Ms. Manko

[AHBR 26-101](#) **200 Laurel Lake Dr**

New House (Villas)

Attachments: [200 Laurel Lake Dr - Villas - AHBR Packet](#)
 [200 Laurel Lake Dr - Villa Staff Comments](#)

Ms. Coffman stated that Laurel Lake has requested that the application be tabled.

A motion was made by Ms. Kenney, seconded by Mr. Workley, that this AHBR Application be continued. The motion carried by the following vote:

Aye: 6 - Mr. Caputo, Ms. Kenney, Ms. Marzulla, Mr. Workley, Ms. Sredinski and Mr. Brown

Absent: 1 - Ms. Manko

VII. Other Business

[AHBR 22-730](#) Architectural and Historic Board of Review Findings of Fact for case #22-730
[Findings of Fact](#) for the property located at 5530 Stonecreek Way, Hudson, OH 44236

Attachments: [AHBR Decision - 5530 Stonecreek Way](#)

A motion was made by Mr. Workley, seconded by Ms. Marzulla, that these Finding of Facts be approved. The motion carried by the following vote:

Aye: 6 - Mr. Caputo, Ms. Kenney, Ms. Marzulla, Mr. Workley, Ms. Sredinski and Mr. Brown

Absent: 1 - Ms. Manko

[AHBR 3.11.2026](#) Minutes of Previous Architectural & Historic Board of Review Meeting: March 11, 2026

Attachments: [March 11, 2026 AHBR Meeting Minutes - Draft](#)

A quorum of members who were at this meeting were not present; a vote could not be conducted.

VIII. Staff Update

A meeting with HHA and potential Landmark Home owners was noted to take place on April 29, 2026.

A meeting of AHBR, BZBA, and Planning Commission was noted to take place on April 27, 2026.

This matter was discussed

IX. Adjournment

A motion was made by Ms. Marzulla, seconded by Mr. Workley, that the meeting be adjourned at 8:44 p.m.. The motion carried by the following vote:

Aye: 6 - Mr. Caputo, Ms. Kenney, Ms. Marzulla, Mr. Workley, Ms. Sredinski and Mr. Brown

Absent: 1 - Ms. Manko

John Caputo, Chair

John Workley, Secretary

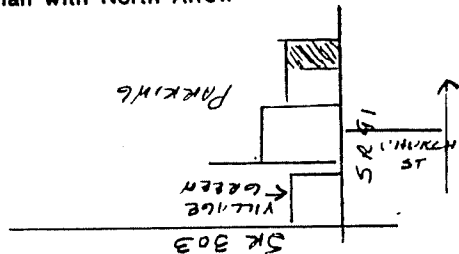
Joe Campbell, Executive Assistant

Upon approval by the Architectural & Historic Board of Review, this official written summary of the meeting minutes shall become a permanent record, and the official minutes shall also consist of a permanent audio and video recording, excluding executive sessions, in accordance with Codified Ordinances, Section 252.04, Minutes of Architectural and Historic Board of Review, Board of Zoning and Building Appeals, and Planning Commission.

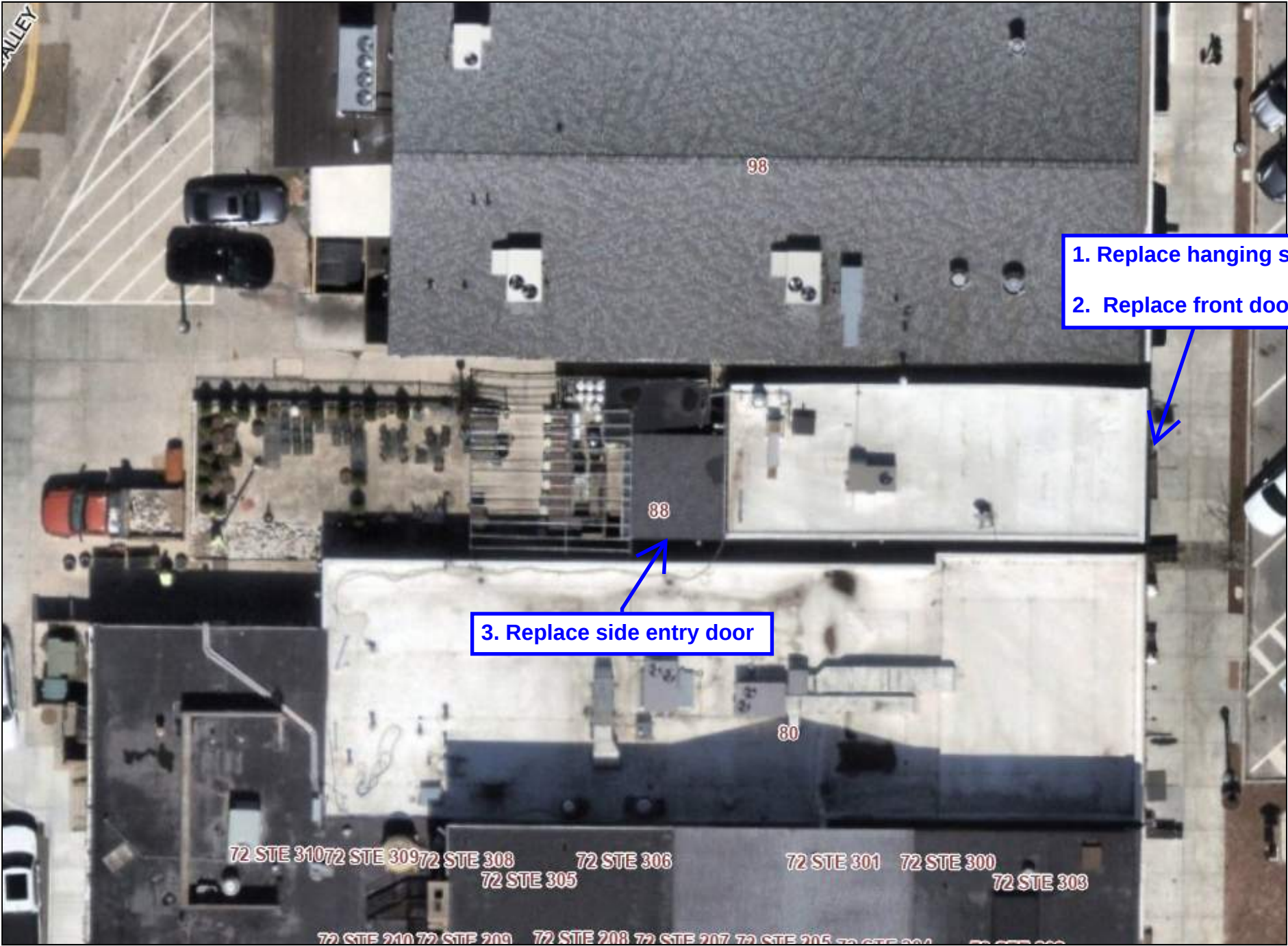
* * *

OHIO HISTORIC INVENTORY

Ohio Historic Preservation Office
Ohio Historical Center
Columbus, Ohio 43211

1. No.		4. Present Name(s) Tavern, Sam Post	
2. nty Summit		5. Other Name(s) Kepner's Tavern	
3. Location of Negatives HHA 68-25,26,27,28			
6. Specific Location 88 North Main Street		16. Thematic Category C	
7. City or Town If Rural, Township & Vicinity Hudson		17. Date(s) or Period 1892	
8. Site Plan with North Arrow 		18. Style or Design no academic style	
		19. Architect or Engineer	
		20. Contractor or Builder	
		21. Original Use, if apparent	
		22. Present Use tavern	
9. Coordinates Lat. _____ Long. _____ U.T.M. Reference 17 463122 4565305		23. Ownership Public ☐ Private ☒	
Zone Easting Northing 1C Site ☐ Structure ☐ Building ☒ Object ☐		24. Owner's Name & Address, if known	
11. On National Register? Yes ☒ No ☐		25. Open to Public? during business hrs Yes ☒ No ☐	
12. Is it Eligible? Yes ☐ No ☐		26. Local Contact Person or Organization Hudson Heritage Association	
13. Part of Estab. Hist. Dist.? Yes ☒ No ☐		27. Other Surveys in Which Included	
14. District Potent'l? Yes ☐ No ☐			
15. Name of Established District Hudson Historic District		37. Condition Interior good Exterior good	
42. Further Description of Important Features 12 pane fixed windows; beveled siding on front facade; heavy cornice connecting windows and entryway; projecting cornice above in brick facade; parapet of beveled siding. *endangered by proposed widening of SR 91		38. Preservation Underway? Yes ☒ No ☐	
		39. Endangered? By What? Yes ☐ No ☒ *see below	
		40. Visible from Public Road? Yes ☒ No ☐	
		41. Distance from and Frontage on Road 10' 110'	
43. History and Significance Site of the Lockhart Saloon, where the fire of 1892 supposedly started. Rebuilt by A. W. Lockhart in 1892; used as tavern for more than 100 years.		Photo	
44. Description of Environment and Outbuildings In downtown Hudson commercial district; on heavily traveled SR 91.			
45. Sources of Information Summit County Tax Assessment records Square Dealers, Eldredge and Graham Personal inspection		46. Prepared by L Newkirk, F Barlow	
		47. Organization HHA	
		48. Date 49. Revision Date(s)	

Site Plan



Finish Line/James Clark
dba
11460 Old Mill Rd
Spencer, OH 44275
(330)648-1515
finishlineroof@aol.com
<http://finishlineroofsandmore.com>



ADDRESS

Kepners tavern Samantha
and keven Kepners tavern
88 north main street
Hudson, Ohio

Estimate 8887

DATE 02/12/2025

ACTIVITY	QTY	RATE	AMOUNT
Door This door project will include the labor waste removal material cost and warranty with this project. The material costs is approximately \$4100 for the commercial doors to be a full light glass door with black framework and steel with handle lockset Trim and finish work with the front door it is a Thirty six inch door the side door is a thirty two inch door that will be the same style of door with half glass. This. Project should take two guys one day for completion	1	5,682.00	5,682.00
Misc Materials/Labor Required Misc Materials/Labor Required. Please Note: if any additional things need to be used, fix or repaired above and beyond the scope of work written in this integrated agreement, it will be at a rate of \$75.00 per man hour plus materials. This may include but not limited to wood, hardware, electrical, and/or changes to the scope of work that result in extra work, etc.	1	0.00	0.00

"YOU THE BUYER, MAY CANCEL THIS TRANSACTION AT ANY TIME PRIOR TO MIDNIGHT OF THE THIRD BUSINESS DAY AFTER THE DATE OF THIS TRANSACTION. SEE SEPERATE NOTICE OF CANCELLATION FOR AN EXPLANATION OF THIS RIGHT"

ACTIVITY	QTY	RATE	AMOUNT
Guarantee Of Workmanship We will Guarantee our workmanship for 10 years. This guarantee covers defective workmanship only and does not cover defective materials and/or any acts of God such as flooding, hail, lightening, ice damage/backup, etc. Also this guarantee is null and void if any of our work is tampered with in any way. The buyer(s) agree that during or after the work is complete that if a defect is found that the buyers will comply with the guarantee provision by contacting the company by regular mail describing the issues they are experiencing within 7 days and allow us at least 4 opportunities to correct each deficiency prior to any action being taken. Guarantee does not transfer!! See guarantee form for more details. NOTE: Due to ground movement and other natural causes, we cannot guarantee that concrete, masonry, drywall, wood, caulk and any other items won't crack, split, move, warp, etc.	1	0.00	0.00
Payment terms We require 60% down and balance upon completion.	1	0.00	0.00

TOTAL	\$5,682.00
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Accepted By

Accepted Date

"YOU THE BUYER, MAY CANCEL THIS TRANSACTION AT ANY TIME PRIOR TO MIDNIGHT OF THE THIRD BUSINESS DAY AFTER THE DATE OF THIS TRANSACTION. SEE SEPERATE NOTICE OF CANCELLATION FOR AN EXPLANATION OF THIS RIGHT"



WE ARE CLOSED
DEC 31st AND JAN 1st
HAPPY NEW YEAR!!!
-MEPHERS

WE ARE CLOSED
DEC 31st AND JAN 1st
HAPPY NEW YEAR!!!
-KEPNER

Trulite



Alteration in 2008



Law Office of
Joseph M. Kernan, Esq.

PO Box 1456, Norton, OH 44203
(330) 607-9318
josephkernanlaw@yahoo.com

April 16, 2026

Architectural and Historic Board of Review, Hudson, Ohio
Via e-mail: lcoffman@hudson.oh.us; nsugar@hudson.oh.us

Re: 88 North Main

Dear Board Members:

After consulting with architects and others, the owners of Kepner's have decided that, due to the difficulty of "adding to the door or around the door" replacing the front door is a better option. Even so, it will cost thousands of dollars to do so. Accompanying this letter there are four potential design concepts for discussion at the next meeting.

I did, however, wish to make the Board aware of some other information as this review continues. First, we believe that the current door is appropriate for the building because of its secure, metal construction. This is especially important for the type of business Kepner's is, a tavern. We also wanted the Board to be aware that the doors were replaced quickly out of necessity due to the fact that the old doors were no longer safe or secure and were never appropriate. Kepner's chose a door that was substantially the same as most of the doors on Main Street, including the ones on either side; and, while the design is not the exactly the same, they are all metal construction doors.

Additionally, as you may or may not know, Kepner's is a locally owned business, with the owners living in the city, and sending their children to school in the city. The owners also have plans for further improvements to the building, some of which have been informally discussed with the city, but, of course, it all takes money and time. To date, the owners have invested tens of thousands of dollars in upgrading the HVAC, the flooring in the front portion of the tavern, outdoor patio improvements, storage and other improvements. Police calls have also dropped from two hundred to zero per year. We believe Kepner's is a better establishment than I was when it first changed hands.

Having said all of that we look forward to discussing this matter further at the next meeting of the Architectural and Historic Board of Review.

Very Truly Yours,

/s/ Joseph M. Kernan

JOSEPH M. KERNAN
Attorney at Law

cc: Kevin Arnold
Samantha Arnold
Prosecutor Sara Fagnilli



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DE GLACES

FONNEL

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COMMUNITY DEVELOPMENT • 1140 Terex Road • Hudson, Ohio 44236 • (330) 342-1790

ARCHITECTURAL AND HISTORIC BOARD OF REVIEW

CASE NO. 2025-1478 COMMERCIAL SIGN AND ENTRYWAY DOORS – PERMIT #25-1478 88 N. MAIN STREET

FINAL DECISION

Applicant Joseph Kernan submitted a hanging sign and exterior door replacement permit for the property located at 88 N Main Street after City Staff identified exterior alterations had been made without a permit. The changes include:

1. Replacement of an existing projecting (hanging) sign.
2. Replacement of a side entry door.
3. Replacement of a front entry door.

Based on the evidence presented by the applicant, Joseph Kernan, the property owners, and city staff at the Architectural and Historic Board of Review meeting held on February 11, 2026 and continued to the April 22, 2026 meeting, the Architectural and Historic Board of Review approves items #1 and #2 but denies item #3 for case #25-1478, 88 N Main Street (Parcel #3201390).

The Architectural and Historic Board of Review makes the following Findings of Fact:

The building is located within the Historic District and was constructed in 1892. Therefore, is subject to the following design standards as stipulated in Section III-2(b)(1) of the Architectural Designs Standards:

- Section III-1- General Standards for all buildings
- Section II-2 – Alterations to existing properties – all types
- The Secretary of Interior Standards for Historic Rehabilitation (Appendix I)
- National Park Service Preservation Briefs #14 and #16
- Part V: Design Standards for Signs

Item #1 – Projecting (Hanging) Sign: The Board finds the proposed sign complies with the Architectural Design Standards requirements for projecting signs within the Historic District, specifically, Section V-1(b) stating *“Storefronts with common architectural elements should have signs that share continuity of design so that the placement and design of individual signs contribute to the cohesive appearance created by the common architectural elements. For example, a series of storefronts that, because of their architecture and design, have the appearance of a single building should have occupant signs that share common elements.”* The board finds that the proposed sign would be constructed of a compatible material and would be consistent and compliant with this requirement.

Item #2 – Replacement Side Door: The Board finds the proposed replacement side entry door complies with the Architectural Design Standards, specifically Appendix-1(9) relating to new additions and exterior alterations, which state that *“new additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.”* The Board finds that the proposed door is located on an interior side elevation within an existing alley and is not visible from the public realm or Main Street. The Board further finds the proposed wider trim detail and traditional details are compatible with the traditional design of surrounding historic features and consistent with the character of the Historic District.

Items #3 – Replacement Front Door:

1. The Board finds the following:

- a. The building is over 50 years old, is contributing the National Register Historic District, and is applicable for review according to the Secretary of the interior Standards for Historic Rehabilitation and National Park Service Preservation Briefs #14 and #16.
- b. The Board finds the proposed front entry door is located on the front elevation facing the public realm and North Main Street corridor, making compatibility with the surrounding historic district of great importance.
- c. Section III-2(b)(3)(i) states *“the AHBR shall review detailed documentation of existing conditions”*. The AHBR finds pre-existing door was replaced without an opportunity to assess the condition. Review of photo documentation confirms the pre-existing door was not historic; however, did contain traditional window Lites, hardware and trim
- d. Section III-2(b)(3)(i)(d) states *“substitute materials may be considered when the proposed materials do not alter the historic appearance of the structure, and the proposed materials are compatible in proportion, size, style, composition, design, color, and texture with the existing historic materials”*. The AHBR finds the proposed aluminum frame door containing no divided lites and modern handle design alter the historic appearance of the building and are not compatible in proportion, size, style, composition, design, color, and texture with the existing historic materials.
- e. The proposed front entry door does not comply with the Secretary of the Interior’s Standards for Rehabilitation criteria #2 stating *“The historic character of a property shall be retained and preserved”*. The contemporary design is not compatible with the 1892 building’s overall architecture. The full glass door is designed with a narrow metal frame and contemporary handle.
- f. The Secretary of Interior’s Standards for Rehabilitation criteria #6 and Preservation Brief #16 states *“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”*. While the Board acknowledges the previous front door was not historic, the Board finds the applicant has not sufficiently documented the existing materials of the door prior to replacement or retained elements of its design that were appropriate for the

historic district, including a traditional design with wider frame and window divides.

- g. Preservation Brief #16 states *“When it is necessary to replace a less distinctive, secondary feature that is less important in defining the historic character of the property, there is more flexibility in how it can be replaced. While it may be less important to find an exact match in materials when replacing such a feature, the retention of the overall historic character should still guide selection of an appropriate replacement material.”* The Board finds the replacement door would not retain the overall historic character of the building and North Main Street.
- h. The applicant has identified example doors on North Main Street and stated they have a similar design to their proposed front entryway door. The Board finds the following:
 - 80 N Main Street: The front entry door is not visible from Main Street and there is no permit record on file.
 - 98 N Main Street: The current front entry doors were approved in 2021 and the board acknowledges that previous metal front entry doors were approved by the AHBR in 1998. The Board found the existing metal storefront door and window design have been in place dating back to occupancy of the Gap (1998 – 2015) and further back to the Hudson Post Office (Pre-1998) prior to the establishment of the Land Development Code. The proposal was for a like-for-like replacement.
 - 134-136 N Main Street: There is no permit record on file and photo documentation finds the door design has been in place for at least (approximately) 20 years.
 - 160 N Main Street: There is no permit record on file and photo documentation finds the door design has been in place for at least (approximately) 20 years.
 - 164 N Main Street: There is no permit record on file and photo documentation finds the door design has been in place for at least (approximately) 20 years.
 - 214 N Main Street: The front door was approved in 1998, prior to the establishment of the Land Development Code.

Furthermore, the AHBR does not find an exception pursuant to the review criteria established in Section II-1. The AHBR finds that the proposal is not of an exceptional design, meaning it is not especially creative nor is it designed in response to a unique situation, such as a very difficult site or an unusual program requirement.

No exceptional or unusual conditions exist that are not common to other areas similarly situated and there is no resulting practical difficulty (as defined in the LDC per Section II-1(c)(2) based on the following findings:

1. The property in question will yield a reasonable return and there can be beneficial use of the property without the variance. The applicant can propose and install a historically compatible front entry door or modify the existing door that meets the design standards.
2. The variance is substantial, as the Architectural and Historic Board of Review has been consistent in administering and interpreting proposals for historically compatible and appropriate alterations. Approving the exception would create a precedent without merit.
2. The essential character of the neighborhood would be substantially altered and the adjoining properties would suffer a substantial detriment as a result of the variance.

Maintaining the character of historic Main Street is imperative to the City of Hudson.

3. The variance would not adversely affect the delivery of governmental services such as water and sewer.
4. The owner purchased the property in 2017. The requirements were in place at this time.
5. The applicant's predicament can be obviated feasibly through adjustments to the proposed door. The applicant could modify the existing door to meet the requirements subject to final AHBR review and approval.
6. The spirit and intent behind the requirement would not be observed and substantial justice would not be done by granting the exception.

Dated: 6/12/2026

CITY OF HUDSON ARCHITECTURAL AND HISTORIC BOARD OF REVIEW

John Caputo

John Caputo, Chair

The regulations of this Land Development Code are intended to implement the City of Hudson Comprehensive Plan, as amended, and more specifically are intended to:

- (a) Promote the public health, safety, convenience, comfort, prosperity, and general welfare;
- (b) Secure safety of persons and property from fire, flood, and other dangers, and to secure adequate open spaces for light, air, and amenity;
- (c) Conserve and stabilize property values through the most appropriate uses of land in relation to one another;
- (d) Preserve and protect forests and woodlands, existing trees and vegetation, agricultural lands, floodplains, stream corridors, wetlands, and other sensitive environmental areas from adverse impacts of urban and suburban development;
- (e) Facilitate the economic provision of adequate public facilities such as transportation, water supply, sewage disposal, drainage, electricity, public schools, parks, and other public services and requirements;
- (f) Prevent congestion in travel and transportation, reduce community dependence on automobile travel, and encourage trip consolidation;
- (g) Preserve and protect the architecture, history, and small-town character of the historic village core;
- (h) Encourage innovative residential development so that growing demand for housing may be met by greater variety in type, design, and layout of dwellings, and by conservation and more efficient use of open space ancillary to such dwellings;
- (i) Encourage nonresidential development that preserves and protects the character of the community, including its natural landscape, and that minimizes objectionable noise, glare, odor, traffic and other impacts of such development, especially when adjacent to residential uses or to the historic village core;
- (j) Manage overall community growth, including population and employment growth, to benefit the community and to encourage fiscally efficient and orderly development; and
- (k) Encourage a balance of residential and non-residential uses and development in the community so that future growth occurs in a fiscally prudent manner.

(Ord. 18-93. Passed 10-15-19.)

(a) Meaning and Intent. All provisions, terms, phrases, and expressions contained in this Land Development Code shall be construed according to this Code's stated purpose and intent.

(b) Text. In case of any difference of meaning or implication between the text of this Code and any heading, drawing, table, or figure, the text shall control.

(c) Computation of Time. Periods of time defined by a number of days shall mean a number of consecutive calendar days, including all weekend days, holidays, and other non-business days; however, if the last day is a Saturday, Sunday, or legal holiday, that day shall be excluded.

(d) Delegation of Authority. Whenever a provision appears requiring the head of a department or another officer or employee of the City to perform an act or duty, that provision shall be construed as authorizing the department head or officer to delegate the responsibility to subordinates, unless the terms of the provision specify otherwise.

(e) Technical and Non-Technical Words. Words and phrases not otherwise defined in this Code shall be construed according to the common and approved usage of the language, but technical words and phrases not otherwise defined in this Code that may have acquired a peculiar and appropriate meaning in law shall be construed and understood according to such meaning.

(f) Mandatory and Discretionary Terms. The word "shall" is always mandatory, and the words "may" or "should" are always permissive.

(g) Conjunctions. Unless the context clearly suggests the contrary, conjunctions shall be interpreted as follows:

(1) "And" indicates that all connected items, conditions, provisions, or events shall apply; and

(2) "Or" indicates that one or more of the connected items, conditions, provisions, or events shall apply.

(h) Tense and Usage. Words used in one tense (past, present, or future) include all other tenses, unless the context clearly indicates the contrary. The singular shall include the plural, and the plural shall include the singular.

(i) Gender. The masculine shall include the feminine.

(j) Interpretation of Zone District Boundaries. Where uncertainty exists as to the boundaries of zone districts as shown on the Official Zoning Map, the following rules shall apply:

(1) Boundaries indicated as appearing to follow the center lines of streets or highways shall be construed as following such center lines;

(2) Boundaries indicated as appearing to follow platted lot lines shall be construed as following such platted lot lines;

(3) Boundaries indicated as appearing to follow City limits shall be construed as following City limits;

(4) Boundaries indicated as following railroad lines shall be construed as midway between the main tracks;

(5) Boundaries indicated as approximately following the center lines of streams or other bodies of water shall be construed as moving with the actual body of water and following the centerline; and

(6) When there is disagreement over the location of zone district boundaries, a decision on the correct location shall be rendered by the City Manager with an appeal from this decision made to the

Board of Zoning and Building Appeals. In making his decision, the City Manager shall consider the rules set forth in this division, the Comprehensive Plan policies and map of the area in dispute, adjacent and surrounding land uses, and if deemed necessary, an inspection of the area in dispute.

(Ord. 18-93. Passed 10-15-19.)

Variances from the terms of this Code shall not be granted by the BZBA unless the application for variance demonstrates the following:

(a) Exceptional or unusual conditions exist that are not common to other areas similarly situated and practical difficulty may result from strict compliance with any of the zoning standards, provided that such relief will not have the effect of nullifying or impairing the intent and purpose of these standards. In determining "practical difficulty," the BZBA shall consider the following factors:

(1) Whether the property in question will yield a reasonable return or whether there can be any beneficial use of the property without the variance;

(2) Whether the variance is substantial;

(3) Whether the essential character of the neighborhood would be substantially altered or whether adjoining properties would suffer a substantial detriment as a result of the variance;

(4) Whether the variance would adversely affect the delivery of governmental services such as water and sewer;

(5) Whether the applicant purchased the property with knowledge of the requirement;

(6) Whether the applicant's predicament can be obviated feasibly through some method other than a variance; and

(7) Whether the spirit and intent behind the requirement would be observed and substantial justice done by granting the variance.

(b) No variance shall be granted if the submitted conditions or circumstances affecting the applicant's property are of so general or recurrent a nature as to make reasonably practicable the formulation of a general regulation for such conditions or situations.

(c) No variance shall be granted if doing so will have the potential to reduce the level of ecological integrity from the existing level to a lesser level as shown on any of the individual metrics or the undeveloped composite set forth in Appendix B to this Code, unless substantially mitigated.

(d) No variance shall be granted reducing the size of lots contained in an existing or proposed subdivision if it will result in an increase in the number of lots beyond the number otherwise permitted for the total subdivision, pursuant to the applicable zone District regulations.

(e) If authorized, a variance shall represent the least deviation from the regulations that will afford relief.

(f) In granting such variances, the BZBA may require such conditions as will, in its independent judgment, secure substantially the objectives of the standard so varied or modified.

(g) Under no circumstances shall the BZBA grant a variance to allow a use not permitted, or a use expressly or by implication prohibited under the terms of this Code for the zone district containing the property for which the variance is sought.

(h) No variance shall be granted to the maximum allowed building footprint area of each district's "Property Development/Design Standards" in Chapter 1205.

(Ord. 18-93. Passed 10-15-19.)

Section III-1. - General Standards for all buildings

All buildings, regardless of building type and historic status, shall conform with the following Standards.

a. *Responsibility to contribute to the public realm.* All buildings must contribute to the public realm in their design by presenting a well-designed public facade.

(1) The front door or main entrance to a building shall be visible from the street. An entrance to a public building shall be clear and visible from the street and not obscured by building masses or fences.

(2) Blank walls (without openings) are not allowed on public faces of any building. Trash and loading areas are allowed on side faces, if screened from the street.

(3) The design and massing of the building should acknowledge the primary direction of approach, in areas where one has been defined.

(4) Attached garages shall not face the street except for new development with a front yard depth of 130 feet or more.

(5) Principal Residential Structures on Corner Lots.

(i) The building shall face the corner if the approach to the corner places the lot directly in the line of sight. All other siting and orientation requirements shall apply.

(ii) An attached garage shall be sited so that its door is not visible from the primary direction of approach.



Figure 5a: Structures on Corner Lots

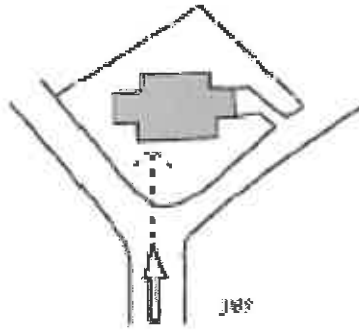


Figure 5b: Structure on Corner Lots Within Line of Sight

(6) The overall design of the building and the site should take into account the general placement of signs so that all permanent signs and their associated lighting fixtures complement the appearance and architecture of the building and site.

(i) All new buildings and alterations to existing buildings should be designed to create appropriate and clearly identifiable locations for occupants' signs.

(ii) If a new or renovated building facade does not include a clearly identifiable location for a sign, the owner and AHBR will determine the appropriate location.

(iii) If a specific sign proposal is submitted with the building plans and is therefore available during the architectural review process, the sign proposal should be used as a guide for making the above determinations.

b. *Requirements for variety.* Within a neighborhood or area, substantial variety in architectural style, types of ornament and detail, and materials is desirable.

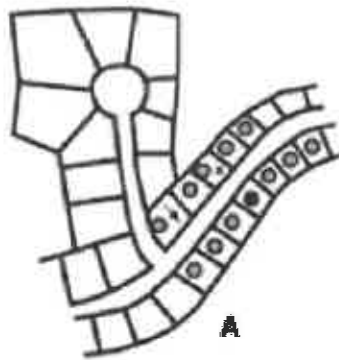
(1) Single family or two family residential buildings in proximity to each other on the street shall not look alike. The property being reviewed shall be compared to the buildings on the three lots on either side of it, and to the building on the lot facing it across the street, and to the two lots on either side of that building. **(3)** In cases where this description is not conclusive in determining the referent properties, the diagrams will prevail. Notwithstanding the above, the referent properties will not include any of the following:

(i) Properties which face onto a different street than the proposed property, unless they are actually adjoining or directly across a street (as in a corner situation). **(3C, and 3F)**

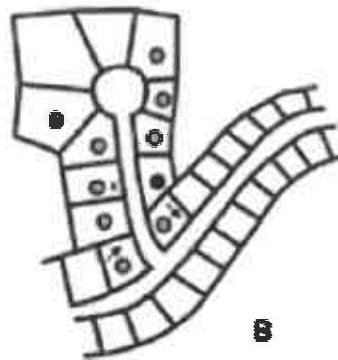
(ii) Properties where all parts of the house are outside a 1,000 ft. radius from the front door of the proposed house. **(3G)**

(2) The following shall determine whether buildings "look alike".

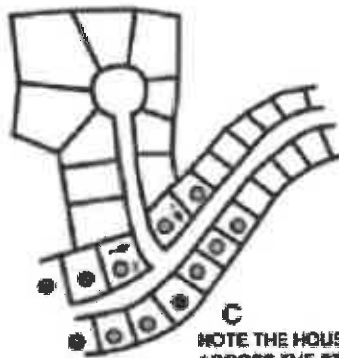
(i) Buildings which are different in type (as described in Part IV of these Standards) do not, by definition, look alike. **(2)**



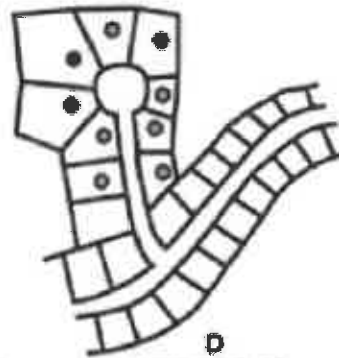
A



B



C
NOTE THE HOUSE
ACROSS THE STREET
DOES NOT FACE THE
SAME STREET



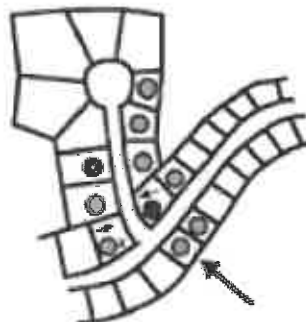
D
NOTE THE HOUSE
ACROSS THE STREET (X)
IS ALSO THE HOUSE
THREE LOTS DOWN

- SUBJECT PROPERTY
- REFERENT PROPERTY
- X LOT ACROSS THE STREET

(3)
"LOOK ALIKE" DIAGRAMS SHOWING
SEVERAL EXAMPLES OF SUBJECT AND
REFERENT PROPERTY
CONFIGURATIONS



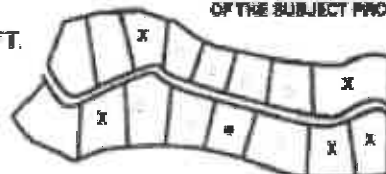
E



F THESE TWO HOUSES FACE
A DIFFERENT STREET BUT
ARE DIRECTLY ACROSS
THE STREET

G SOME PART OF THE REFERENT
BUILDING MUST BE WITHIN
1000 FT. OF THE FRONT DOOR
OF THE SUBJECT PROPERTY

1000 FT.



(3) PART 8
"LOOK ALIKE" DIAGRAM SHOWING
SEVERAL EXAMPLES OF SUBJECT
AND REFERENT PROPERTY
CONFIGURATIONS

(ii) Buildings which are the same type must differ from one another in two of the following: A. wall material, B. architectural style, C. major features such as porches or turrets, D. organization and number of bays, E. wing configuration, or F. roof shape. These terms are defined in Appendix II.

(3) Except in the case of accessory buildings, historic buildings or buildings contributing to a historic district, no requirement of these Standards shall be interpreted to require a particular architectural style for any building.

c. *Architectural character.*

(1) The main building of an institutional use shall have an architectural character consistent with its public nature. It shall be easily distinguished from residential buildings.

(2) The architecture of a commercial building may not act as a recognizable logo for a national corporation or franchise. The building architecture is deemed to be a "logo" when the specific business occupying the proposed building could still be easily identified if all the allowable signs were to be removed.

d. *Accessory buildings (large).* Accessory buildings greater than 79 square feet in gross area shall bear the following relationship to the main structure of the property.

(1) No accessory building may be larger in ground floor footprint or taller than the main body of the building, except for agricultural uses. The Planning and Zoning Code further restricts height in most districts.

(2) Enclosed accessory buildings shall incorporate some elements similar to the main body, for example similar corner boards, window types, or materials.

(3) The roof of an enclosed accessory building should be the same roof shape as the roof of the main structure.

(4) Open garden structures such as pergolas and gazebos, hoop houses, and enclosed greenhouses which are primarily glass, shall not be subject to the above restrictions.

(5) All facades (including the rear) over twelve (12) feet long shall have at least one window or door opening. Fenestration placement on the accessory structure shall be proportional to the house.

e. *Accessory buildings (small).* Accessory buildings less than 79 square feet in gross area shall be screened from view from the public way to the extent possible on the site.

(1) Accessory buildings less than 79 square feet in gross area shall be screened from view from the public way to the extent possible on the site.

(2) Small accessory structures shall not be constructed of prefabricated metal or synthetic panels.

f. *Fences.*

(1) The finished side of all walls and boundaries must face the common property line boundary, or the public way.

(2) Except in District 8, only the following fence materials shall be allowed: wood (or vinyl closely resembling wood), wrought iron (or aluminum closely resembling wrought iron), stone, or brick. All other fence materials, including chain link and vinyl-clad chain link, are prohibited.

(3) Fence heights and materials shall be compatible with their site location and surrounding development. Fences in the front yard shall be more formal in design and lower in height when sited

close to the street or sidewalk. Fences in the rear yard offer more flexibility with greater allowance for height and design.

(4) Fence materials for general agricultural operations may be more informal in design and include mesh wire and cable wire.

g. *Details for New Residential Construction, Additions and Alterations.*

(1) All steps in front of doors must be the full width of the opening, regardless of whether all portions of the opening are functioning doors. All steps shall incorporate closed risers and double handrails, when handrails are proposed.

(2) All chimneys must match the foundation material. Fireplace vents, when incorporated, shall be located at the rear elevation.

(3) Exposed foundations and tie courses shall be of a consistent material on all elevations.

(4) All skylights must be flat, no bubble type.

(5) All decks and porches without a perimeter foundation exposing more than eighteen (18) inches between the fascia and the grade must be screened with compatible materials or landscaping unless a full story is exposed below.

(6) Exposed exhaust or vent pipes shall not be evident on any of the facades of the building.

(7) Utility meters and equipment shall be located at the side and rear elevation.

(8) Large expanses of blank wall are to be avoided. Fenestration placement should be at a maximum of approximately every 12 feet.

(9) Enclosed porches and additions on existing decks shall incorporate skirting material compatible with the structure.

(10) Glass block windows shall only be permitted for side and rear elevation basement level windows located at or below the exposed foundation.

(11) Replacement wall and roof materials should be blended across a facade (rather than small patch areas) to ensure compatibility with existing materials.

h. *Mechanical Equipment.* All mechanical equipment must be screened from public view whether on the ground (with acceptable fencing or landscaping), or on the roof (with parapets). Mechanical roof screens are not acceptable. A Sight Line study must be submitted showing mechanical equipment is not visible from the centerline of surrounding streets and property lines.

Section III-2. - Alterations to existing properties - all types.

The character of Hudson is preserved by maintaining the integrity of buildings as they are altered.

a. *Alterations to non-historic buildings.* The following shall apply to all buildings which are not historic properties, as defined in Section III-2(b).

(1) In the case of an alteration to an existing property, an applicant must comply with the type design Standards in Part IV to the extent that they apply to the alteration itself.

(2) Applicants will be permitted to repair or replace existing non-conforming elements without bringing the element into conformance with the Standards, for example, shutters or windows may be replaced with essentially the same elements.

(3) If applicants propose to replace any element with another that is not the same (for example, aluminum windows for wood windows), the applicant will be required to conform fully with the Standards for those elements.

(4) Applicants may not be compelled to alter any part of the existing property which would otherwise not be affected by the proposed alteration.

(5) For existing buildings which do not conform to the type catalogue in Part IV, alterations will be allowed as long as they conform to the general principles enumerated in Section I-2, and they are compatible with the existing architectural style, materials, and massing of the building.

b. *Standards for historic properties, all districts.* Historic properties include those buildings which are contributing to historic districts and buildings which are designated as historic landmarks by the City Council. Other buildings which have historic or architectural significance may be also be reviewed as historic properties with the mutual agreement of the AHBR and the applicant.

(1) Historic landmarks or buildings within historic districts which are greater than fifty years old will not be reviewed according to the type Standards in Part IV. Such buildings will be reviewed according to the Secretary of the Interior's Standards for Historic Rehabilitation (*see Appendix I*) and *National Park Service Preservation Briefs #14 and #16*.

(2) In altering historic properties, the applicant is advised to refer to historic surveys and style guides which have been prepared specifically for Hudson, including the **Uniform Architectural Criteria** by Chambers & Chambers, 1977; **Hudson: A Survey of History Buildings in an Ohio Town** by Lois Newkirk, 1989; and **Square Dealers**, by Eldredge and Graham.

(3) Hudson's Historic District and Historic Landmarks contain a wealth of properties with well preserved and maintained high quality historic building materials. The preservation of these materials is essential to the distinguishing character of individual properties and of the district. Deteriorated materials shall be repaired where feasible rather than replaced. In the event that replacement is appropriate, the new material should be compatible in composition, design, color, and texture.

(i). Use of Substitute materials for Historic Properties (as defined in Section III-2. b.).

(a.) The AHBR shall review detailed documentation of the existing site conditions.

(b.) The AHBR shall request the patching and repair of existing materials.

(c.) If the repair or replacement of existing non-historic materials is requested, AHBR shall request removal of the non-historic material to expose the historic material so that it may be assessed.

(d.) If the AHBR concurs that the condition of the material requires replacement in some or all portions of the structure, like materials should be used. Substitute materials may be considered when the proposed materials do not alter the historic appearance of the structure, and the proposed

materials are compatible in proportion, size, style, composition, design, color, and texture with the existing historic materials.

(ii). Use of Substitute materials for proposed additions to existing historic properties.

(a.) The placement of the addition shall be reviewed to determine its visibility from the public realm.

(b.) Substitute materials are acceptable provided they are compatible in proportion, size, style, composition, design, color, and texture with the existing historic materials.

(iii). New freestanding structures and non-historic properties: The use of substitute materials is acceptable provided they are compatible in proportion, size, style, composition, design, color, and texture of historic materials.

(iv). All applications are subject to Section II-1(c).

Section 121.22 | Public meetings - exceptions.

Ohio Revised Code / Title 1 State Government / Chapter 121 State Departments

Effective: September 30, 2025 Latest Legislation: House Bill 96 - 136th General Assembly

(A) This section shall be liberally construed to require public officials to take official action and to conduct all deliberations upon official business only in open meetings unless the subject matter is specifically excepted by law.

(B) As used in this section:

(1) "Public body" means any of the following:

(a) Any board, commission, committee, council, or similar decision-making body of a state agency, institution, or authority, and any legislative authority or board, commission, committee, council, agency, authority, or similar decision-making body of any county, township, municipal corporation, school district, or other political subdivision or local public institution;

(b) Any committee or subcommittee of a body described in division (B)(1)(a) of this section;

(c) A court of jurisdiction of a sanitary district organized wholly for the purpose of providing a water supply for domestic, municipal, and public use when meeting for the purpose of the appointment, removal, or reappointment of a member of the board of directors of such a district pursuant to section 6115.10 of the Revised Code, if applicable, or for any other matter related to such a district other than litigation involving the district. As used in division (B)(1)(c) of this section, "court of jurisdiction" has the same meaning as "court" in section 6115.01 of the Revised Code.

(2) "Meeting" means any prearranged discussion of the public business of the public body by a majority of its members.

(3) "Regulated individual" means either of the following:

(a) A student in a state or local public educational institution;

(b) A person who is, voluntarily or involuntarily, an inmate, patient, or resident of a state or local institution because of criminal behavior, mental illness, an intellectual disability, disease, disability, age, or other condition requiring custodial care.

(4) "Public office" has the same meaning as in section 149.011 of the Revised Code.

(C) All meetings of any public body are declared to be public meetings open to the public at all times. A member of a public body shall be present in person at a meeting open to the public to be considered present or to vote at the meeting and for purposes of determining whether a quorum is present at the meeting.

The minutes of a regular or special meeting of any public body shall be promptly prepared, filed, and maintained and shall be open to public inspection. The minutes need only reflect the general subject matter of discussions in executive sessions authorized under division (G) or (J) of this section.

(D) This section does not apply to any of the following:

(1) A grand jury;

(2) An audit conference conducted by the auditor of state or independent certified public accountants with officials of the public office that is the subject of the audit;

(3) The adult parole authority when its hearings are conducted at a correctional institution for the sole purpose of interviewing inmates to determine parole or pardon and the department of rehabilitation and correction when its hearings are conducted at a correctional institution for the sole purpose of making determinations under section

2967.271 of the Revised Code regarding the release or maintained incarceration of an offender to whom that section applies;

(4) The organized crime investigations commission established under section 177.01 of the Revised Code;

(5) Meetings of a child fatality review board established under section 307.621 of the Revised Code, meetings related to a review conducted pursuant to guidelines established by the director of health under section 3701.70 of the Revised Code, and meetings conducted pursuant to sections 5153.171 to 5153.173 of the Revised Code;

(6) The state medical board when determining whether to suspend a license or certificate without a prior hearing pursuant to division (G) of either section 4730.25 or 4731.22 of the Revised Code;

(7) The board of nursing when determining whether to suspend a license or certificate without a prior hearing pursuant to division (B) of section 4723.281 of the Revised Code;

(8) The state board of pharmacy when determining whether to do either of the following:

(a) Suspend a license, certification, or registration without a prior hearing, including during meetings conducted by telephone conference, pursuant to Chapters 3719., 3796., 4729., and 4752. of the Revised Code and rules adopted thereunder; or

(b) Restrict a person from obtaining further information from the drug database established in section 4729.75 of the Revised Code without a prior hearing pursuant to division (C) of section 4729.86 of the Revised Code.

(9) The state chiropractic board when determining whether to suspend a license without a hearing pursuant to section 4734.37 of the Revised Code;

(10) The executive committee of the emergency response commission when determining whether to issue an enforcement order or request that a civil action, civil penalty action, or criminal action be brought to enforce Chapter 3750. of the Revised Code;

(11) The board of directors of the nonprofit corporation formed under section 187.01 of the Revised Code or any committee thereof, and the board of directors of any subsidiary of that corporation or a committee thereof;

(12) An audit conference conducted by the audit staff of the department of job and family services with officials of the public office that is the subject of that audit under section 5101.37 of the Revised Code;

(13) The occupational therapy section of the occupational therapy, physical therapy, and athletic trainers board when determining whether to suspend a license without a hearing pursuant to division (E) of section 4755.11 of the Revised Code;

(14) The physical therapy section of the occupational therapy, physical therapy, and athletic trainers board when determining whether to suspend a license without a hearing pursuant to division (F) of section 4755.47 of the Revised Code;

(15) The athletic trainers section of the occupational therapy, physical therapy, and athletic trainers board when determining whether to suspend a license without a hearing pursuant to division (E) of section 4755.64 of the Revised Code;

(16) Meetings of the pregnancy-associated mortality review board established under section 5180.27 of the Revised Code;

(17) Meetings of a fetal-infant mortality review board established under section 3707.71 of the Revised Code;

(18) Meetings of a drug overdose fatality review committee described in section 307.631 of the Revised Code;

(19) Meetings of a suicide fatality review committee described in section 307.641 of the Revised Code;

(20) Meetings of the officers, members, or directors of an existing qualified nonprofit corporation that creates a special improvement district under Chapter 1710. of the Revised Code, at which the public business of the corporation pertaining to a purpose for which the district is created is not discussed;

(21) Meetings of a domestic violence fatality review board established under section 307.651 of the Revised Code;

(22) Any nonprofit agency that has received an endorsement under section 5101.315 of the Revised Code.

(E) The controlling board, the tax credit authority, or the minority development financing advisory board, when meeting to consider granting assistance pursuant to Chapter 122. or 166. of the Revised Code, in order to protect the interest of the applicant or the possible investment of public funds, by unanimous vote of all board or authority members present, may close the meeting during consideration of the following information confidentially received by the authority or board from the applicant:

(1) Marketing plans;

(2) Specific business strategy;

(3) Production techniques and trade secrets;

(4) Financial projections;

(5) Personal financial statements of the applicant or members of the applicant's immediate family, including, but not limited to, tax records or other similar information not open to public inspection.

The vote by the authority or board to accept or reject the application, as well as all proceedings of the authority or board not subject to this division, shall be open to the public and governed by this section.

(F) Every public body, by rule, shall establish a reasonable method whereby any person may determine the time and place of all regularly scheduled meetings and the time, place, and purpose of all special meetings. A public body shall not hold a special meeting unless it gives at least twenty-four hours' advance notice to the news media that have requested notification, except in the event of an emergency requiring immediate official action. In the event of an emergency, the member or members calling the meeting shall notify the news media that have requested notification immediately of the time, place, and purpose of the meeting.

The rule shall provide that any person, upon request and payment of a reasonable fee, may obtain reasonable advance notification of all meetings at which any specific type of public business is to be discussed. Provisions for advance notification may include, but are not limited to, mailing the agenda of meetings to all subscribers on a mailing list or mailing notices in self-addressed, stamped envelopes provided by the person.

(G) Except as provided in divisions (G)(8) and (J) of this section, the members of a public body may hold an executive session only after a majority of a quorum of the public body determines, by a roll call vote, to hold an executive session and only at a regular or special meeting for the sole purpose of the consideration of any of the following matters:

(1) To consider the appointment, employment, dismissal, discipline, promotion, demotion, or compensation of a public employee or official, or the investigation of charges or complaints against a public employee, official, licensee, or regulated individual, unless the public employee, official, licensee, or regulated individual requests a public hearing. Except as otherwise provided by law, no public body shall hold an executive session for the discipline of an elected official for conduct related to the performance of the elected

official's official duties or for the elected official's removal from office. If a public body holds an executive session pursuant to division (G)(1) of this section, the motion and vote to hold that executive session shall state which one or more of the approved purposes listed in division (G)(1) of this section are the purposes for which the executive session is to be held, but need not include the name of any person to be considered at the meeting.

(2) To consider the purchase of property for public purposes, the sale of property at competitive bidding, or the sale or other disposition of unneeded, obsolete, or unfit-for-use property in accordance with section 505.10 of the Revised Code, if premature disclosure of information would give an unfair competitive or bargaining advantage to a person whose personal, private interest is adverse to the general public interest. No member of a public body shall use division (G)(2) of this section as a subterfuge for providing covert information to prospective buyers or sellers. A purchase or sale of public property is void if the seller or buyer of the public property has received covert information from a member of a public body that has not been disclosed to the general public in sufficient time for other prospective buyers and sellers to prepare and submit offers.

If the minutes of the public body show that all meetings and deliberations of the public body have been conducted in compliance with this section, any instrument executed by the public body purporting to convey, lease, or otherwise dispose of any right, title, or interest in any public property shall be conclusively presumed to have been executed in compliance with this section insofar as title or other interest of any bona fide purchasers, lessees, or transferees of the property is concerned.

(3) Conferences with an attorney for the public body concerning disputes involving the public body that are the subject of pending or imminent court action;

(4) Preparing for, conducting, or reviewing negotiations or bargaining sessions with public employees concerning their compensation or other terms and conditions of their employment;

(5) Matters required to be kept confidential by federal law or regulations or state statutes;

(6) Details relative to the security arrangements and emergency response protocols for a public body or a public office, if disclosure of the matters discussed could reasonably be expected to jeopardize the security of the public body or public office;

(7) In the case of a county hospital operated pursuant to Chapter 339. of the Revised Code, a joint township hospital operated pursuant to Chapter 513. of the Revised Code, or a municipal hospital operated pursuant to Chapter 749. of the Revised Code, to consider trade secrets, as defined in section 1333.61 of the Revised Code;

(8) To consider confidential information related to the marketing plans, specific business strategy, production techniques, trade secrets, or personal financial statements of an applicant for economic development assistance, or to negotiations with other political subdivisions respecting requests for economic development assistance, provided that both of the following conditions apply:

(a) The information is directly related to a request for economic development assistance that is to be provided or administered under any provision of Chapter 715., 725., 1724., or 1728. or sections 701.07, 3735.67 to 3735.70, 5709.40 to 5709.43, 5709.61 to 5709.69, 5709.73 to 5709.75, or 5709.77 to 5709.81 of the Revised Code, or that involves public infrastructure improvements or the extension of utility services that are directly related to an economic development project.

(b) A unanimous quorum of the public body determines, by a roll call vote, that the executive session is necessary to protect the interests of the applicant or the possible investment or expenditure of public funds to be made in connection with the economic development project.

If a public body holds an executive session to consider any of the matters listed in divisions (G)(2) to (8) of this section, the motion and vote to hold that executive session shall state

which one or more of the approved matters listed in those divisions are to be considered at the executive session.

A public body specified in division (B)(1)(c) of this section shall not hold an executive session when meeting for the purposes specified in that division.

(H) A resolution, rule, or formal action of any kind is invalid unless adopted in an open meeting of the public body. A resolution, rule, or formal action adopted in an open meeting that results from deliberations in a meeting not open to the public is invalid unless the deliberations were for a purpose specifically authorized in division (G) or (J) of this section and conducted at an executive session held in compliance with this section. A resolution, rule, or formal action adopted in an open meeting is invalid if the public body that adopted the resolution, rule, or formal action violated division (F) of this section.

(I)(1) Any person may bring an action to enforce this section. An action under division (I)(1) of this section shall be brought within two years after the date of the alleged violation or threatened violation. Upon proof of a violation or threatened violation of this section in an action brought by any person, the court of common pleas shall issue an injunction to compel the members of the public body to comply with its provisions.

(2)(a) If the court of common pleas issues an injunction pursuant to division (I)(1) of this section, the court shall order the public body that it enjoins to pay a civil forfeiture of five hundred dollars to the party that sought the injunction and shall award to that party all court costs and, subject to reduction as described in division (I)(2) of this section, reasonable attorney's fees. The court, in its discretion, may reduce an award of attorney's fees to the party that sought the injunction or not award attorney's fees to that party if the court determines both of the following:

(i) That, based on the ordinary application of statutory law and case law as it existed at the time of violation or threatened violation that was the basis of the injunction, a well-

informed public body reasonably would believe that the public body was not violating or threatening to violate this section;

(ii) That a well-informed public body reasonably would believe that the conduct or threatened conduct that was the basis of the injunction would serve the public policy that underlies the authority that is asserted as permitting that conduct or threatened conduct.

(b) If the court of common pleas does not issue an injunction pursuant to division (I)(1) of this section and the court determines at that time that the bringing of the action was frivolous conduct, as defined in division (A) of section 2323.51 of the Revised Code, the court shall award to the public body all court costs and reasonable attorney's fees, as determined by the court.

(3) Irreparable harm and prejudice to the party that sought the injunction shall be conclusively and irrebuttably presumed upon proof of a violation or threatened violation of this section.

(4) A member of a public body who knowingly violates an injunction issued pursuant to division (I)(1) of this section may be removed from office by an action brought in the court of common pleas for that purpose by the prosecuting attorney or the attorney general.

(J)(1) Pursuant to division (C) of section 5901.09 of the Revised Code, a veterans service commission shall hold an executive session for one or more of the following purposes unless an applicant requests a public hearing:

(a) Interviewing an applicant for financial assistance under sections 5901.01 to 5901.15 of the Revised Code;

(b) Discussing applications, statements, and other documents described in division (B) of section 5901.09 of the Revised Code;

(c) Reviewing matters relating to an applicant's request for financial assistance under sections 5901.01 to 5901.15 of the Revised Code.

(2) A veterans service commission shall not exclude an applicant for, recipient of, or former recipient of financial assistance under sections 5901.01 to 5901.15 of the Revised Code, and shall not exclude representatives selected by the applicant, recipient, or former recipient, from a meeting that the commission conducts as an executive session that pertains to the applicant's, recipient's, or former recipient's application for financial assistance.

(3) A veterans service commission shall vote on the grant or denial of financial assistance under sections 5901.01 to 5901.15 of the Revised Code only in an open meeting of the commission. The minutes of the meeting shall indicate the name, address, and occupation of the applicant, whether the assistance was granted or denied, the amount of the assistance if assistance is granted, and the votes for and against the granting of assistance.

Last updated July 23, 2025 at 9:02 AM

Available Versions of this Section

September 29, 2013 – House Bill 59 - 130th General Assembly

September 29, 2015 – House Bill 64 - 131st General Assembly

October 12, 2016 – House Bill 413, House Bill 158 - 131st General Assembly

March 22, 2019 – Amended by Senate Bill 201 - 132nd General Assembly

October 17, 2019 – Amended by House Bill 166 - 133rd General Assembly

December 16, 2020 – Amended by House Bill 341 - 133rd General Assembly

October 9, 2021 – Amended by House Bill 110 - 134th General Assembly

April 7, 2023 – Amended by House Bill 254 (GA 134), House Bill 45 (GA 134)

April 3, 2025 – Amended by House Bill 315 - 135th General Assembly

September 30, 2025 – Amended by House Bill 96 - 136th General Assembly

14 PRESERVATION BRIEFS

New Exterior Additions to Historic Buildings: Preservation Concerns

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National Park Service
U.S. Department of the Interior

Technical Preservation Services



A new exterior addition to a historic building should be considered in a rehabilitation project only after determining that requirements for the new or adaptive use cannot be successfully met by altering non-significant interior spaces. If the new use cannot be accommodated in this way, then an exterior addition may be an acceptable alternative. Rehabilitation as a treatment "is defined as the act or process of making possible a compatible use for a property through repair, alterations, and *additions* while preserving those portions or features which convey its historical, cultural, or architectural values."

The topic of new additions, including rooftop additions, to historic buildings comes up frequently, especially as it

relates to rehabilitation projects. It is often discussed and it is the subject of concern, consternation, considerable disagreement and confusion. Can, in certain instances, a historic building be enlarged for a new use without destroying its historic character? And, just what is significant about each particular historic building that should be preserved? Finally, what kind of new construction is appropriate to the historic building?

The vast amount of literature on the subject of additions to historic buildings reflects widespread interest as well as divergence of opinion. New additions have been discussed by historians within a social and political framework; by architects and architectural historians in terms of construction technology and style; and

by urban planners as successful or unsuccessful contextual design. However, within the historic preservation and rehabilitation programs of the National Park Service, the focus on new additions is to ensure that they preserve the character of historic buildings.

Most historic districts or neighborhoods are listed in the National Register of Historic Places for their significance within a particular time frame. This period of significance of historic districts as well as individually-listed properties may sometimes lead to a misunderstanding that inclusion in the National Register may prohibit any physical change outside of a certain historical period—particularly in the form of exterior additions. National Register listing does not mean that a building or district is frozen in time and that no change can be made without compromising the historical significance. It does mean, however, that a new addition to a historic building should preserve its historic character.



Figure 1. The addition to the right with its connecting hyphen is compatible with the Collegiate Gothic-style library. The addition is set back from the front of the library and uses the same materials and a simplified design that references, but does not copy, the historic building. Photo: David Wakely Photography.



Figure 2. The new section on the right is appropriately scaled and reflects the design of the historic Art Deco-style hotel. The apparent separation created by the recessed connector also enables the addition to be viewed as an individual building.

Guidance on New Additions

To meet Standard 1 of the *Secretary of the Interior's Standards for Rehabilitation*, which states that "a property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment," it must be determined whether a historic building can accommodate a new addition. Before expanding the building's footprint, consideration should first be given to incorporating changes—such as code upgrades or spatial needs for a new use—within secondary areas of the historic building. However, this is not always possible and, after such an evaluation, the conclusion may be that an addition is required, particularly if it is needed to avoid modifications to character-defining interior spaces. An addition should be designed to be compatible with the historic character of the building and, thus, meet the *Standards for Rehabilitation*. Standards 9 and 10 apply specifically to new additions:

(9) "New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment."

(10) "New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired."

The subject of new additions is important because a new addition to a historic building has the potential to change its historic character as well as to damage and destroy significant historic materials and features. A new addition also has the potential to confuse the public and to make it difficult or impossible to differentiate the old from the new or to recognize what part of the historic building is genuinely historic.

The intent of this Preservation Brief is to provide guidance to owners, architects and developers on how to design a compatible new addition, including a rooftop addition, to a historic building. A new addition to a historic building should preserve the building's *historic character*. To accomplish this and meet the *Secretary of the Interior's Standards for Rehabilitation*, a new addition should:

- Preserve significant historic materials, features and form;
- Be compatible; and
- Be differentiated from the historic building.

Every historic building is different and each rehabilitation project is unique. Therefore, the guidance offered here is not specific, but general, so that it can be applied to a wide variety of building types and situations. To assist in interpreting this guidance, illustrations of a variety of new additions are provided. Good examples, as well as some that do not meet the Standards, are included to further help explain and clarify what is a compatible new addition that preserves the character of the historic building.



Figure 3. The red and buff-colored parking addition with a rooftop playground is compatible with the early-20th century school as well as with the neighborhood in which it also serves as infill in the urban setting.

Preserve Significant Historic Materials, Features and Form

Attaching a new exterior addition usually involves some degree of material loss to an external wall of a historic building, but it should be minimized. Damaging or destroying significant materials and craftsmanship should be avoided, as much as possible.

Generally speaking, preservation of historic buildings inherently implies minimal change to primary or “public” elevations and, of course, interior features as well. Exterior features that distinguish one historic building or a row of buildings and which can be seen from a public right of way, such as a street or sidewalk, are most likely to be the most significant. These can include many different elements, such as: window patterns, window hoods or shutters; porticoes, entrances and doorways; roof shapes, cornices and decorative moldings; or commercial storefronts with their special detailing, signs and glazing patterns. Beyond a single building, entire blocks of urban or residential structures are often closely related architecturally by their materials, detailing, form and alignment. Because significant materials and features should be preserved, not damaged or hidden, the first place to consider placing a new addition is in a location where the least amount of historic material and character-defining features will be lost. In most cases, this will be on a secondary side or rear elevation.

One way to reduce overall material loss when constructing a new addition is simply to keep the addition smaller in proportion to the size of the historic building. Limiting the size and number of openings between old and new by utilizing existing doors or enlarging windows also helps to minimize loss. An often successful way to accomplish this is to link the addition to the historic building by means of a hyphen or connector. A connector provides a physical link while visually separating the old and new, and the connecting passageway penetrates and removes only a small portion of the historic wall. A new addition that will abut the historic building along an entire elevation or wrap around a side and rear elevation, will likely integrate the historic and the new interiors, and thus result in a high degree of loss of form and exterior walls, as well as significant alteration of interior spaces and features, and will not meet the Standards.



Figure 4. This glass and brick structure is a harmonious addition set back and connected to the rear of the Colonial Revival-style brick house. Cunningham/Quill Architects. Photos: © Maxwell MacKenzie.

Compatible but Differentiated Design

In accordance with the Standards, a new addition must preserve the building's historic character and, in order to do that, it must be differentiated, but compatible, with the historic building. A new addition must retain the essential form and integrity of the historic property. Keeping the addition smaller, limiting the removal of historic materials by linking the addition with a hyphen, and locating the new addition at the rear or on an inconspicuous side elevation of a historic building are techniques discussed previously that can help to accomplish this.

Rather than differentiating between old and new, it might seem more in keeping with the historic character

simply to repeat the historic form, material, features and detailing in a new addition. However, when the new work is highly replicative and indistinguishable from the old in appearance, it may no longer be possible to identify the “real” historic building. Conversely, the treatment of the addition should not be so different that it becomes the primary focus. The difference may be subtle, but it must be clear. A new addition to a historic building should protect those visual qualities that make the building eligible for listing in the National Register of Historic Places.

The National Park Service policy concerning new additions to historic buildings, which was adopted in 1967, is not unique. It is an outgrowth and continuation of a general philosophical approach to change first expressed by John Ruskin in England in the 1850s, formalized by William Morris in the founding of the Society for the Protection of Ancient Buildings in 1877, expanded by the Society in 1924 and, finally, reiterated in the 1964 Venice Charter—a document that continues to be followed by the national committees of the International Council on Monuments and Sites (ICOMOS). The 1967 *Administrative Policies for Historical Areas of the National Park System* direct that “...a modern addition should be readily distinguishable from the older work; however, the new work should be harmonious with the old in scale, proportion, materials, and color. Such additions should be as inconspicuous as

possible from the public view.” As a logical evolution from these Policies specifically for National Park Service-owned historic structures, the 1977 *Secretary of the Interior’s Standards for Rehabilitation*, which may be applied to **all** historic buildings listed in, or eligible for listing in the National Register, also state that “the new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.”

Preserve Historic Character

The goal, of course, is a new addition that preserves the building’s historic character. The historic character of each building may be different, but the methodology of establishing it remains the same. Knowing the uses and functions a building has served over time will assist in making what is essentially a physical evaluation. But, while written and pictorial documentation can provide a framework for establishing the building’s history, to a large extent the historic character is embodied in the physical aspects of the historic building itself—shape, materials, features, craftsmanship, window arrangements, colors, setting and interiors. Thus, it is important to identify the historic character before making decisions about the extent—or limitations—of change that can be made.



Figure 5. This addition (a) is constructed of matching brick and attached by a recessed connector (b) to the 1914 apartment building (c). The design is compatible and the addition is smaller and subordinate to the historic building (d).



Figure 6. A new addition (left) is connected to the garage which separates it from the main block of the c. 1910 former florist shop (right). The addition is traditional in style, yet sufficiently restrained in design to distinguish it from the historic building.

A new addition should always be subordinate to the historic building; it should not compete in size, scale or design with the historic building. An addition that bears no relationship to the proportions and massing of the historic building—in other words, one that overpowers the historic form and changes the scale—will usually compromise the historic character as well. The appropriate size for a new addition varies from building to building; it could never be stated in a square or cubic footage ratio, but the historic building's existing proportions, site and setting can help set some general parameters for enlargement. Although even a small addition that is poorly designed can have an adverse impact, to some extent, there is a predictable relationship between the size of the historic resource and what is an appropriate size for a compatible new addition.

Generally, constructing the new addition on a secondary side or rear elevation—in addition to material preservation—will also preserve the historic character. Not only will the addition be less visible, but because a secondary elevation is usually simpler and less distinctive, the addition will have less of a physical and visual impact on the historic building. Such placement will help to preserve the building's historic form and relationship to its site and setting.

Historic landscape features, including distinctive grade variations, also need to be respected. Any new landscape features, including plants and trees, should be kept at a scale and density that will not interfere with understanding of the historic resource itself. A traditionally landscaped

property should not be covered with large paved areas for parking which would drastically change the character of the site.

Despite the fact that in most cases it is recommended that the new addition be attached to a secondary elevation, sometimes this is not possible. There simply may not be a secondary elevation—some important freestanding buildings have significant materials and features on all sides. A structure or group of structures together with its setting (for example, a college campus) may be of such significance that any new addition would not only damage materials, but alter the buildings' relationship to each other and the setting. An addition attached to a highly-visible elevation of a historic building can radically alter the historic form or obscure features such as a decorative cornice or window ornamentation. Similarly, an addition that fills



Figure 7. A vacant side lot was the only place a new stair tower could be built when this 1903 theater was rehabilitated as a performing arts center. Constructed with matching materials, the stair tower is set back with a recessed connector and, despite its prominent location, it is clearly subordinate and differentiated from the historic theater.



Figure 8. The rehabilitation of this large, early-20th century warehouse (left) into affordable artists' lofts included the addition of a compatible glass and brick elevator/stair tower at the back (right).



Figure 9. A simple, brick stair tower replaced two non-historic additions at the rear of this 1879 school building when it was rehabilitated as a women's and children's shelter. The addition is set back and it is not visible from the front of the school.



Figure 10. The small size and the use of matching materials ensures that the new addition on the left is compatible with the historic Romanesque Revival-style building.

in a planned void on a highly-visible elevation (such as a U-shaped plan or a feature such as a porch) will also alter the historic form and, as a result, change the historic character. Under these circumstances, an addition would have too much of a negative impact on the historic building and it would not meet the Standards. Such situations may best be handled by constructing a separate building in a location where it will not adversely affect the historic structure and its setting.

In other instances, particularly in urban areas, there may be no other place but adjacent to the primary façade to locate an addition needed for the new use. It may be possible to design a lateral addition attached on the side that is compatible with the historic building, even though it is a highly-visible new element. Certain types of historic structures, such as government buildings, metropolitan museums, churches or libraries, may be so massive in size that a relatively large-scale addition may not compromise the historic character, provided, of course, the addition is smaller than the historic building. Occasionally, the visible size of an addition can be reduced by placing some of the spaces or support systems in a part of the structure that is underground. Large new additions may sometimes be successful if they read as a separate volume, rather than as an extension of the historic structure, although the scale, massing and proportions of the addition still need to be compatible with the historic building. However, similar expansion of smaller buildings would be dramatically out of scale. In summary, where any new addition is proposed, correctly assessing the relationship between actual size and relative scale will be a key to preserving the character of the historic building.



Figure 11. The addition to this early-20th century Gothic Revival-style church provides space for offices, a great hall for gatherings and an accessible entrance (left). The stucco finish, metal roof, narrow gables and the Gothic-arched entrance complement the architecture of the historic church. Placing the addition in back where the ground slopes away ensures that it is subordinate and minimizes its impact on the church (below).

Design Guidance for Compatible New Additions to Historic Buildings

There is no formula or prescription for designing a new addition that meets the Standards. A new addition to a historic building that meets the Standards can be any architectural style—traditional, contemporary or a simplified version of the historic building. However, there must be a balance between differentiation and compatibility in order to maintain the historic character and the identity of the building being enlarged. New additions that too closely resemble the historic building or are in extreme contrast to it fall short of this balance. *Inherent in all of the guidance is the concept that an addition needs to be subordinate to the historic building.*

A new addition **must preserve significant historic materials, features and form, and it must be compatible but differentiated from the historic building.** To achieve this, it is necessary to carefully consider the **placement or location** of the new addition, and its **size, scale and massing** when planning a new addition. To preserve a property's historic character, a new addition must be visually distinguishable from the historic building. This does not mean that the addition and the historic building should be glaringly different in terms of design, materials and other visual qualities. Instead, the new addition should take its design cues from, but not copy, the historic building.



A variety of design techniques can be effective ways to differentiate the new construction from the old, while respecting the architectural qualities and vocabulary of the historic building, including the following:

- Incorporate a simple, recessed, small-scale hyphen to physically separate the old and the new volumes or set the addition back from the wall plane(s) of the historic building.
- Avoid designs that unify the two volumes into a single architectural whole. The new addition may include simplified architectural features that reflect, but do not duplicate, similar features on the historic building. This approach will not impair the existing building's historic character as long as the new structure is subordinate in size and clearly differentiated and distinguishable so that the identity of the historic structure is not lost in a new and larger composition. The historic building must be clearly identifiable and its physical integrity must not be compromised by the new addition.



Figure 12. This 1954 synagogue (left) is accessed through a monumental entrance to the right. The new education wing (far right) added to it features the same vertical elements and color and, even though it is quite large, its smaller scale and height ensure that it is secondary to the historic resource.



Figure 13. A glass and metal structure was constructed in the courtyard as a restaurant when this 1839 building was converted to a hotel. Although such an addition might not be appropriate in a more public location, it is compatible here in the courtyard of this historic building.



Figure 14. This glass addition was erected at the back of an 1895 former brewery during rehabilitation to provide another entrance. The addition is compatible with the plain character of this secondary elevation.

- Use building materials in the same color range or value as those of the historic building. The materials need not be the same as those on the historic building, but they should be harmonious; they should not be so different that they stand out or distract from the historic building. (Even clear glass can be as prominent as a less transparent material. Generally, glass may be most appropriate for small-scale additions, such as an entrance on a secondary elevation or a connector between an addition and the historic building.)
- Base the size, rhythm and alignment of the new addition's window and door openings on those of the historic building.
- Respect the architectural expression of the historic building type. For example, an addition to an institutional building should maintain the architectural character associated with this building type rather than using details and elements typical of residential or other building types.

These techniques are merely examples of ways to differentiate a new addition from the historic building while ensuring that the addition is compatible with it. Other ways of differentiating a new addition from the historic building may be used as long as they maintain the primacy of the historic building. Working within these basic principles still allows for a broad range of architectural expression that can range from stylistic similarity to contemporary distinction. The recommended design approach for an addition is one that neither copies the historic building exactly nor stands in stark contrast to it.

Revising an Incompatible Design for a New Addition to Meet the Standards

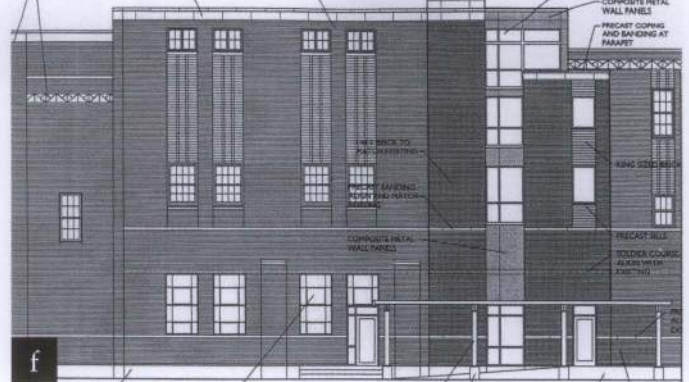
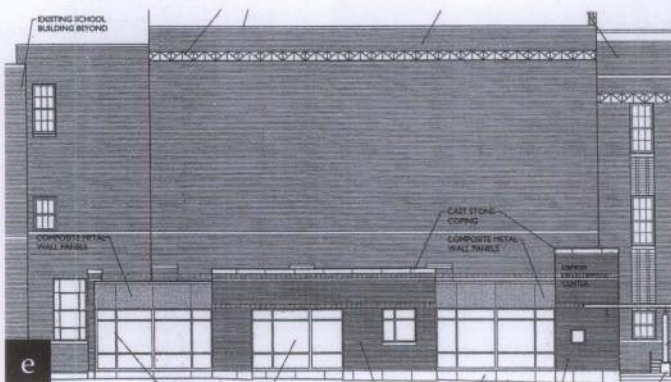
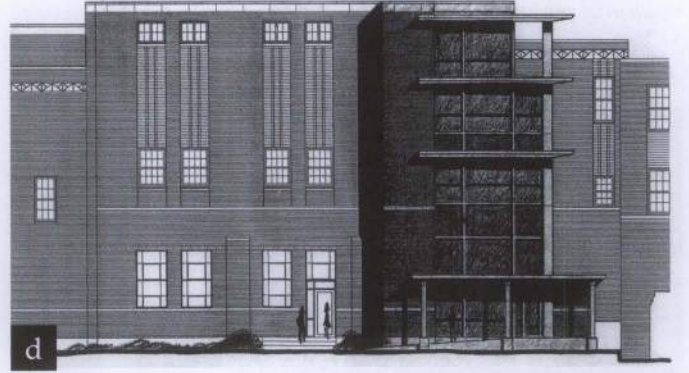
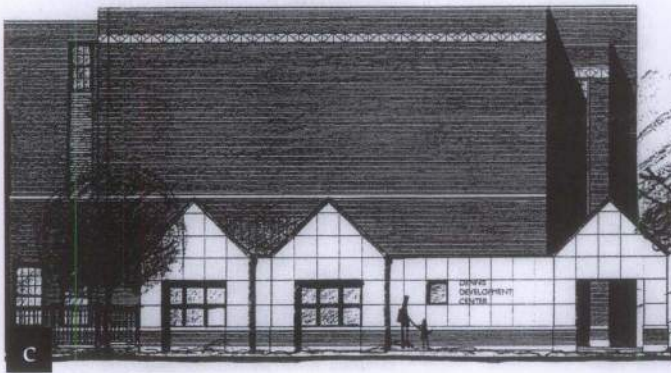


Figure 15. The rehabilitation of a c. 1930 high school auditorium for a clinic and offices proposed two additions: a one-story entrance and reception area on this elevation (a); and a four-story elevator and stair tower on another side (b). The gabled entrance (c) first proposed was not compatible with the flat-roofed auditorium and the design of the proposed stair tower (d) was also incompatible and overwhelmed the historic building. The designs were revised (e-f) resulting in new additions that meet the Standards (g-h).

Incompatible New Additions to Historic Buildings

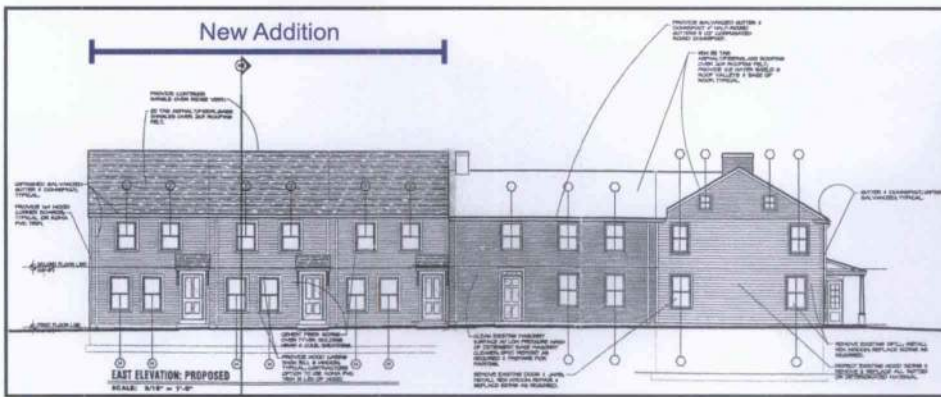


Figure 16. The proposal to add three row houses to the rear ell of this early-19th century residential property doubles its size and does not meet the Standards..



Figure 17. The small addition on the left is starkly different and it is not compatible with the eclectic, late-19th century house.



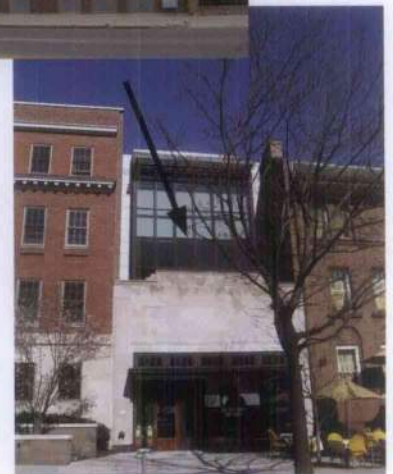
Figure 18. The expansion of a one- and one-half story historic bungalow (left) with a large two-story rear addition (right) has greatly altered and obscured its distinctive shape and form.



Figure 19. The upper two floors of this early-20th century office building were part of the original design, but were not built. During rehabilitation, the two stories were finally constructed. This treatment does not meet the Standards because the addition has given the building an appearance it never had historically.



Figure 20. The height, as well as the design, of these two-story rooftop additions overwhelms the two-story and the one-story, low-rise historic buildings.



New Additions in Densely-Built Environments

In built-up urban areas, locating a new addition on a less visible side or rear elevation may not be possible simply because there is no available space. In this instance, there may be alternative ways to help preserve the historic character. One approach when connecting a new addition to a historic building on a primary elevation is to use a hyphen to separate them. A subtle variation in material, detailing and color may also provide the degree of differentiation necessary to avoid changing the essential proportions and character of the historic building.

A densely-built neighborhood such as a downtown commercial core offers a particular opportunity to design an addition that will have a minimal impact on the historic building. Often the site for such an addition is a vacant lot where another building formerly stood. Treating the addition as a separate or infill building may be the best approach when designing an addition that will have the least impact on the historic building and the district. In these instances there may be no need for a direct visual link to the historic building. Height and setback from the street should generally be consistent with those of the historic building and other surrounding buildings in the district. Thus, in most urban commercial areas the addition should not be set back from the façade of the historic building. A tight urban setting may sometimes even accommodate a larger addition if the primary elevation is designed to give the appearance of being several buildings by breaking up the facade into elements that are consistent with the scale of the historic building and adjacent buildings.



Figure 21. Both wings of this historic L-shaped building (top), which fronts on two city streets, adjoined vacant lots. A two-story addition was constructed on one lot (above, left) and a six-story addition was built on the other (above, right). Like the historic building, which has two different facades, the compatible new additions are also different and appear to be separate structures rather than part of the historic building.



Figure 22. The proposed new addition is compatible with the historic buildings that remain on the block. Its design with multiple storefronts helps break up the mass.

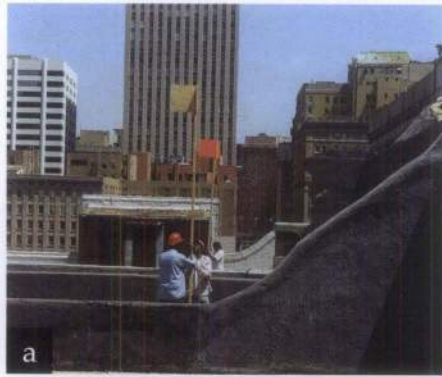


Figure 23. Colored flags marking the location of a proposed penthouse addition (a) were placed on the roof to help evaluate the impact and visibility of an addition planned for this historic furniture store (b). Based on this evaluation, the addition was constructed as proposed. It is minimally visible and compatible with the 1912 structure (c). The tall parapet wall conceals the addition from the street below (d).

Rooftop Additions

The guidance provided on designing a compatible new addition to a historic building applies equally to new rooftop additions. A rooftop addition should preserve the character of a historic building by preserving historic materials, features and form; and it should be compatible but differentiated from the historic building.

However, there are several other design principles that apply specifically to rooftop additions. Generally, a rooftop addition should not be more than one story in height to minimize its visibility and its impact on the proportion and profile of the historic building. A rooftop addition should almost always be set back at least one full bay from the primary elevation of the building, as well as from the other elevations if the building is free-standing or highly visible.

It is difficult, if not impossible, to minimize the impact of adding an entire new floor to relatively low buildings, such as small-scale residential or commercial structures, even if the new addition is set back from the plane of the façade. Constructing another floor on top of a small, one, two or three-story building is seldom appropriate for buildings of this size as it would measurably alter the building's proportions and profile, and negatively impact its historic character. On the other hand, a rooftop addition on an eight-story building, for example, in a historic district consisting primarily of tall buildings might not affect the historic character because the new construction may blend in with the surrounding buildings and be only minimally visible within the district. A rooftop addition in a densely-built urban area is more likely to be compatible on a building that is adjacent to similarly-sized or taller buildings.

A number of methods may be used to help evaluate the effect of a proposed rooftop addition on a historic building and district, including pedestrian sight lines, three-dimensional schematics and computer-generated design. However, drawings generally do not provide a true "picture" of the appearance and visibility of a proposed rooftop addition. For this reason, it is often necessary to construct a rough, temporary, full-size or skeletal mock up of a portion of the proposed addition, which can then be photographed and evaluated from critical vantage points on surrounding streets.

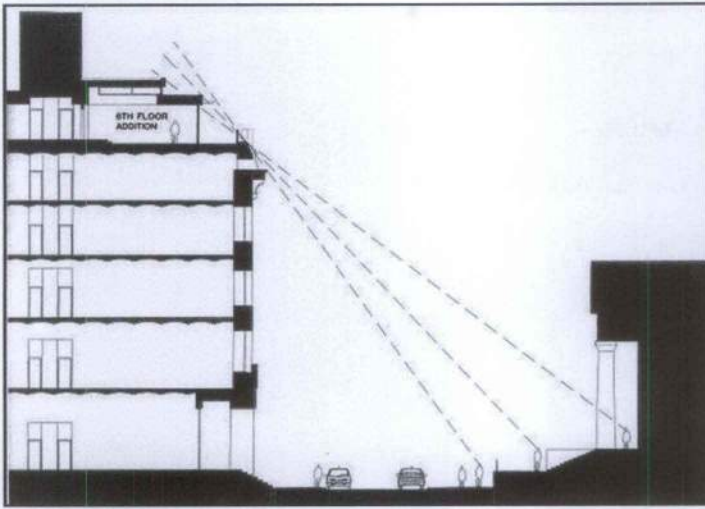


Figure 24. How to Evaluate a Proposed Rooftop Addition.
A sight-line study (above) only factors in views from directly across the street, which can be very restrictive and does not illustrate the full effect of an addition from other public rights of way. A mock up (above, right) or a mock up enhanced by a computer-generated rendering (below, right) is essential to evaluate the impact of a proposed rooftop addition on the historic building.

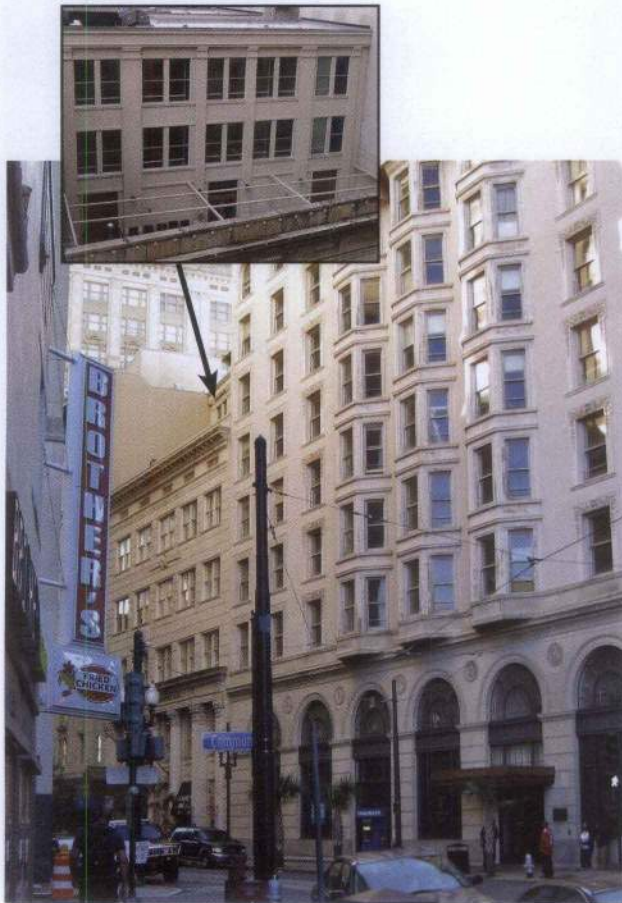


Figure 25. It was possible to add a compatible, three-story, penthouse addition to the roof of this five-story, historic bank building because the addition is set far back, it is surrounded by taller buildings and a deep parapet conceals almost all of the addition from below.

Figure 26. A rooftop addition would have negatively impacted the character of the primary facade (right) of this mid-19th century, four-story structure and the low-rise historic district. However, a third floor was successfully added on the two-story rear portion (below) of the same building with little impact to the building or the district because it blends in with the height of the adjacent building.





Figure 27. Although the new brick stair/elevator tower (left) is not visible from the front (right), it is on a prominent side elevation of this 1890 stone bank. The compatible addition is set back and does not compete with the historic building. Photos: Chadd Gossmann, Aurora Photography, LLC.

Designing a New Exterior Addition to a Historic Building

This guidance should be applied to help in designing a compatible new addition that will meet the *Secretary of the Interior's Standards for Rehabilitation*:

- A new addition should be simple and unobtrusive in design, and should be distinguished from the historic building—a recessed connector can help to differentiate the new from the old.
- A new addition should not be highly visible from the public right of way; a rear or other secondary elevation is usually the best location for a new addition.
- The construction materials and the color of the new addition should be harmonious with the historic building materials.
- The new addition should be smaller than the historic building—it should be subordinate in both size and design to the historic building.

The same guidance should be applied when designing a compatible **rooftop** addition, plus the following:

- A rooftop addition is generally not appropriate for a one, two or three-story building—and often is not appropriate for taller buildings.
- A rooftop addition should be minimally visible.
- Generally, a rooftop addition must be set back at least one full bay from the primary elevation of the building, as well as from the other elevations if the building is freestanding or highly visible.
- Generally, a rooftop addition should not be more than one story in height.
- Generally, a rooftop addition is more likely to be compatible on a building that is adjacent to similarly-sized or taller buildings.

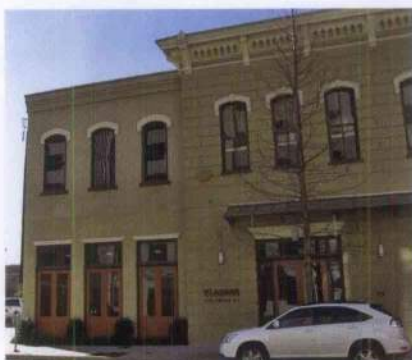


Figure 28. A small addition (left) was constructed when this 1880s train station was converted for office use. The paired doors with transoms and arched windows on the compatible addition reflect, but do not replicate, the historic building (right).



Figure 29. This simple glass and brick entrance (left) added to a secondary elevation of a 1920s school building (right) is compatible with the original structure.

Summary

Because a new exterior addition to a historic building can damage or destroy significant materials and can change the building's character, an addition should be considered only after it has been determined that the new use cannot be met by altering non-significant, or secondary, interior spaces. If the new use cannot be met in this way, then an attached addition may be an acceptable alternative if carefully planned and designed. A new addition to a historic building should be constructed in a manner that preserves significant materials, features and form, and preserves the building's historic character. Finally, an addition should be differentiated from the historic building so that the new work is compatible with—and does not detract from—the historic building, and cannot itself be confused as historic.

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Figure 30. The small addition on the right of this late-19th century commercial structure is clearly secondary and compatible in size, materials and design with the historic building.



Figure 31. An elevator/stair tower was added at the back of this Richardsonian Romanesque-style theater when it was rehabilitated. Rough-cut stone and simple cut-out openings ensure that the addition is compatible and subordinate to the historic building. Photo: Chuck Liddy, AIA.

Acknowledgements

Anne E. Grimmer, Senior Architectural Historian, Technical Preservation Services Branch, National Park Service, revised *Preservation Brief 14*, written by Kay D. Weeks and first published in 1986. The revised Brief features all new illustrations and contains expanded and updated design guidance on the subject of new additions that has been developed by the Technical Preservation Services Branch since the original publication of the Brief. Several individuals generously contributed their time and expertise to review the revision of this *Preservation Brief*, including: Sharon C. Park, FAIA, Chief, Architectural History and Historic Preservation, Smithsonian Institution; Elizabeth Tune and Karen Brandt, Department of Historic Resources, Commonwealth of Virginia; and Phillip Wisley and David Ferro, Division of Historical Resources, Florida Department of State. The Technical Preservation Services professional staff, in particular Michael J. Auer, Jo Ellen Hensley, Gary Sachau and Rebecca Shiffer, also provided important guidance in the development of this publication. All illustrations are from National Park Service files unless otherwise credited. Front cover image: Detail of new addition shown in Figure 4. Photo: © Maxwell MacKenzie.

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. The Technical Preservation Services Branch, National Park Service, prepares standards, guidelines and other educational materials on responsible historic preservation treatments for a broad public audience. Additional information about the programs of Technical Preservation Services is available on the website at www.nps.gov/history/hps/tps. Comments about this publication should be addressed to: Charles E. Fisher, Technical Preservation Publications Program Manager, Technical Preservation Services-2255, National Park Service, 1849 C Street, NW, Washington, DC 20240. 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.

16 PRESERVATION BRIEFS

The Use of Substitute Materials on Historic Building Exteriors

John Sandor, David Trayte, and Amy Elizabeth Uebel



National Park Service
U.S. Department of the Interior
Technical Preservation Services

The *Secretary of the Interior's Standards for Rehabilitation* generally require that deteriorated distinctive architectural features of a historic property be repaired rather than replaced. Standard 6 of the *Standards for Rehabilitation* further states that when replacement of a distinctive feature is necessary, the new feature must “match the old in composition, design, color, texture, and other visual properties, and, *where possible*, materials” (emphasis added). While the use of matching materials to replace historic ones is always preferred under the *Standards for Rehabilitation*, the Standards also purposely recognize that flexibility may sometimes be needed when it comes to new and replacement materials as part of a historic rehabilitation project. Substitute materials that closely match the visual and physical properties of historic materials can be successfully used on many rehabilitation projects in ways that are consistent with the Standards.

The flexibility inherent in the *Standards for Rehabilitation* must always be balanced with the preservation of the historic character and the historic integrity of a building, of which historic materials are an important aspect. Any replacement work reduces the historic integrity of a building to some degree, which can undermine the historic character of the property over time. With limited exceptions, replacement should only be considered when damage or deterioration is too severe to make repair feasible. When needed replacement is made with a material that matches the historic material, the impact on integrity can be minimal, especially when only a small amount of new material is needed. When a substitute material is used for the replacement, the loss in integrity can sometimes, although not always, be greater than that of a matching material. Also, whether historic or substitute material, there is a point where the amount of replacement can become excessive and the building's historic integrity is diminished to an unacceptable degree, regardless of the material used—that is, a loss of authenticity and the physical features and characteristics closely associated with the property's historic significance.

The term *substitute materials* is used to describe building materials that have the potential to match the appearance, physical properties, and related attributes of historic materials well enough to make them alternatives for use in current preservation practice when historic materials require replacement.

Compelling reasons to use a substitute material instead of the historic material include the unavailability or poor performance of the historic material, or environmental pressures or code-driven requirements that necessitate a change in material. When using a substitute material for replacement it is critical that it match the historic material in all of its visual and physical properties to preserve the historic character of the building and minimize the impact on its integrity.

Substitute materials can be cost-effective, permit the accurate visual duplication of historic materials, and provide improved durability. While the behavior of traditional, historic materials is generally well understood, the behavior of newer materials can be less established and sometimes less predictable. Substitute materials are most successful when the properties of both the original material and the substitute are thoroughly understood by all those involved in the design and construction process. The architect must be adept at the selection of substitute materials and their incorporation into architectural plans and specifications. The contractor or tradesperson in the field must also be experienced with their use.

This Preservation Brief provides general guidance on the use of substitute materials as replacement materials for distinctive features on the exterior of historic buildings. Due to the ever-evolving product market for construction materials, this Brief does not provide specifications for substitute materials. This guidance should be used in conjunction with qualified professionals who are knowledgeable in current construction and historic preservation practices.

This Brief includes a discussion of the appropriate use of substitute materials and provides a path for decision-making in their use. In considering the use of substitute materials, such issues as the deterioration or failure of the historic building component and material must be understood. The existing component's physical and visual properties, profile, surface texture, dimensions, and performance should be identified to establish the basis for evaluating a possible replacement material. The physical and visual properties of the various substitute materials available should also be assessed and compared to the original material for their physical and visual compatibility. Lastly, the suitability of a given substitute replacement material should be determined based on how well the material matches both the physical and visual properties of the existing material as well as any specific performance or application needs. The Brief's descriptions of common substitute materials are not meant to be comprehensive, and, as the performance history of newer materials continues to grow and new materials are developed, available options will change, and our understanding of current material performance will continue to evolve.

Historical Use of Substitute Materials

The tradition of using affordable and common materials in imitation of more expensive and less available materials is a long one. At Mount Vernon, for example, George Washington used wood painted with sand-impregnated paint to imitate rusticated stone. This technique, along with scoring stucco into block patterns, was common in Colonial America to imitate stone.

Nineteenth-century technology made a variety of materials readily available and widely used that were not only able to imitate traditional materials but were also cheaper to fabricate and easier to use. Traditionally, carved stone units were individually worked. Molded or cast materials greatly increased efficiency in creating repetitive elements. Cement-based products such as cast stone could provide convincing imitations of natural stone with carefully chosen aggregates and cements and was typically a commercially manufactured product. It could be tooled like natural stone, though that could reduce much of the cost advantage. These carefully-crafted cementitious products were widely used as trim elements for masonry structures or as the face material for an entire building. At the other end of the spectrum, mail-order catalogs provided a wide variety of forms for molding concrete that were merely evocative of natural stone and did little to match its appearance. Concrete masonry units could be fabricated locally and on site, avoiding expensive quarrying and shipping costs.

Offering similar efficiencies as cast stone for reproducing repetitive and even complex decorative shapes, terra cotta could mimic the surface characteristics of stone with various textures and glazes. It was popular in the late nine-

teenth and early twentieth centuries for details on stone or brick buildings as well as for the entire skin of large and elaborately detailed buildings.

Cast iron was also used to imitate stone, often with very decorative profiles, for a variety of architectural features ranging from window hoods to columns, piers, balustrades, and even whole façades. Cast iron offered its own set of efficiencies including cost, fabrication time, and weight, but required a painted finish.

While cast stone, terra cotta, and cast iron offered efficiencies over quarried and, particularly, carved stone, they were not cheap or impermanent materials. Less costly, but also less durable, stamped or brake-formed sheet metal, typically galvanized, could also be used instead of masonry for cornices, window hoods, roofing tiles, and even entire building façades.

Substitute Materials and Applying the Standards for Rehabilitation

The *Standards for Rehabilitation* are focused on preserving the important and distinctive character-defining features of a historic property (Standards 2 and 6), and they are to be applied in a reasonable manner, taking into account economic and technical feasibility ([36 CFR 67.7](#) and [36 CFR 68](#)). The Standards have an inherent flexibility that facilitates their application to diverse projects, historic properties, and conditions. They are to be applied on a "cumulative-effect" basis, when the overall effect of all work in the context of the specific conditions of the property and the project is consistent with the property's historic character.

The *Standards for Rehabilitation* require that the replacement of a distinctive feature match the old in physical and visual properties. While the use of matching materials is always preferred, the Standards purposely allow for the use of substitute materials when the use of original materials is not reasonably possible, such as in consideration of economic and technical feasibility or in new construction. They also provide additional flexibility in the treatment of secondary, less distinctive features that are less important in defining the historic character of the property. The *Standards for Rehabilitation* recognize that flexibility is appropriate to facilitate "a compatible use for a property ... while preserving those portions or features which convey its historical, cultural, or architectural values" (definition of "Rehabilitation," [36 CFR 67.2\(b\)](#)).

Examples of Historical Use of Substitute Materials



Figure 2a: Casting concrete blocks to mimic quarried stone was a popular late 19th- to mid 20th-century technique. Concrete masonry units could be completed by local craftsman, saving time and shipping costs. Photo: John Sandor, NPS.



Figure 2b: The 19th century also produced a variety of metal products used to imitate other materials. Across the country, cast iron was used in storefronts to imitate stone. Photo: John Sandor, NPS.



Figure 2c: Stucco has been used to imitate a number of building materials for many centuries. Seen here, stucco was applied to a brick structure and scored to represent a stone façade. Photo: John Sandor, NPS.



Figure 2d: Terra cotta gained popularity in the late 19th century as a cheap and lightweight alternative to stone. Glazing techniques allowed the blocks to imitate a variety of natural stone materials. Photo: John Sandor, NPS.

These examples of one material used to imitate another, more often in initial construction than for later repair and replacement purposes, are referred to as *imitative materials* in the *Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings*, updated in 2017, that accompany the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. These imitative materials, while evoking other materials, usually had distinctive qualities of their own and were not always a very close match in appearance to the historic material they were meant to imitate.

Many of the traditional materials discussed above are still available and used to replace damaged or missing original features, both to replace matching historic materials and sometimes as substitute materials. Because of their extensive use over time and their known physical and chemical properties, cast stone, cast iron, and terra cotta are well understood substitute materials. This continued usage and familiarity means their installation requirements and service life are well established, which in turn makes it easier to determine when and how to use these traditional materials as substitutes for a deteriorated material. However, innovation in replacement materials continues, and new products (many of them consisting of synthetic materials) are continually introduced. These non-traditional products are an increasing part of both the new construction and rehabilitation industries. Some materials, like glass fiber reinforced polymers, glass fiber reinforced concrete, or fiber cement, have been in use long enough for an accurate prediction of their service life and performance. Other newer, non-traditional materials may be too new to have established performance records, thus, understanding their material properties is critical, and their use should be approached with more caution.

When to Consider Using Substitute Materials in Preservation Projects

According to the *Standards for Rehabilitation*, deterioration should generally be addressed through repair if in repairable condition. Repair can entail a variety of treatments that retain the unit of building material and remove and patch or replace only the damaged portion. This approach can be done with traditional methods and materials such as a dutchman, where like-kind material is precisely inserted into wood or stone, or it may employ other materials such as epoxies for wood repair or cementitious compounds for masonry. As long as the repair methods are sound and do not damage or accelerate the deterioration of the historic material, repairs are generally preferable to replacement of an entire element. More complex manufactured products, typical of more recent historic materials (as well as a lot of modern building materials generally), may be more difficult to repair, if they can be repaired at all.

There are situations, however, when the level of deterioration makes localized repairs infeasible and entire fea-



Figure 3: Incremental repair is best done using in-kind material to minimize differences in the performance characteristics that could negatively affect the overall assembly. Photo: NPS.

tures or units of historic material must be replaced. While achieving an effective match of all of the visual qualities of a material can be challenging, even when replacement is in kind, it can be even more challenging when the replacement is a substitute material. A good visual match is not the only consideration when a substitute material is to be used for incremental replacement within a larger assembly of historic material. When an individual siding board or a single block of ashlar is being replaced, it is usually best achieved with the original material. Introduction of a different material into an intact assembly requires that its inherent properties, such as expansion and contraction, moisture resistance, or permeability, be thoroughly considered relative to those of the surrounding historic materials to avoid causing damage.



Figure 4. While occasionally used to imitate other materials such as wood or slate shingle, many asbestos shingles and siding materials had their own distinct shape and profile. No longer manufactured today, alternative materials must be found to replace these materials when they are distinctive features on a historic structure. Drawing: Association for Preservation Technology, Building Technology Heritage Library.



Figure 5. (Left) Asbestos shingles were often used as a substitute for traditional slate roof shingles. The historic asbestos roof on this rehabilitation project had reached the end of its lifespan and required complete replacement. (Right) Given the limited replacement materials available to match the historic asbestos shingles, utilizing natural slate was determined to be the best visual match for the original shingles and design intent in this instance. Photos: Crosskey Architects.

Circumstances in which the use of substitute materials may generally be considered appropriate, taking into consideration technical and economic feasibility reasons, include: the unavailability of historic materials; the unavailability of skilled artisans or historic craft techniques; inadequate durability of the original materials; the replacement of a secondary feature; construction of a new addition; the reconstruction of a missing feature; code-required performance; and for enhanced resilience and sustainability:

- **Unavailability of historic material.** A common reason for using substitute materials is the difficulty in finding a good match using the historic material (particularly a problem for masonry materials where the color and texture are derived from the material itself). This may be due to the actual unavailability of the material or to protracted delivery dates, particularly if the material cannot be sourced domestically. It is not uncommon for a local quarry that is no longer in operation to have been the source of an original stone. If another quarry cannot supply a satisfactory match, a substitute material such as dry-tamp cast stone or textured precast concrete may be an appropriate alternative, if care is taken to ensure that the detail, color, and texture of the original stone are matched. Even when the color is successfully matched, the appearance of a cementitious product may diverge from that of the historic stone as the substitute material ages.

Many manufactured materials that were used historically on buildings are no longer made. Terne-plated steel, which was the material most typically used for painted standing-seam or flat-seam roofing, is no longer made. However, because it was always painted, other metals including galvanized steel or copper can generally be substituted if painted. When the historic material needing to be replaced is a manufactured product developed as an imitation of

a natural material, which was the case with asbestos shingles meant to imitate slate, the natural material may now be an appropriate substitute material to consider for the manufactured one that is no longer produced.

- **Unavailability of skilled artisans or historic craft techniques.** These two issues can complicate any preservation or rehabilitation project. This is particularly true for intricate ornamental work, such as carved wood, carved stone, wrought iron, or cast iron. While skilled craftsmen may not be as difficult to find as they once were, there can still be limitations geographically, even in finding less specialized skills, and particularly if a project is small. Technical advances have allowed some stone or wood carvers to take advantage of computerized equipment, but complex designs will likely still require hand work. It may also be possible to mimic a carved element using a material that can be cast in a mold, adding significant efficiency where an historic element survives from which a mold can be made. Options for casting include aluminum, cast stone, fiberglass, glass fiber reinforced concretes, and terra cotta, but not all carved elements can be duplicated by a casting, and mold-making and casting still require skilled craftsmen.
- **Inadequate durability of the original material.** Some historic building materials were of inherently poor quality or were not durable. In other cases, one material was naturally incompatible with other materials on the building, causing staining or galvanic corrosion. Examples of poor-quality materials are very soft sandstones, which eroded quickly, and brownstone, which is vulnerable to delamination. In some cases, more durable natural stones may be visually similar enough to stand in for these soft stones but cast stone or another material may be needed to achieve an appropriate match.

The ready availability of manufactured ornamental wood features fed a nineteenth-century taste for decorative architectural details that were often used on the exterior of buildings with little concern for how they would be affected by moisture or maintained. Even old-growth wood from decay-resistant species often could not prevent features with severe exposure from eventually needing to be replaced. Today's available commercial supplies of lumber no longer provide the denser, more decay-resistant wood of old-growth forests, so even careful matching to species, which is not always possible, will not yield a replacement equal in performance to the historic material. Old-growth wood is likely to be very expensive, if it can be found, and may not be available from a sustainable, environmentally responsible source. When features with severe exposure need to be replaced or reproduced, substitute materials that are less susceptible to decay can have a longer life, and when the feature is painted, as exterior wood features generally are, the visual effect of a substitute material can be minimal.

- **Replacement of a secondary feature.** When it is necessary to replace a less distinctive, secondary feature that is less important in defining the historic character of the property, there is more flexibility in how it can be replaced. While it may be less important to find an exact match in materials when replacing



Figure 6. The dramatic difference in the number of growth rings between old-growth wood and wood that was recently harvested from second- or third-growth forests is indicative of the diminished dimensional stability and durability of most lumber currently available. Photo: Zachary Dettmore.

such a feature, the retention of the overall historic character should still guide selection of an appropriate replacement material. For example, replacing secondary features such as those with limited visibility (e.g., siding materials on a rear elevation) may permit replacement materials that are similar in appearance or character without having to be a perfect match.

- **Construction of a new addition.** The *Standards* require that new additions to historic buildings and related new construction be differentiated from the old as well as be compatible with the historic character of the property and its site and environment. Using materials that evoke, without matching, the historic material can be an effective means of achieving the needed balance between compatibility and



Figure 7. A new addition replaced non-historic construction on the rear elevation of this building. Fiber cement gives the addition a compatible appearance without replicating the exposure for thickness of the historic siding. Photo: Ward Architecture + Preservation.

differentiation for new additions and new construction. Even if differentiation is achieved through design rather than materials, there generally is no basis for requiring the use of matching historic materials for new additions and new construction as part of a rehabilitation project.

- **Reconstruction of a missing feature.**

Many buildings lose significant features over the course of their lives for reasons such as those previously discussed. When a missing feature is to be reconstructed, the importance of matching the original material may be less important to the effect replacing the missing feature may have on the overall historic character and appearance of the building. Though replacement of missing features must be substantiated by documentary, physical, or pictorial evidence, in many cases the authenticity of the material may be secondary to the overall visual qualities. The use of a more cost-effective substitute material for the construction of a missing feature can often be an important factor in the feasibility of undertaking such work.

- **Code-required performance.**

Modern building codes are regularly amended to require higher performance levels for new and existing buildings in such areas as life safety, seismic retrofits, and accessibility. Rehabilitation projects often trigger compliance with code requirements that were not in place when a building was constructed. Although building codes may often allow for the retention of historic materials and assemblies, substitute materials can offer an alternative in situations when the historic materials are non-compliant and cannot otherwise be reasonably retained. In these instances, a change in material may be appropriate to meet code requirements, while in other instances selecting the optimal code compliance method for the project may achieve code-compliant solutions that also allow for the preservation of a building's historic materials and finishes.

For example, fire codes may require increased resistance to flame spread for buildings within dense urban environments where building proximity and separation between buildings is a concern. Some substitute materials are non-combustible, have good ratings for flame spread, and can provide an alternative to help meet

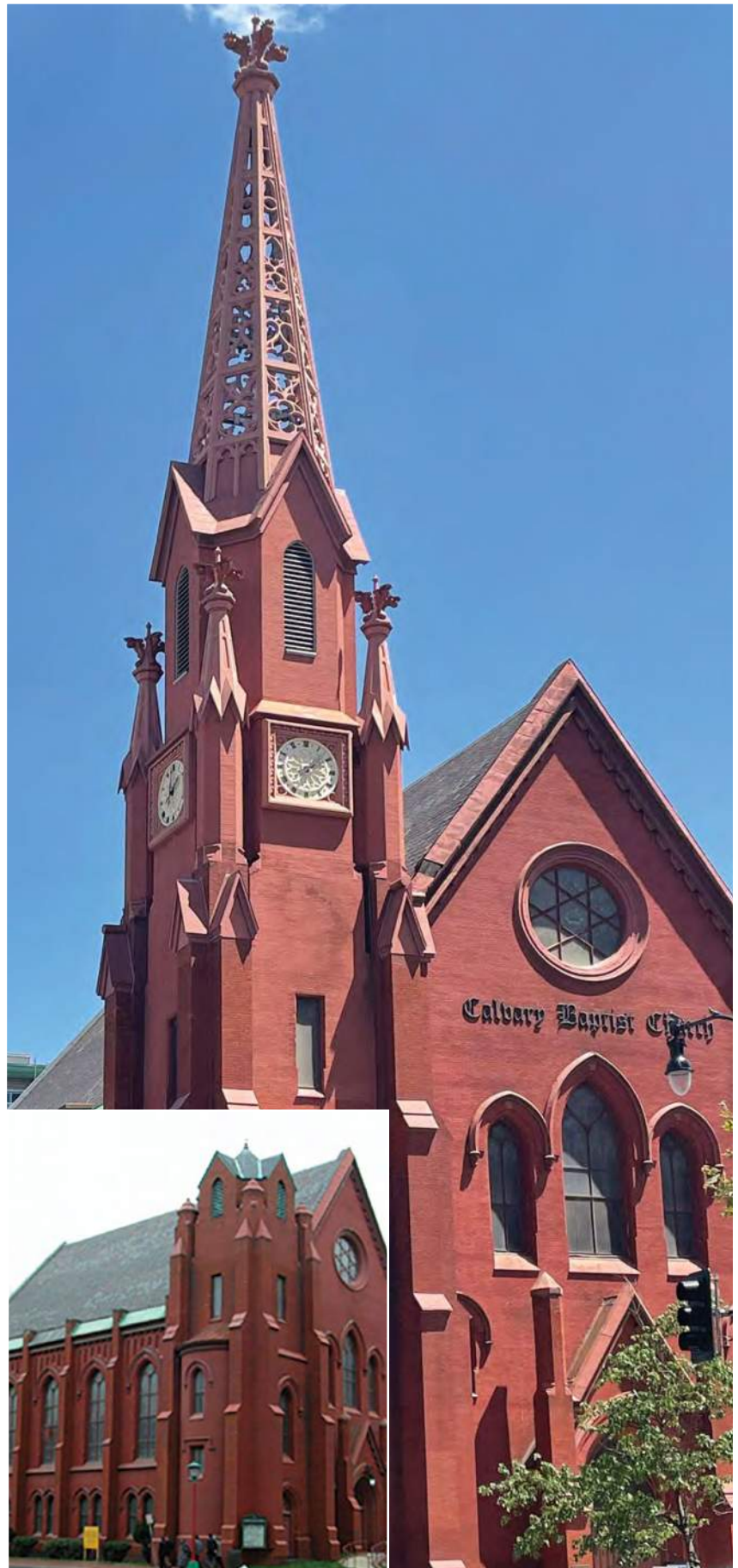


Figure 8. A long-missing cast-iron steeple was reconstructed in aluminum and fiber-reinforced polymer (FRP). Photo: John Sandor, NPS, Inset: Quinn Evans.

fire code requirements. Depending on the building component and the material, however, a substitute material may not resist fire any better than the historic material. In addressing code issues, all feasible alternatives should be considered to minimize the impact on the historic character of the building while still meeting code requirements.

With specific provisions in building code related to issues such as seismic hazards, the choice of materials for features inherently unstable in a seismic event can be a key part of a code-compliant retrofit solution. Elements at risk of falling such as parapets, finials, and overhanging cornices may be made safe by anchoring them to new structural frames. However, for some heavy masonry features, especially where there is deterioration or the feature is difficult to effectively brace, adequately anchoring the existing feature may not prove feasible. In such cases removing and replacing these features with lighter-weight replicas that incorporate a resilient structural framework can help preserve the historic character of the building while improving life safety performance.

- **Enhanced resilience and sustainability.** Wildfires, earthquakes, floods, hurricanes, and other extreme weather events put historic buildings and their occupants at risk and may require adaptive treatments that are more invasive than might be accepted in other circumstances, including related to the use of substitute materials. In these contexts, it is still necessary to try to minimize impacts on a building's historic character as much as possible while still adapting it to be more resilient. Widespread wildfires, for example, have increased demand for fire resistant materials for the exterior building envelope. Flood events may necessitate the replacement of historic materials that have been damaged or inundated with hazardous substances in contaminated floodwaters. When undertaking repairs in such circumstances, substitute materials may offer greater resilience to anticipated future exposure to natural hazard risks.

Similarly, efforts to improve energy efficiency and performance may include the use of substitute materials as replacement components when modifications to building assemblies are required and the historic materials cannot be preserved. When evaluating substitute materials in the context of sustainability objectives, factors such as the environmental impact of production, the full life cycle of products, and the embodied carbon of the materials already in place should be carefully analyzed. There may be more sustainable choices for a replacement material, including the use of more traditional materials in place of manufactured products that may consist of non-renewable resources or hazardous materials. While some synthetic substitute materials are made from recycled materials or are otherwise sustainably produced, many are not repairable, salvageable, or recyclable themselves, and

they may have shorter lifespans to their historic material counterparts. When either greater resilience or sustainability is a factor, all feasible alternatives should be considered in finding a balanced approach that maintains historic character while meeting resilience and sustainability goals.

Substitute Materials and Economic Feasibility

Economic feasibility is inevitably a concern when choosing a material for any part of a project, whether a historic or substitute material, but it should not be the sole determinant factor at the expense of maintaining the



Figure 9. Previously bricked-in openings below the flood line were reopened and new aluminum windows installed with cellular PVC trim detailed to hold back moderate flood waters and survive exposure to water. Photo: John Sandor, NPS.

historic character and historic integrity of a building. Other factors may prompt the consideration of a substitute material, such as the cost of maintaining the historic material, because it is comparatively difficult or costly to reach or access, or the frequency of required maintenance the historic material needs. Additionally, where in-kind replacement material is found to be prohibitively expensive, it may be reasonable to consider a substitute that offers an alternative and is a good physical and visual match. Not all substitute materials are, however, cost-effective replacements. Long-term durability and maintainability are other factors that should be considered in conjunction with initial cost.

Maintenance of a material, particularly where accessibility is difficult or expensive, can be an important part of a

cost evaluation. Maintenance costs should not be considered without also considering life-cycle expenses. While some substitute materials may offer reduced initial costs, they may be as or more costly than traditional materials to maintain over time. For example, many substitute materials are not readily repairable, necessitating full replacement when damaged. The cost to replace a material or assembly at the end of its lifespan may also be greater than the accumulated incremental expense to maintain the historic material, particularly if it is a more traditional, repairable material. Maintenance cost should never be the sole reason for replacing a historic material that is not deteriorated.

Criteria for the Appropriate Use of Substitute Materials

Substitute materials must meet three basic criteria to be considered: they must be compatible with the historic materials in appearance; their physical properties must be similar to those of the historic materials, or the materials must be installed in a manner that tolerates differences; and they must meet certain basic performance expectations over an extended period of time.

- **Matching the Appearance of the Historic Material**

Any material's appearance varies depending on the nature of the material and how it is used. Some historic materials, such as wood and ferrous metals, were typically painted, making the color of the substitute unimportant, though the texture of the surface, which telegraphs through a paint layer, is still an important consideration. Texture can be a large part of distinguishing a material formed by hand from one that is machine-made. Many historic materials, such as most building stones, are used without any coating, making the color, pattern, and reflectivity, as well as surface texture, dependent on the material itself. Matching the color and surface

characteristics of a historic natural material with a man-made substitute can often be quite difficult.

When the color and surface characteristics of an existing material are important, cleaning the material should be the starting point for evaluating a potential matching material. In situations where there are subtle variations in color and texture within the original material, the substitute material should be similarly varied so that it is not conspicuous by its uniformity. If a material is custom fabricated, a sufficient number of samples should be supplied to permit on-site comparison of color, texture, detailing, and other critical visual qualities. For a manufactured product with preset choices of color or texture, it may be necessary to look at samples from more than one manufacturer to find the best match. Similarly, prefabricated products, such as roofing slate, may offer limited, if any, choice of unit size, which can be a critical factor for achieving a good match. A substitute material should not be used to replace distinctive, character-defining materials and features if an adequate match in design and appearance is not possible.

As all exposed materials are subject to ultraviolet degradation, samples of a new material, particularly when custom formulated, should be prepared during the early planning phases to allow for evaluation of the effects of weathering on color stability. When that is not possible, or if a prefabricated product is used, the fabricator or manufacturer may be able to identify regional locations where equivalent products have been installed long enough ago to get a better sense of how the material weathers and performs.

While a perfect match is the desired goal for replacing distinctive features, it is not always possible, even when the same matching material is chosen for the replacement. When any compromise



Figure 10a and 10b. Polymer slates offer a choice of shapes but not sizes, limiting their ability to achieve a good visual match for some historic slate. With the size of the polymer slates (Figure 11b) being nearly twice that of the historic slates (11a), the scale of the entire feature is incompatibly altered. The molded edges of this material, which contribute to its ability to replicate slate, would be lost if each shingle was resized by cutting. Photo: John Sandor, NPS.



Figure 11. The thickness of the wood siding on the front (left) creates a deeper shadow line than is achieved with the fiber cement siding used on the side (right) elevation. While the exposure can be adjusted, fiber cement siding is not available in a matching thickness. Photo: John Sandor, NPS.

must be made in the precision of the match, it is wise to consider the vantage point from which the material will be seen. Sometimes what seems important at close range, such as variations in the texture of a surface, may be secondary to other aspects of the material when viewed from some distance. The closer a feature is to the viewer, the more closely the material and craftsmanship should match the original. An on-site mock-up using a sample of the proposed material can help evaluate whether it is an adequate visual match.

- **Matching the Physical Properties of the Historic Material**

Carefully chosen substitute materials can often closely match the appearance of historic materials, but their physical properties may differ greatly. These differences are most critical when incrementally replacing components of a larger assembly that retains significant historic material. The chemical composition of the material (e.g., the presence of acids, alkalis, salts, or metals) should be evaluated to ensure that the replacement materials will be compatible with the adjacent historic materials. Materials that will cause galvanic corrosion or other chemical reactions must be isolated from one another.

The thermal- and moisture-driven expansion and contraction coefficients of each adjacent material must be within narrow limits or be accommodated



Figure 12. Cellulose composite materials, like wood, expand and contract with moisture. Here it was used to reconstruct a missing storefront. Unlike solid wood that is dimensionally stable parallel to the grain, this composite moves equally in all dimensions, resulting in gaps that were not adequately anticipated in the design. Photo: John Sandor, NPS.

by carefully designed joints and fasteners. Joints can play a role both in accommodating movement of materials as well as in managing moisture, either to keep it from entering the enclosure assembly or to let it escape from the building envelope, or both. Because some synthetic materials are less permeable to moisture than more traditional materials, installations must take into account the potential to trap moisture and cause deterioration of historic and new materials. An assembly incorporating new and historic materials should be designed so that if material failures occur, the failures occur within the new material rather than the historic one.

During installation, surface preparation is critical to ensure proper attachment. Deteriorated underlying material must be removed or stabilized. Non-corrosive anchoring devices or fasteners that are designed to carry the new material and to withstand wind, rain, snow, and other destructive elements should be used. Since physical failures often result from poor anchorage or improper installation techniques, a structural engineer should be included in planning any major project. For readily available, off-the-shelf materials, manufacturers' recommendations for attachment and spacing should be followed.

Nearly all substitute materials have some properties that are different from the historic materials they may replace. Even when substitute materials are isolated from historic materials and features, it is important to understand the substitute materials' properties in order to use them successfully.

- **Performance of the Material Over Time**

When more traditional materials are used to replace damaged historic materials and features, their performance is predictable in most cases. An exception may be modern wood that has durability and other prop-

erties different than those of historic wood from old-growth forests. Many of the materials used as substitutes have been in use long enough to provide some idea of how they perform over time. Other material may only have test results from accelerated weathering. The length of manufacturer warranties may be an indicator of expected durability and lifespan. Warranties only predict a manufacturer's expectation of a product's performance and are no guarantee that the manufacturers will still be in business at the time needed to stand behind them. Just as new manufacturers emerge with new materials, others disappear. Where possible, projects involving substitute materials in similar installations and exposures should be examined before selecting a new, less-tested material. It is unrealistic to expect a substitute material, which can be quite different in composition than the historic material, not to age differently.

Even traditional materials will not perform well if not used or detailed appropriately, and experienced architects, engineers, fabricators, and installers rely on their professional knowledge and experience to ensure proper installation and techniques when working with familiar materials. This is just one of many reasons that using the original materials for needed replacement is usually the best choice. Some of the materials now available as substitutes have properties that differ greatly from the traditional materials they may be used to replace. It is critical to the successful performance of substitute materials that everyone involved in the selection, design, and installation fully understands the material's properties, especially how it is different than the material it is replacing, and how that will affect the surrounding materials and building systems.

Many traditional building materials can be repaired either with traditional methods and materials or with more modern conservation techniques using substances like epoxies. However, many modern substitute materials (particularly synthetic ones) are not as easily repaired, if repairable at all, as their more traditional counterparts. Confirming that a material is repairable may be important for those used, e.g., where impact or significant wear or abrasion is likely.

Finally, it is critical that the substitute materials be documented as part of the historical record of the building so that proper care and maintenance of all of the building materials continue, ensuring the continued life of the historic building.

Choosing an Appropriate Substitute Material

Once all reasonable options for repair and replacement in kind have been considered and sufficient justification for substitute materials has been established, the choice among the variety of substitute materials currently available must be made. Rapidly developing technologies allow a wide variety of materials to choose from that are intended to mimic historic materials. Many of the materials that were historically used as substitutes for more traditional historic materials have themselves become historic, and some of these early substitutes continue to be reasonable options as substitute materials today. No substitute material will exactly match the historic material in all aspects, but many are able to adequately match the appearance and relevant physical attributes to make for a potential substitute. If a substitute material is not

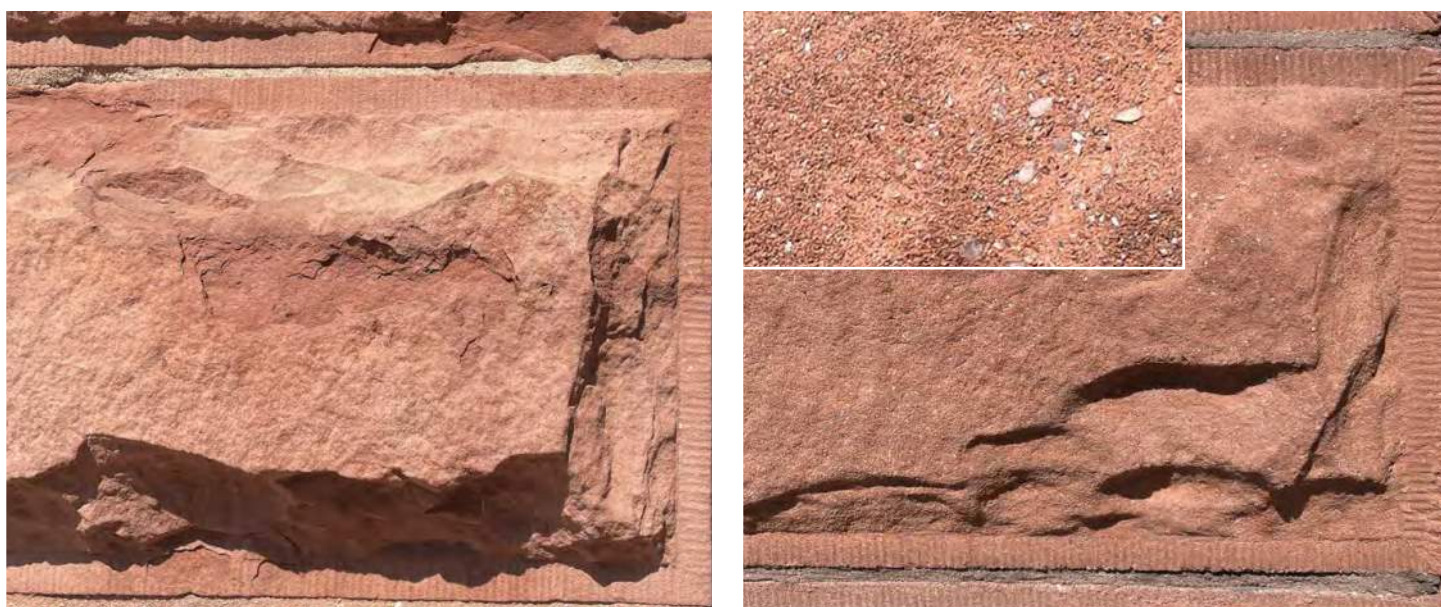


Figure 13. Cast stone was used to effectively replace individual blocks of sandstone. Both the original (left) and the substitute material (right) retain similar physical and visible properties. Having weathered for over 30 years, some erosion of the binder has revealed quartz grains of the aggregate (inset), but it is only noticeable upon close inspection. Photo: John Sandor, NPS.

an adequate physical and visual match given the specific conditions of the building and the project, then it should not be used to replace distinctive, character-defining materials and features.

Listed below are various building components or features and the substitute materials which may, in some circumstances, be considered for use as possible replacement materials in a historic rehabilitation project consistent with the *Standards for Rehabilitation*. This list includes different substitute material options available today for these building features and poses questions that should be asked and considered when choosing between the original material and various types of substitute materials. This is followed by a list of some of the more commonly used, currently available materials that may have some applications as substitute materials and the properties of each that affect their suitability for use as substitutes. This list should not be read as an endorsement of any of these materials, generally, or their appropriateness for use as a substitute material, but it serves as a reminder that the successful use of any building material requires a careful consideration of its properties relative to where and how it will be used.

Considering Substitute Materials

Considering the use of a substitute material should begin with the following questions about the conditions and location where it will be used:

- Will the significance or visibility of the historic feature require a very precise match?
- Is the entire feature being replaced or just a component of it?
- Are pre-existing conditions contributing to the failure of the existing material, and, if so, how will they be addressed/corrected?
- Is the need for replacement due to inherent deficiencies of the original material?
- Will the material need to resist any environmental hazards such as flooding or fire?

Historic Features and Substitute Materials

		Historic Building Features					
		Masonry Stone, terra cotta	Architectural Metals Cast & wrought iron, steel, pressed metal	Siding Wood, asbestos	Roofing Wood shingle, slate, tile	Decking Tongue-and-groove & square-edge wood	Molding / Trim Wood
Potential Substitute Materials	Aluminum	●	●	●			●
	Cast Stone & Precast Concrete	●			●		
	Fiber Reinforced Concretes	●					
	Glass Fiber Reinforced Polymers	●	●				
	Fiber Cement			●	●		●
	Mineral / Polymer Composite			●	●	●	●
	Cellulose Fiber / Polymer Composite			●	●	●	●
	Non-composite Polymers		●			●	●
	Cellular PVC			●		●	●

The above chart lists materials that are sometimes used as substitutes for replacement of historic building features. Even within a given category, all materials may not be equally suitable as a substitute replacement material for the actual historic material or feature. Any substitute material should be selected based on its specific physical and visual characteristics, conditions, and intended application consistent with the Secretary of the Interior's Standards for Rehabilitation.

Historic Building Features: Criteria for selecting an appropriate replacement material

Masonry

FEATURES: corbels, brackets, balusters, cornices, window and door surrounds, friezes, wall surfaces, horizontal surfaces, incidental ornament, columns

HISTORIC MATERIALS: terra cotta, cast stone, stone, concrete

POTENTIAL SUBSTITUTES: cast stone, pre-cast concrete, GFRC, GFRP, non-composite polymers (polyurethane), cast or stamped metal

Questions to ask about the replacement material:

- Can it serve a structural function?
- How is the material affected by moisture?
- Can the material survive flooding and be reused?
- Can it reproduce the surface texture of the original?
- Is its shrinkage in curing low enough to allow it to be molded from existing stones?
- Can matching color be achieved without a coating and with UV stability?
- Can an adequate match of the surface (color and texture) be achieved with a coating?
- Is a coating required?
- If it is not self-supporting, is it lightweight enough to be supported by an underlying framework?
- Can multiple original units be replicated with a single replacement piece?
- Where thermal movement is different from the original material, how will joints accommodate?
- Is the material combustible?

Architectural Metals

FEATURES: pilasters, door and window surrounds, cornices, incidental ornament, columns, spandrels, ceilings, sheathing, roofing

HISTORIC MATERIALS: cast and wrought iron, steel, bronze, lead, aluminum, and stamped steel (usually galvanized or terne-coated)

POTENTIAL SUBSTITUTES: GFRP, aluminum, non-composite polymer (polyurethane), GFRC, metallic/polymer composite

Questions to ask about the replacement material:

- Will the replacement material serve a structural or cosmetic role?
- Will it expand and contract with temperature change enough to require special accommodation in its installation?
- If part of an assembly of mixed materials, how will any expansion and contraction of the dissimilar materials be accommodated?
- Will the replacement material increase deterioration of the historic or surrounding elements, for instance due to galvanic corrosion, moisture entrapment, jacking of original material, off-gassing creating a corrosive environment, or poor original design of the historic material?
- How will the replacement material mimic the surface color/patination of the original material?
- If a coating is needed, what preparation is needed, and what is its durability or service life of the finish?
- What attachment and support systems are necessary?
- If the original element is structural, but the new material is not, how can supplemental structure be introduced to support the new?



Figure 14. Surface texture is an important aspect in matching the appearance of a historic material, especially when a material is viewed at close range. As seen in these two images, many of the substitute materials produced for siding and trim have an embossed wood grain, making them incompatible for replacing historic wood that was typically planed to a smooth surface. Some substitute products are available with a smooth surface as well. Photos: John Sandor, NPS.

Siding

FEATURES: clapboard, tongue-and-groove or shiplap siding, board and batten, shingles

HISTORIC MATERIALS: wood and asbestos

POTENTIAL SUBSTITUTES: cellular PVC, wood fiber/polymer composite, fiber cement, mineral/polymer composite

Questions to ask about the replacement material:

- What are the widths, lengths, profiles, thicknesses, and textures available?
- What, if any, are the finishing requirements, and/or is it available factory-finished?
- How well does it hold paint, and can prefinished surfaces be renewed?
- What tools are needed to cut it, and can it be machined?
- Does it absorb moisture and, if so, to what effect?
- Can the material survive flooding and be reused?
- Will it expand and contract with temperature change enough to require special accommodation in its installation?
- What characteristics can affect its handling (e.g., weight, flexibility, brittleness)?
- Does it have specific fastening requirements?
- Is it susceptible to insect damage?
- What is its impact resistance?
- Does it have a flame spread rating?
- What is the expected lifespan and/or warranty?

Roofing

HISTORIC MATERIALS: wood shingle, slate shingle, asbestos shingle, clay tile, concrete tile, metal

POTENTIAL SUBSTITUTES: fiber cement, mineral/polymer composite, wood fiber/polymer composite, pre-cast concrete, metal

Questions to ask about the replacement material:

- What sizes and shapes are available?
- What are color choices?
- What is the color stability of the new material, and how will it age/weather?
- What is the impact resistance?
- What is its flame spread rating?
- What are the installation requirements of the new material?
- Can the feature being replaced be custom-produced if ready-made ones of the new material are not an accurate match?
- What is the expected lifespan and/or warranty?

Decking

FEATURES: tongue-and-groove, square-edge flooring

HISTORIC MATERIALS: wood

POTENTIAL SUBSTITUTES: cellular PVC, wood fiber/polymer composite, mineral/polymer composite, non-composite polymers (solid PVC)

Questions to ask about the replacement material:

- What are the widths, lengths, and textures available?
- Is it site painted or prefinished?
- How well does it hold paint, and can prefinished surfaces be renewed?
- What tools are needed to cut it, and can it be machined?
- What dimensional span does its strength allow?
- Does it absorb water, and if so, to what effect?
- Can the material survive flooding and be reused?
- Does it require a drainage plane, or can it be installed atop a membrane?
- Will it expand and contract with temperature change enough to require special accommodation in its installation?
- Is it susceptible to insect damage?
- Is it impact resistant?
- Does it have a flame spread rating?
- What is the expected lifespan and/or warranty?

Molding / Trim

FEATURES: run moldings, flat boards, casings, cornice, frieze, railings, balustrade, columns

HISTORIC MATERIALS: wood, metal

POTENTIAL SUBSTITUTES: cellular PVC, wood fiber/polymer composite, mineral/polymer composite, non-composite polymer (polyurethane), GFRP, sheet metal

Questions to ask about the replacement material:

- What are the widths, lengths, and textures available?
- What, if any, are the finishing requirements and/or is it available factory-finished?
- How well does it hold paint, and can prefinished surfaces be renewed?
- What tools are needed to cut it, and can it be machined?
- Does it absorb moisture, and if so, to what effect?
- Can the material survive flooding and be reused?
- Will it expand and contract with temperature change enough to require special accommodation in its installation?
- What characteristics can affect its handling (e.g., weight, flexibility, brittleness)?
- Does it have specific fastening requirements?
- Is it susceptible to insect damage?
- What is its impact resistance?
- Does it have a flame spread rating?
- What is the expected lifespan and/or warranty?



Figure 15. Tongue-and-groove porch flooring is manufactured in several different substitute materials. Each type has different properties, though most are more moisture-resistant than wood. The prefinished product shown can be painted when worn, but repainting is not recommended for some product choices. Photo: Oak Alley Foundation.

Potential Substitute Materials: Matching properties and performance needs

Physical Composition and Properties

After assessing different material options based on the intended application, the appropriateness of a substitute material should also be considered in context of the material's physical composition, associated properties, and necessary visual match.

Aluminum

MATERIAL: Aluminum is a highly corrosion-resistant alloy that can be cast, wrought, or extruded. Molten aluminum is cast into permanent (metal) molds or one-time sand molds forming cast aluminum. Extruded aluminum is formed by passing heated aluminum through a die which produces the desired form. Wrought aluminum is worked using the heated metal and then bending, stamping, and otherwise shaping the metal. If not self-supporting, aluminum elements are generally screwed or bolted to a structural frame. Aluminum can be welded, but more often sections, particularly extruded ones, are mechanically connected.

PROPERTIES:

- Isotropic
- Lightweight
- Thermal movement greater than cast iron or wood
- Corrosion-resistant, but direct contact with other metals may trigger galvanic corrosion
- Lower structural strength than iron or steel
- Ductile - less brittle than cast iron
- Non-combustible
- Retains high definition through molding process and produces crisp profiles through extrusion
- Can be given a durable metallic finish through anodization. Surface etching required for paint adhesion
- Can be machined into a large variety of shapes/ dimensions



Figure 16. Aluminum is a highly corrosion-resistant metal that is commonly used as a substitute material for cast iron. Aluminum can be a more affordable and lightweight alternative to cast iron that retains a similar texture, shape, and maintenance cycle. Photo: NPS.



Figure 17. The balustrade consists of multiple prior campaigns of using cast stone to replace the natural stone. The effective match for the surface texture and color of the original stone allowed individual elements to be incrementally replaced only when they had failed, thus retaining the maximum amount of original material as long as possible. Photo: EverGreene Architectural Arts.

Cast Stone & Precast Concrete

MATERIAL: A cement lime and aggregate mixture that is dry-tamped into a mold is generally referred to as cast stone. Cast stone is one of the original substitute materials. Its longevity has proved that the material ages compatibly with stone. A wet mix of cement and aggregate poured into molds also has a long history of being used to produce concrete masonry units mimicking stone and roofing tiles mimicking clay tile. Both methods have minimal shrinkage during curing, though they employ different curing and finishing techniques. Both can include reinforcing bars and anchorage devices installed during fabrication. The dry-tamp fabrication method is especially effective at producing an outer surface with the appearance of stone.

PROPERTIES:

- Isotropic
- Weight equivalent to stone
- Expansion/contraction similar to stone
- Water absorption may differ from that of any particular stone
- Can be structural
- Non-combustible
- Vapor-permeable
- May achieve a wide range of color and surface textures by varying mix, but use of pigments may reduce UV stability
- Can be coated
- May be tooled to match the appearance of tooled stone
- Repairs similarly to stone



Figure 18. Missing historic terra cotta spandrel panels on all floor levels were recreated utilizing glass fiber reinforced concrete (GFRC) replacements. New spandrels were fabricated as individual components and attached with metal clips between historic terra cotta piers. Photo: Kris Frail, Dewberry.

Fiber Reinforced Concretes (GFRC, CFRC)

MATERIAL: Fiber reinforced concretes are lightweight concrete compounds modified with additives and reinforced with alkaline resistant glass fibers (GFRC), or less frequently carbon fibers (CFRC). They are generally fabricated as thin-shelled panels and applied to a separate structural frame or anchorage system. GFRC is typically sprayed into forms, although it can be poured, and anchoring devices are included in the fabrication. The color is derived from the natural aggregates and, if necessary, a small percentage of added pigments. Because of its low shrinkage in curing, it can be produced using molds taken directly from the building.

PROPERTIES:

- Isotropic
- Lighter weight than solid masonry
- Expansion/contraction similar to stone
- No load bearing capacity, so underlying framework must be used to accommodate any loads
- Material can be fire-rated
- Vapor-permeable
- Can be produced in larger sections efficiently reproducing repetitive elements or features that were originally made up of small individual units
- Large range of colors achievable by varying aggregates, but when pigments are needed UV stability may be reduced
- May be left uncoated or may be painted



Figure 19. A new, lightweight fiber reinforced polymer is attached to a new metal armature to replicate damaged and missing elements of a terra cotta cornice. Photo: Quinn Evans.

Glass Fiber Reinforced Polymers (FRP, Fiberglass)

MATERIAL: Fiberglass is the most well-known of the FRP products generally produced as a thin, rigid, laminate shell formed by pouring a polyester or epoxy resin gelcoat into a mold. When tack-free, layers of chopped glass or glass fabric are added along with additional resins. The surface gel coat can be pigmented or painted. Reinforcing rods and attachment devices can be added when necessary. Because of its low shrinkage in curing, it can be produced using molds taken directly from the building. Rather than being produced as standard components, FRP is custom fabricated for individual applications.

PROPERTIES

- Isotropic
- Lighter weight than masonry, similar to sheet metal
- More thermally driven expansion than masonry or metals
- No load bearing capacity, so underlying framework must be used to accommodate any loads
- High strength to weight ratio
- Flammable
- Not vapor-permeable
- Can be produced in larger sections efficiently reproducing repetitive elements or features that were originally made up of small individual units
- May be difficult to match false joints in multi-unit assemblies to actual joints that need to accommodate movement
- Color can be incorporated into the surface gel-coat, or the surface may be coated



Figure 20. Cement board was used to replace a non-historic infill and mimics the configuration of a typical vehicular door of the period.
Photos: Historic Augusta.

Fiber Cement

MATERIAL: Fiber cement products are made from fiber, sand that is ground to a powder, cement, and proprietary additives to reduce moisture absorption. The fiber used in roof products is glass fiber alone, whereas siding and trim board products are primarily wood fiber. The material is formed with a smooth or textured surface, cut to standard sizes of panels, boards, or shingles, and cured in an autoclave. Roofing material has integral color, but board and siding products are produced with a primer, if not fully factory finished. Most siding and trim boards are embossed with a wood grain on one surface and are smooth on the other, the smooth side being the appropriate surface to imitate planed wood.

PROPERTIES:

- Products are minimally orthotropic
- Heavier and more brittle than wood, limiting available lengths
- Very little thermal- and no moisture-driven movement
- Low water absorption, but not recommended for ground or roof contact
- Class A flame spread
- Resists insect damage
- Available in limited thicknesses and widths
- Not machinable, but may be cut with special carbide blades; cutting requires dust collection and personal protective equipment
- Cut edges require sealing
- Available unfinished, primed, or prefinished, and must be painted (with latex paint)
- 15-year limited warranty typical



Figure 21. A mineral polymer composite siding was available in the profile very similar to the historic siding. The replacement siding was used where the original material was almost completely missing beneath a more modern covering. Areas where the original wood was largely intact were replaced with matching wood to sustain more of the material integrity of the building. Photo: Belk Architecture.

Mineral / Polymer Composite

MATERIAL: Calcium carbonate or fly ash are mineral ingredients held in a matrix of various polymers to produce materials formed or molded into a number of building products. Additives found in some of the roofing products include pigments and UV stabilizers. Some use a substantial portion of recycled material. Different combinations yield products with different properties, each formulated for a specific building component. When the material is fly ash with some glass fibers bound in a matrix of polyurethane, it is identified as polyash. Siding, trim, bead board, and deck products are primed or prefinished, whereas roof products have integral color.

PROPERTIES:

Fly ash (siding and trim)

- Isotropic
- Heavier and more brittle than wood, and lacking structural capacity
- Little thermal or moisture-driven movement
- Sufficiently low water absorption to permit ground contact
- Class C flame spread
- Resists insect damage
- Available in limited thicknesses and widths
- Machinable with carbide tools blades; requires dust collection
- Cut edges do not require sealing

- Must be painted
- 30-year limited warranty typical

Calcium carbonate or recycled rubber (roofing)

- Isotropic
- More thermally-driven movement than slate or wood
- Little to no moisture absorption
- As shingles: lighter and more flexible than slate
- As tongue-and-groove decking: heavier and harder than wood
- Not vulnerable to insect damage
- Available in limited dimensions
- As shingles: Class 4 impact resistance, and flame spread ratings ranging from Class A to Class C depending on the specific product
- As shingles: integral color, that may be subject to fading
- As tongue-and-groove decking: prefinished with non-renewable finish, and can be cut with woodworking tools
- 50-year limited warranties on roofing products typical

Cellulose Fiber / Polymer Composite

MATERIAL: Wood strands or fibers are coated with resin for moisture resistance and zinc-borate for insect and fungal-decay resistance, then consolidated under heated pressure. Solid composite core boards are cut from sheets of material, then factory-primed or finished. Resulting siding and trim board products can be referred to as engineered wood, fiber board, or hardboard. Products may be embossed with a wood grain or have a smooth finish, the smooth side being the appropriate surface to imitate planed wood. Siding, trim, and tongue-and-groove decking with a slightly different properties are produced by extruding polyvinyl chloride (PVC) combined with non-wood cellulose. Roofing shingles are molded from fine wood fibers, color additives, and UV stabilizers bound with polypropylene or polyethylene (thermoplastics).

PROPERTIES:

Predominantly Cellulose (siding, trim and decking)

- Minimal thermal movement
- Resistant to moisture-driven movement
- Lighter and more flexible than solid wood, but lacks structural capacity
- Rice hull cellulose: can span typical floor-framing spacing as decking
- Low water absorption (for wood, no ground or roof contact)
- Class A or Class C flame spread
- Resists insect damage
- Available in limited dimensions
- Machinable with woodworking tools
- Wood cellulose: Cut edges must be sealed and may need additional surface prep for finish; must be painted if unfinished or primed, also available prefinished
- Rice hull cellulose: Accepts stain/paint, but no finish required
- 30–50 year limited warranty, depending on manufacturer

Predominantly Polymer (roofing)

- Minimal thermal movement
- Little to no moisture absorption
- Lighter and more flexible than slate
- Class 4 impact-resistance
- Class A flame spread
- Available in limited shingle size
- 50-year limited warranty typical



Figure 22. A porch was reconstructed using posts fabricated on site from a smooth-surface cellulose/polymer composite material. Though the face of the posts are painted, the lack of paint on the bottom at the cut ends is not consistent with manufacturers' recommendations. This treatment will allow moisture to be absorbed, shortening the life of the new replacement feature. Photo: John Sandor, NPS.



Figure 23. 3-D printing using various polymers is occasionally used to replicate missing metal or wood features. This new application is continually being refined, but the application can be successful when a painted, lightweight feature needs to be replicated. Photo: NPS.

Non-composite Polymers

MATERIALS: The main two polymer materials used without significant other components are polyurethane and polyvinyl chloride (PVC). Polyurethane millwork is constructed of urethane foam created by mixing isocyanate and resin. The polyurethane mixture is kept under pressure in a mold as it expands to any desired shape. These molded products have a closed-cell, foamed core with a denser surface skin. Polyurethane products can have exterior applications but are more often used for interior features. Polyvinyl chloride (PVC) in a solid extruded form is another polymer that can have architectural application as tongue-and-groove decking. Various polymers formed using 3-D printing are also being explored as replacements for painted metal or wood ornamental features.

PROPERTIES: Each of the two groupings has distinct physical properties

Urethane Foam (moldings and decorative elements)

- Lightweight and flexible, but lacking structural capacity
- More thermally-driven movement than wood or stone, but less than cellular PVC
- Does not absorb water
- Flammable
- Resists insect damage
- Can be cut with standard woodworking tools
- Adhesive and mechanical fasteners both recommended for installation

- Supplied primed and must be painted (latex paint)
- Lifetime limited warranty typical

Solid PVC (flooring)

- Isotropic
- Heavier and less flexible than wood
- Minimal thermal movement
- Does not absorb water
- Strength to span typical floor-framing spacing
- Impact-resistance greater than wood
- Class A flame spread
- No insect susceptibility
- Good paint adhesion, but also available prefinished
- 20-year warranty typical

Cellular Polyvinyl Chloride (PVC)

MATERIAL: Varying amounts of calcium carbonate and a foaming agent are added to melted PVC before passing through an injection die and then a calibrator to produce the shape and size of the finished product. Cellular PVC is produced as sheets, boards, and moldings. Differences in the specifics of the equipment and the rate of cooling create two varieties of product, with distinct properties. One is known as free-foam, having a fairly consistent structure throughout its section, and the other is identified as Celuka, having a skin that is denser than its core. This primarily affects the ease with which the product can be milled and shaped. The material is white and needs no applied finish. When produced for decking the material has a colored and textured wear layer over the PVC core.

PROPERTIES

- Isotropic
- Lighter and more flexible than wood
- Less strong than wood (in tension and shear), but can span typical floor- framing spacing as decking
- More impact-resistance than wood
- Negligible water absorption; no moisture-driven movement, unlike wood
- Subject to thermal expansion and contraction significantly greater than wood, though the thermal movement is less for the same dimension than the cross-grain moisture-driven movement of wood
- For longer pieces, thermal movement requires manufacturer's specifications to be followed for attachment, and inclusion of expansion joints when installed at low temperature (joints should be glued)
- Class A flame spread
- Resists insect damage
- Machinable with woodworking tools, though cut edges may need additional surface prep for finish
- Good paint adhesion; if painted, high light reflectance (HLV) is recommended to minimize heat driven expansion
- 25–30-year limited warranty, depending on manufacturer



Figure 24. Cellular PVC when painted can be used to replace deteriorated wood features. This beadboard set in a wood frame was not historically designed to shed water effectively and had deteriorated. Cellular PVC was able to match the appearance of the wood details, while its properties were well matched to the shady location, painted finish, and limited size and configuration within the overall assembly; thus, it should provide a long-lasting solution for this application. Photo: Jennifer Balson Alvarez, NPS.

Acknowledgements

John Sandor, Architectural Historian, David Trayte, Historical Architect, and Amy Elizabeth Uebel, Architectural Historian, Technical Preservation Services, National Park Service, revised *Preservation Brief 16: The Use of Substitute Materials on Historic Building Exteriors*, originally written by Sharon C. Park, FAIA, FAPT, and published in 1988. The revised Brief contains expanded and updated information as well as new color photographs describing the general issues and application of substitute materials on historic buildings.

The authors wish to thank the following: Peyton Hall, FAIA, Principal Architect Emeritus, Historic Resources Group, Mary Jablonski, President, Building Conservation, Inc., Thomas Jester, FAIA, FAPT, LEED AP, Principal, Quinn Evans, Sharon Park, FAIA, FAPT, Associate Director Emerita, Smithsonian Institution, Debra Slaton, Principal, Wiss, Janney, Elstner Associates, Inc., for their guidance and review of this revision; and to Brian Goeken, Chief of Technical Preservation Services, National Park Service, and Jo Ellen Hensley, Elizabeth Tune, and Jennifer Oeschger, Technical Preservation Services, National Park Service, for their help in the editing of the publication. Illustrations not specifically credited are from National Park Service files. Front cover image: Installation of a new roof feature on a ca.1895 commercial building. The dome was constructed of fiber-reinforced polymer to replicate the missing original feature in Aurora, Illinois, 2023. Photo: Kelsey Cozens/JH Real Estate Partners LLC.

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. This publication is available from the Technical Preservation Services website at <http://www.nps.gov/tps/> or hard copies may be purchased from the Government Printing Offices at the U.S. Government Bookstore at <https://bookstore.gpo.gov/>. Comments about this publication should be addressed to Technical Preservation Services, National Park Service, 1849 C Street, NW, Mail Stop 7243, Washington, DC 20240, or by email to NPS_TPS@nps.gov.

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September 2023

Eighty Eight



PUBLIC NOTICE
Held on 20/9/26 Date 8/20/26
Subject Appeal of
AHBR decision
330-342-1790







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Subject Approval of
MFR Revision
330-342-11