HISTORIC PRESERVATION COMMISSION WORK SESSION

CITY OF DAVENPORT, IOWA

TUESDAY, MAY 11, 2021; 5:00 PM

DAVENPORT POLICE DEPARTMENT, 416 N HARRISON ST, COMMUNITY ROOM

A PARTIALLY ELECTRONIC MEETING IS BEING HELD BECAUSE A FULLY "IN PERSON" MEETING IS IMPRACTICAL DUE TO CONCERNS FOR THE HEALTH AND SAFETY OF COUNCIL MEMBERS, STAFF, AND THE PUBLIC PRESENTED BY COVID-19, AND TO FOLLOW THE GOVERNOR'S PROCLAMATION AND THE MAYOR'S EXECUTIVE ORDER DIRECTING SOCIAL DISTANCING AND PLACING RESTRICTIONS ON GATHERINGS. IN PERSON ATTENDANCE BY THE GENERAL PUBLIC AT ANY CITY OF DAVENPORT PUBLIC MEETING WITHIN ITS FACILITIES SHALL BE LIMITED TO 20 PERSONS.

I. Call to Order

II. Topics for Discussion

   A. Prospect Park: Eagle Scout Project

   B. Friederich Hartmann House: Exterior Alteration at 604 West 5th Street

   C. J. Monroe Parker-Ficke House: Tuckpointing and Brick Replacement at 1208 Main Street

   D. Presentation on the Rehabilitation of the Hiller House at 314 Gaines Street.

   E. Pending Items

   F. Commission Training and Education

III. Adjourn

IV. Next Commission Meeting: June 8, 2021

City of Davenport
Historic Preservation Commission Work Session

Department: DNS
Contact Info: Matt Werderitch 563.888.2221

Date
5/11/2021

Subject:
Prospect Park: Eagle Scout Project

Recommendation:
Provide feedback for the proposed park furniture installation.

ATTACHMENTS:

	Type	Description
🗋	Backup Material	Application
🗋	Backup Material	Eagle Scout Project Proposal
🗋	Backup Material	Furniture Specifications
🗋	Backup Material	Existing Park Furniture

REVIEWERS:

Department	Reviewer	Action	Date
Community Planning & Economic Development	Werderitch, Matt	Approved	5/7/2021 - 8:28 AM



Complete application can be emailed to planning@davenportiowa.com

Property Address* _____

***If no property address, please submit a legal description of the property.**

Applicant (Primary Contact)

Name: _____
Company: _____
Address: _____
City/State/Zip: _____
Phone: _____
Email: _____

Owner (if different from Applicant)

Name: _____
Company: _____
Address: _____
City/State/Zip: _____
Phone: _____
Email: _____

Engineer (if applicable)

Name: _____
Company: _____
Address: _____
City/State/Zip: _____
Phone: _____
Email: _____

Architect (if applicable)

Name: _____
Company: _____
Address: _____
City/State/Zip: _____
Phone: _____
Email: _____

Attorney (if applicable)

Name: _____
Company: _____
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Application Form Type:

Plan and Zoning Commission

- Zoning Map Amendment (Rezoning) ☐
- Planned Unit Development ☐
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Zoning Board of Adjustment

- Zoning Appeal ☐
- Special Use ☐
- Hardship Variance ☐

Design Review Board

- Design Approval ☐
- Demolition Request in the Downtown ☐
- Demolition Request in the Village of East Davenport ☐

Historic Preservation Commission

- Certificate of Appropriateness ☐
- Local Landmark Nomination ☐
- Demolition Request ☐

Administrative

- Administrative Exception ☐
- Health Services and Congregate Living Permit ☐

Historic Resource:

- ☐ Local Hamburg Historic District
- ☐ Iowa Soldier's Orphans' Historic District
- ☐ Marycrest College Historic District
- ☐ Individually Listed Local Historic Landmark

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Historic Resources requiring a Certificate of Appropriateness are mapped with a  or  .

If you are unsure, please contact the Community Planning and Economic Development staff at (563) 326-6198 or planning@davenportiowa.com for assistance.

When is a certificate of appropriateness required?
Prior to the commencement of the work.

What type of activity requires the approval of a certificate of appropriateness?
Any activity requiring a building or sign permit, except demolition, that would change the exterior architectural appearance of a structure. Examples include new construction, exterior alterations, relocations, reconstructions and infill development.

Submittal requirements

- Please contact Planning staff at (563) 326-6198 or planning@davenportiowa.com so we can help you determine what exactly is required to be submitted.
- Incomplete applications will not be accepted.

Submittal requirements for all types of requests:

- The completed application form.
- A work plan that accurately and completely describes the work to be done.
- Color digital photographs depicting the building elevations and proposed construction.

Submittal requirements for specific types of requests:

Minor alterations to existing buildings and new and replacement signs (all of the above and):

- Specifications, including dimensions, material used and color of the material.
- A rendering of the proposed alteration as depicted on the existing building.
- Samples of the materials, including the color, along with scaled, accurately colored elevations for any proposed sign and/or sign package.

Minor additions, site improvements and outdoor storage areas (all of the above and):

- A dimensioned site plan, including the locations of any proposed or existing buildings on the subject parcel and on surrounding parcels.
- A preliminary grading plan showing before and after grades at two-foot contour intervals, where deemed necessary by the development official.
- Outdoor storage areas shall be reflected in the elevation drawings submitted and shall show their relationship to the building elevations as well as the materials and treatment proposed that would accurately reflect the screening of the storage areas.
- A landscape plan.

Major additions and new buildings (all of the above and):

- Reproductions of building or site information found in the historical surveys if applicable
- A verifiable legal description, or a land survey.
- A map showing the existing topography of other properties at two-foot contour intervals, extending one hundred feet from the subject parcel.
- Elevation drawings, in color and drawn to scale, of the front, sides, rear, and roof lines of all proposed buildings or structures, illustrating the appearance and treatment of required screening elements for roof-mounted equipment, where deemed necessary by the development official.
- A materials board containing samples of each type of exterior building materials.

Formal Procedure

(1) Application:

- Prior to submission of the application, the applicant shall correspond with Planning staff to discuss the request, potential alternatives and the process.
- The submission of the application does not constitute official acceptance by the City of Davenport. Planning staff will review the application for completeness and notify the applicant that the application has been accepted or additional information is required. Inaccurate or incomplete applications may result in delay of required public meetings.

(2) Historic Preservation consideration of the request:

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- If the Commission determines there is insufficient information to make a proper judgment on the application, it may continue the application as long a period of 60 days has not elapsed from an accepted application. This time period does not apply if the applicant requests the continuance.

(3) After the Historic Preservation Commission's decision:

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- If approved, a certificate of appropriateness will expire one year from the date of approval unless a building permit is obtained within such period. The Zoning Administrator may grant an extension for a period of validity longer than one year. An applicant may apply in writing for an extension of time at any time prior to the date of expiration.
- The applicant may appeal the Historic Preservation Commission's determination to the City Council. A written appeal along with payment of $75.00 must be submitted to the Zoning Administrator within thirty calendar days of the Historic Preservation Commission's decision.

Applicant: _____ Date: _____

By typing your name, you acknowledge and agree to the aforementioned submittal requirements and formal procedure and that you must be present at scheduled meetings.

Received by: _____ Date: _____

Planning staff

Date of the Public Meeting: _____

Meetings are held in City Hall Council Chambers located at 226 West 4th Street, Davenport, Iowa.

Work Plan

Please describe the work being performed. Please note that only work described in the application may be approved by the Board.

Add additional pages in needed.

City of Davenport Zoning Historic Preservation Commission
2021 Meeting and Submittal Calendar

Local Landmark Nomination Application	Local Landmark HPC Commission Meeting	All Other Historic Preservation Applications	All Other Historic Preservation Applications HPC Meeting
Application Submittal	**HPC Commission Meeting**	**Application Submittal**	**HPC Meeting**
Friday 5:00 p.m.	**Tuesday 5:00 p.m.**	**Friday 5:00 p.m.**	**Tuesday 5:00 p.m.**
Public Works Center	**Council Chambers | City Hall**	**Public Works Center**	**Council Chambers | City Hall**
1200 E 46th St	**226 W 4th St**	**1200 E 46th St**	**226 W 4th St**
Davenport IA, 52807	**Davenport IA, 52801**	**Davenport IA, 52807**	**Davenport IA, 52801**
11/30/2020	1/12/2021	12/31/2020	1/12/2021
12/23/2020	2/9/2021	1/29/2021	2/9/2021
1/22/2021	3/9/2021	2/26/2021	3/9/2021
2/26/2021	4/13/2021	4/5/2021	4/13/2021
3/26/2021	5/11/2021	4/30/2021	5/11/2021
4/23/2021	6/8/2021	5/28/2021	6/8/2021
5/28/2021	7/13/2021	7/2/2021	7/13/2021
6/25/2021	8/10/2021	7/30/2021	8/10/2021
7/30/2021	9/14/2021	9/3/2021	9/14/2021
8/27/2021	10/12/2021	10/1/2021	10/12/2021
9/24/2021	11/9/2021	10/29/2021	11/9/2021
10/29/2021	12/14/2021	12/3/2021*	12/14/2021

Location/Date/Time are subject to change. Contact planning@davenportiowa.com to confirm meeting date/time/location.

Gabe Florence
Life Scout
Troop 7, Davenport, IA

Project Description and Benefit

Briefly describe your project.

"There are currently 6 viewing benches in the park. 2 on the upper level and 4 along the lower wall. I would like to install a table and seating on the upper level under the trees next to the light pole. I propose using the exact same material and method of installation as the other 6 benches in the park."

Attach sketches or "before" photographs if these will help others visualize the project.
Please click below to add images (JPEG, JPG, BM P, GIF, TIF, PNG, etc.)







Tell how your project will be helpful to the beneficiary. Why is it needed?

Park visitors can interact around a table, promotes interactivity,promotes "peace"

When do you plan to begin carrying out your project? Summer 2021

When do you think your project will be completed? Summer 2021

Giving Leadership

Approximately how many people will be needed to help on your project? 4 + Candidate

Where will you recruit them (unit members, friends, neighbors, family, others)? Explain:

Troop, Friends, School

What do you think will be most difficult about leading them?

Geting people to listen and work

Materials

Materials are things that become part of the finished project, such as lumber, nails, and paint.

What types of materials, if any, will you need? You do not need a detailed list or exact quantities, but you must show you have a reasonable idea of what is required. For example, for lumber, include basic dimensions such as 2 x 4 or 4 x 4.

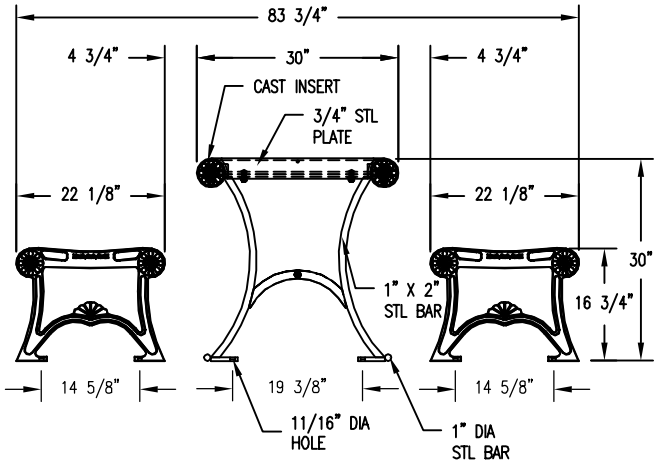
Table Post, Table top, chair posts seat and back, plaque, cement

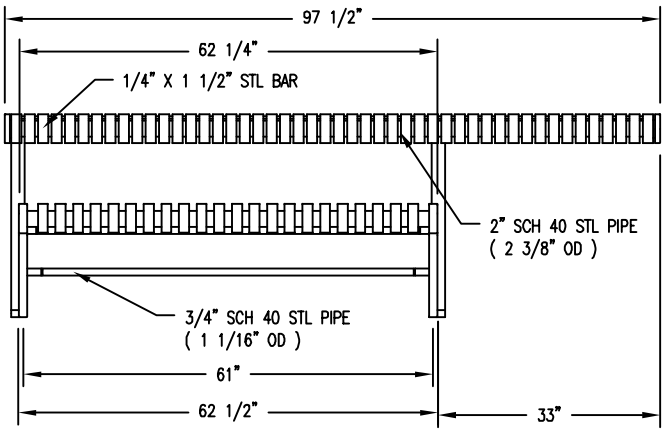
Supplies

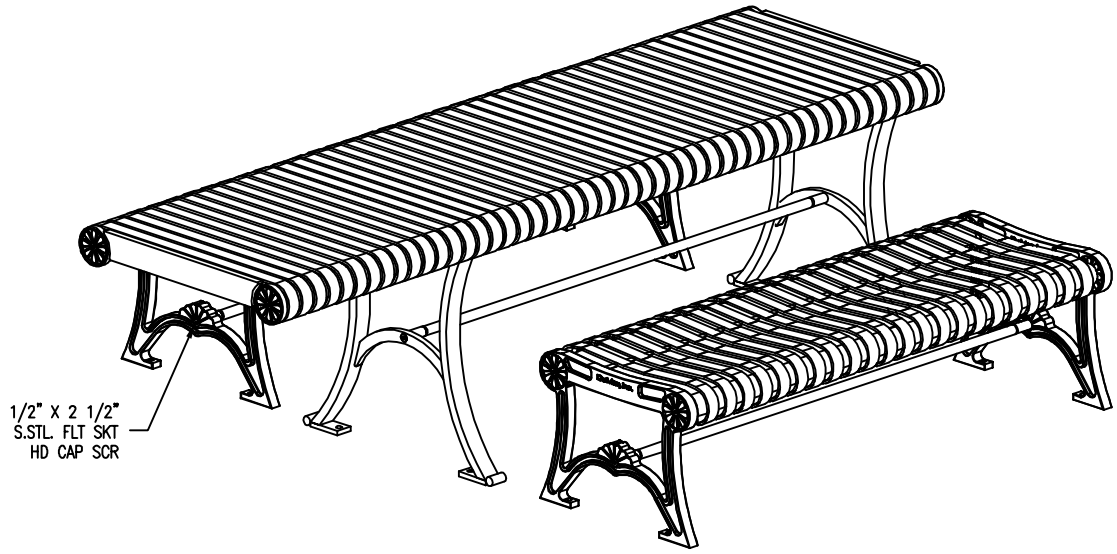
Supplies are things you use up, such as food and refreshments, gasoline, masking tape, tarps, safety supplies, and garbage bags.

What kinds of supplies, if any, will you need? You do not need a detailed list or exact quantities, but you must show you have a reasonable idea of what is required.

food tools materials







NOTES

1.) ALL STL. MEMBERS COATED W/ ZINC RICH EPOXY THEN FINISHED W/ POLYESTER POWDER COATING.
2.) ALL WELDS CONT. THEN GROUND SMOOTH.
3.) 1/2" X 3 3/4" EXPANSION ANCHOR BOLTS PROVIDED

DuMor, inc.	TABLE	DATE DRAWN : 11/6/13 DRAWN BY : JSB DATE REV. : 00/00/00 REV. BY : XXX	REV. A	DRAWING NUMBER 443-558-1/S-2	SHEET 1 OF 3

NOTES:

1.) DURING ASSEMBLY PROCEDURE; DO NOT COMPLETELY TIGHTEN HARDWARE.
2.) THE ACTUAL PARTS WILL NOT BE NUMBERED. NUMBERS ONLY APPLY TO DRAWING.
3.) UPON COMPLETION OF ASSEMBLY SQUARE ALL COMPONENTS THEN TIGHTEN ALL HARDWARE.
4.) MOUNT AND ANCHOR AS SPECIFIED.

TOOLS REQ'D

3/4" WRENCH
5/16" ALLEN WRENCH
1/2" MASONRY DRILL BIT
DRILL
RATCHET STRAP (PROVIDED)

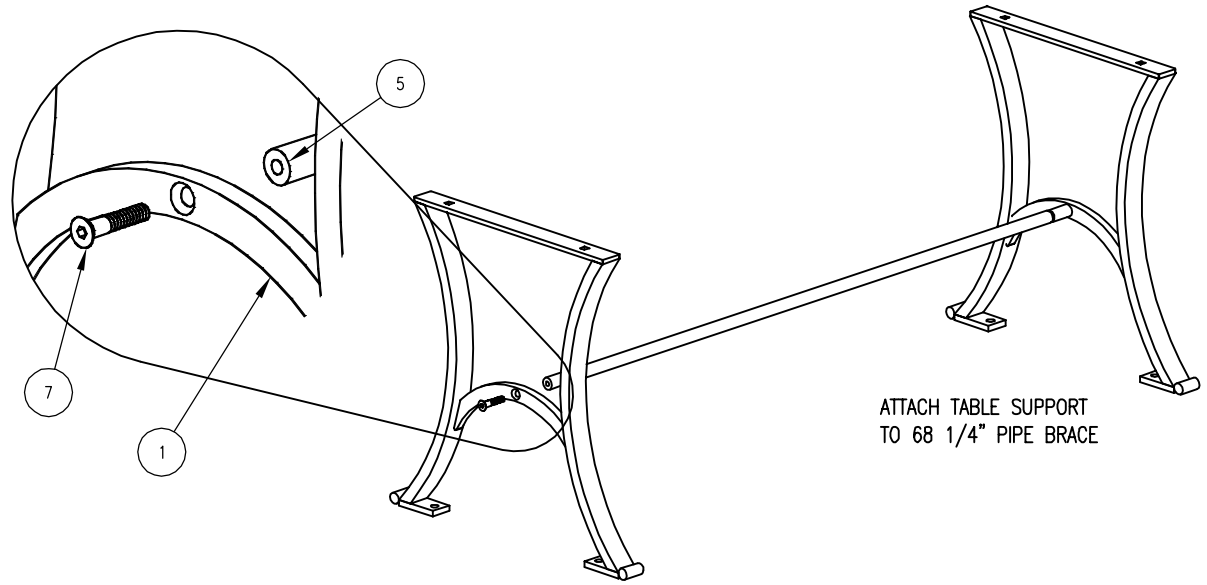
PARTS LIST FOR S-2

ITEM	QTY	PART NO	DESCRIPTION
1	2	0-443-00-01/S-2	TABLE SUPPORT FOR SURFACE MOUNT
2	1	0-443-80-02	95 1/2" STL TABLE TOP,30",92 STYLE ASSEMBLY
2	2	0-57-50-04	3/4" SCH 40 PIPE BRACE (59 3/4")
3	4	0-91-00-02	BKLESS CAST IRON BNCH SUPT
4	2	0-92-50-01	5' STL SEAT
5	1	0-PB12-61-04	3/4" SCH 40 PIPE BRACE (61 1/4")
6	4	1-11-042	1/2" X 1 1/2" SS CGE BOLT
7	14	1-12-065	1/2" X 2 1/2" FLT SKT HD CAP SCR
8	4	1-20-015	1/2" SS NYLON LOCKNUT
9	4	1-22-015	1/2" SS FLAT WASHER

KITS PROVIDED FOR S-2

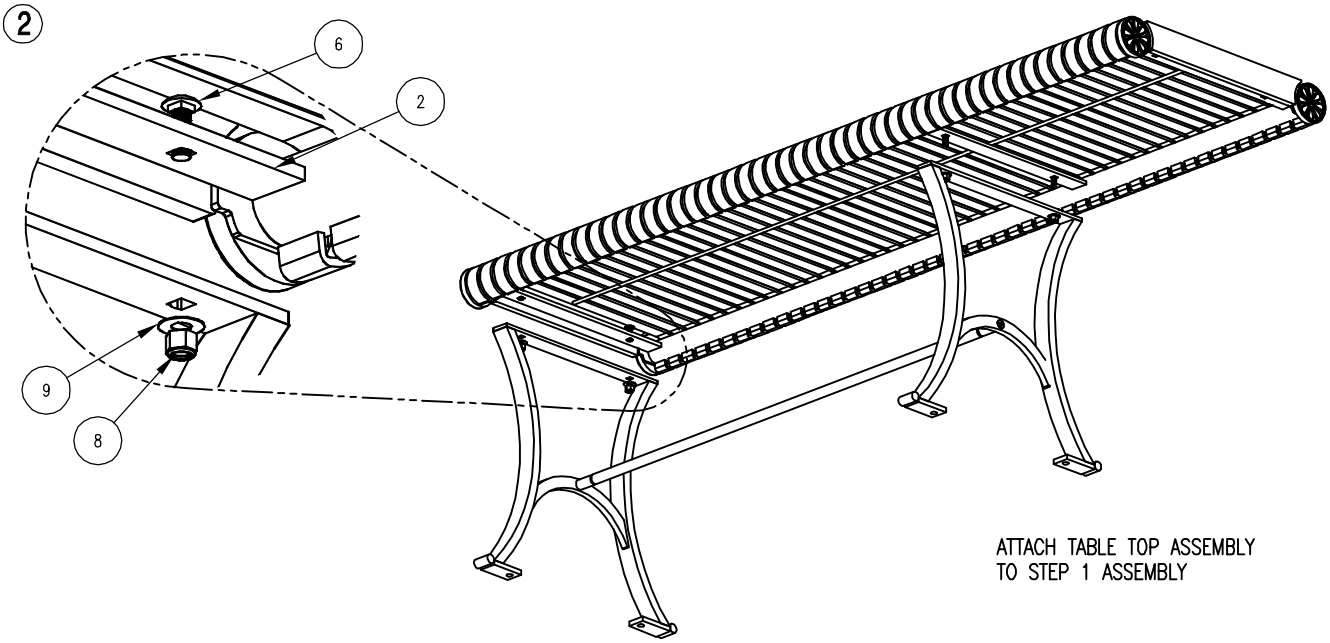
ITEM	QTY	PART NO	DESCRIPTION
10	3	K-ANC0860-4	1/2" X 3 3/4" SS ANCHOR KIT (4PC)
11	1	K-CG0824-4L	1/2" CGE BOLT HARDWARE KIT (4)
12	4	K-FC0840-4	1/2" CAP HARDWARE KIT (4 PCS)

1



ATTACH TABLE SUPPORT
TO 68 1/4" PIPE BRACE

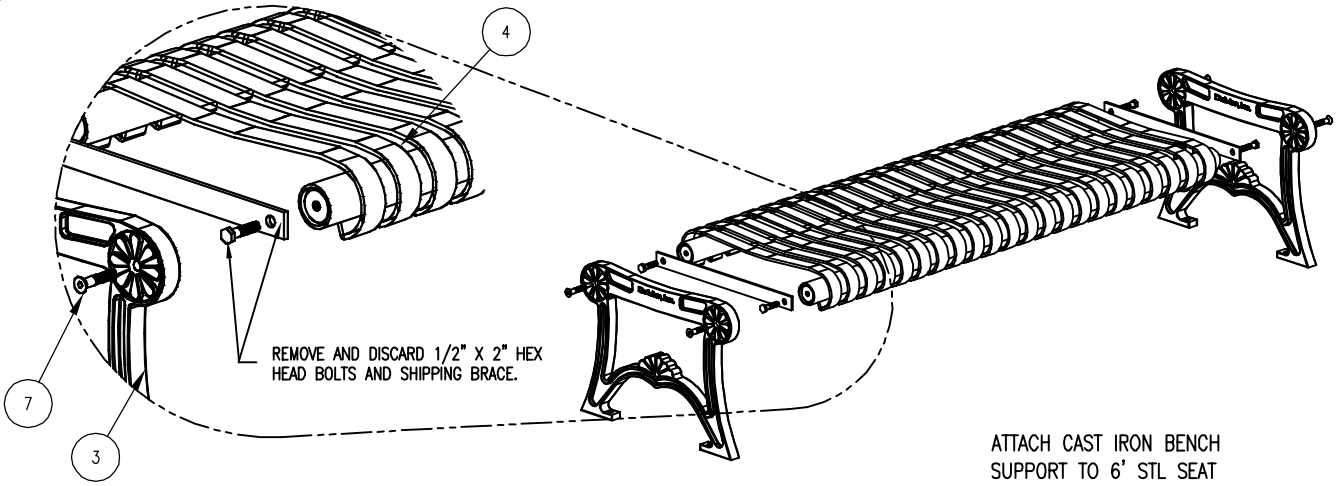
2



ATTACH TABLE TOP ASSEMBLY
TO STEP 1 ASSEMBLY

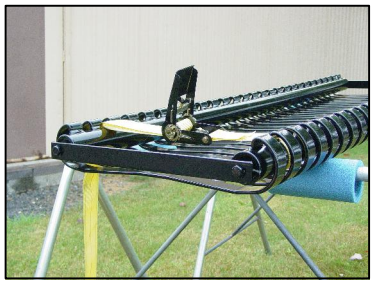
DuMor, inc.	ASSEMBLY INSTRUCTIONS	DATE DRAWN : 11/6/13 DRAWN BY : JSB DATE REV. : 00/00/00 REV. BY : XXX	REV. A	DRAWING NUMBER 443-558-1/S-2	SHEET 2 OF 3

3



ATTACH CAST IRON BENCH SUPPORT TO 6' STL SEAT

3A



PLACE SEAT ASSEMBLY ON WORK SURFACE ALLOWING ACCESS TO ENDS. PLACE RATCHET STRAP AROUND SEAT ASSEMBLY AS SHOWN ABOVE.

3B

TIGHTEN STRAP UNTIL SHIPPING BRACKET BECOMES LOOSE. THEN REMOVE AND DISCARD BOLTS & SHIPPING BRACKET.

3C



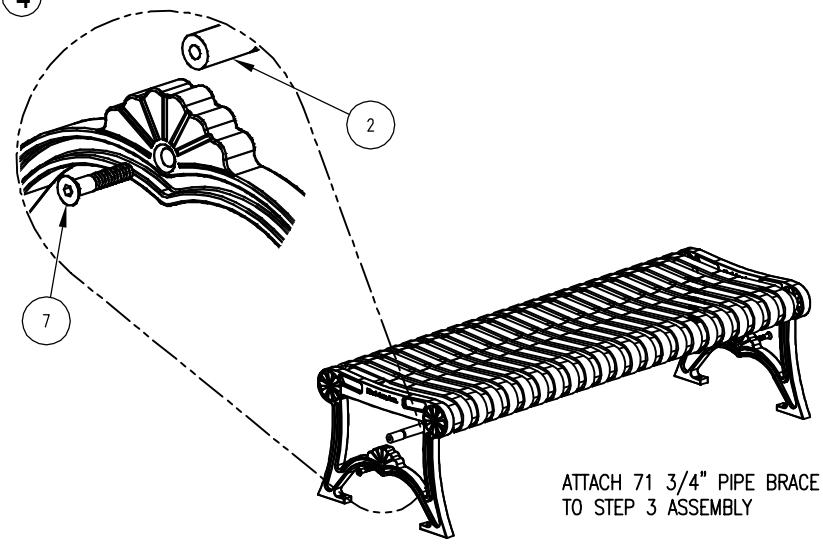
ATTACH CAST SUPPORT TO SEAT ASSEMBLY. IF HOLES IN CASTING DO NOT ALIGN WITH THE SEAT ASSEMBLY, ADJUST BY USING THE RATCHET STRAP.

3D



TIGHTEN HARDWARE THEN REMOVE RATCHET STRAP AND REPEAT THIS PROCEDURE ON THE OTHER END OF BENCH.

4



ATTACH 71 3/4" PIPE BRACE TO STEP 3 ASSEMBLY

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Prospect Park

DAVENPORT
IOWA | USA









Existing Park Furniture

City of Davenport
Historic Preservation Commission Work Session

Department: DNS
Contact Info: Matt Werderitch 563.888.2221

Date
5/11/2021

Subject:
Friederich Hartmann House: Exterior Alteration at 604 West 5th Street

Recommendation:
Provide feedback for the proposed deck, door installations, and area of fire rescue.

ATTACHMENTS:

	Type	Description
	Backup Material	Application
	Backup Material	East Side-Photo
	Backup Material	West Side-Photo
	Backup Material	West Elevation
	Backup Material	Plan View
	Backup Material	Background Material
	Backup Material	Site Inventory Sheet

REVIEWERS:

Department	Reviewer	Action	Date
Community Planning & Economic Development	Werderitch, Matt	Approved	5/4/2021 - 10:31 AM



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Name: _____
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Name: _____
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Address: _____
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Phone: _____
Email: _____

Engineer (if applicable)

Name: _____
Company: _____
Address: _____
City/State/Zip: _____
Phone: _____
Email: _____

Architect (if applicable)

Name: _____
Company: _____
Address: _____
City/State/Zip: _____
Phone: _____
Email: _____

Attorney (if applicable)

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Company: _____
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Applicant: _____ Date: _____

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Received by: _____ Date: _____

Planning staff

Date of the Public Meeting: _____

Meetings are held in City Hall Council Chambers located at 226 West 4th Street, Davenport, Iowa.

Work Plan

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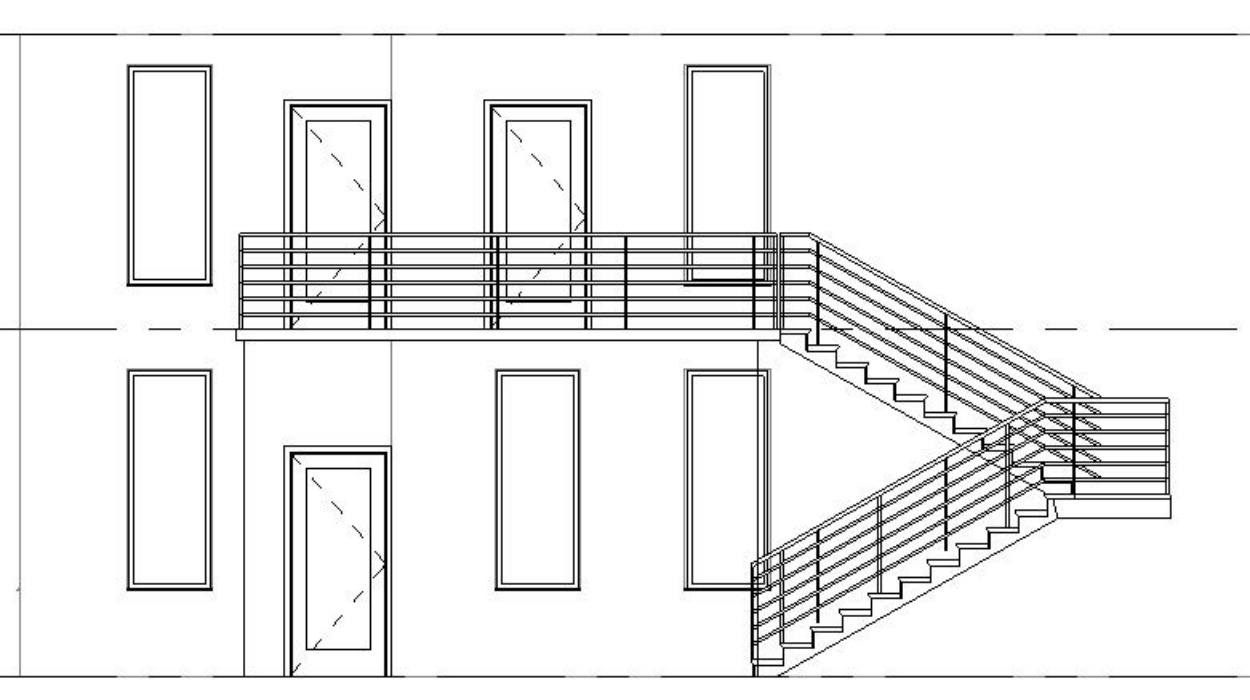
City of Davenport Zoning Historic Preservation Commission
2021 Meeting and Submittal Calendar

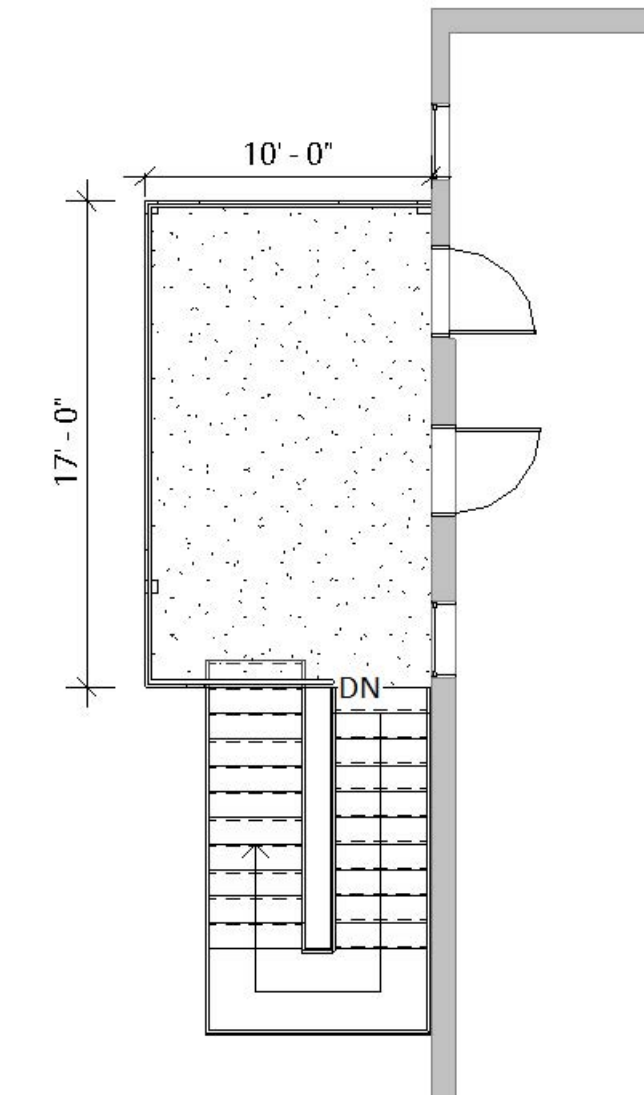
Local Landmark Nomination Application	Local Landmark HPC Commission Meeting	All Other Historic Preservation Applications	All Other Historic Preservation Applications HPC Meeting
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2/26/2021	4/13/2021	4/5/2021	4/13/2021
3/26/2021	5/11/2021	4/30/2021	5/11/2021
4/23/2021	6/8/2021	5/28/2021	6/8/2021
5/28/2021	7/13/2021	7/2/2021	7/13/2021
6/25/2021	8/10/2021	7/30/2021	8/10/2021
7/30/2021	9/14/2021	9/3/2021	9/14/2021
8/27/2021	10/12/2021	10/1/2021	10/12/2021
9/24/2021	11/9/2021	10/29/2021	11/9/2021
10/29/2021	12/14/2021	12/3/2021*	12/14/2021

Location/Date/Time are subject to change. Contact planning@davenportiowa.com to confirm meeting date/time/location.








10' - 0"
17' - 0"
DN

Friederich Hartmann House

604 West 5th Street

DAVENPORT
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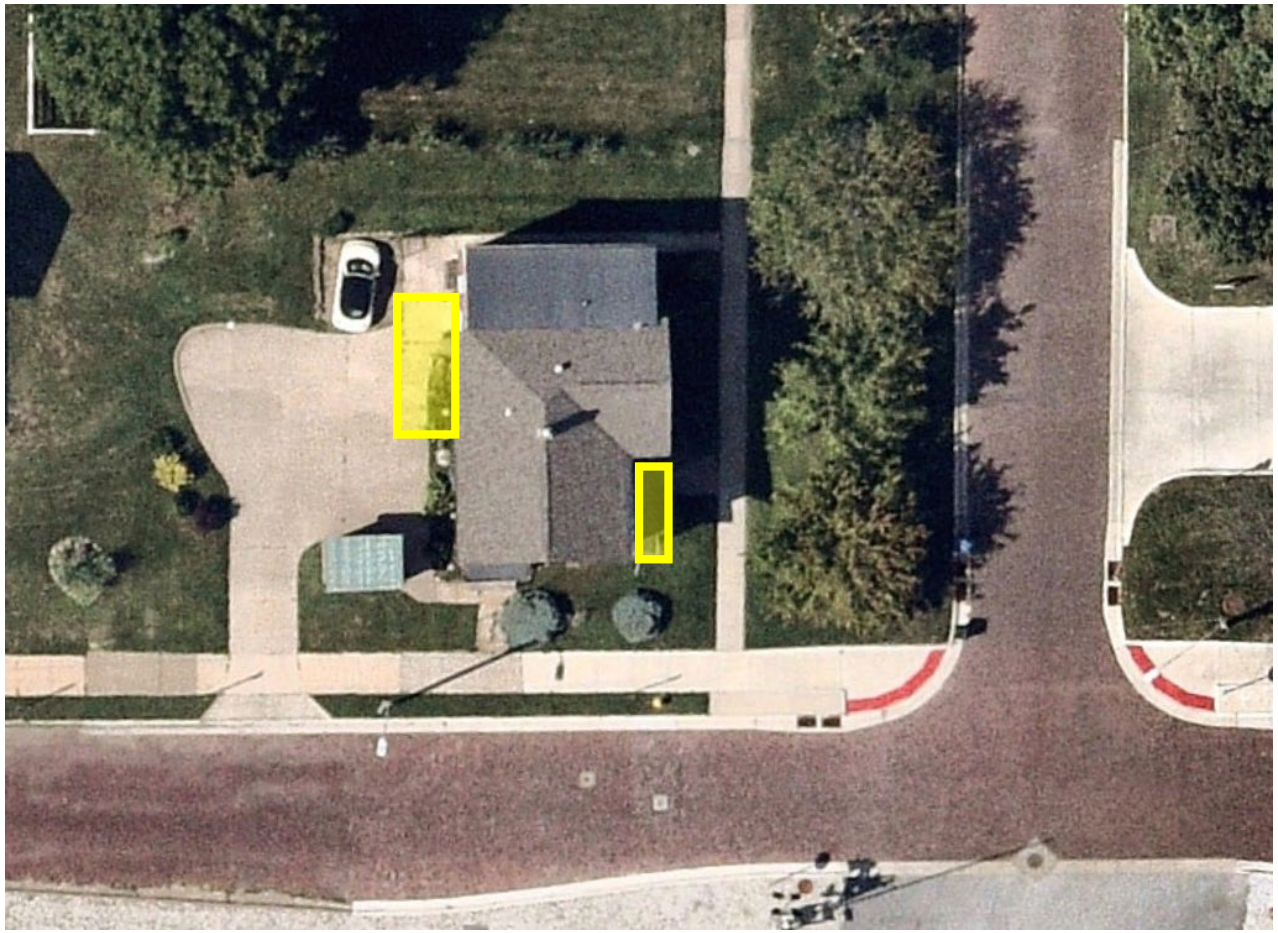
- Hamburg Local Landmark Historic District
- Constructed Circa 1868
- Architectural Style: Vernacular Greek Revival
- Original Owner: Friederich Hartmann (Brick Mason)
- Single Family Home
- 2 Story Structure



Friederich Hartmann House

604 West 5th Street – Project Scope

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Area of Proposed Alterations



South Elevation

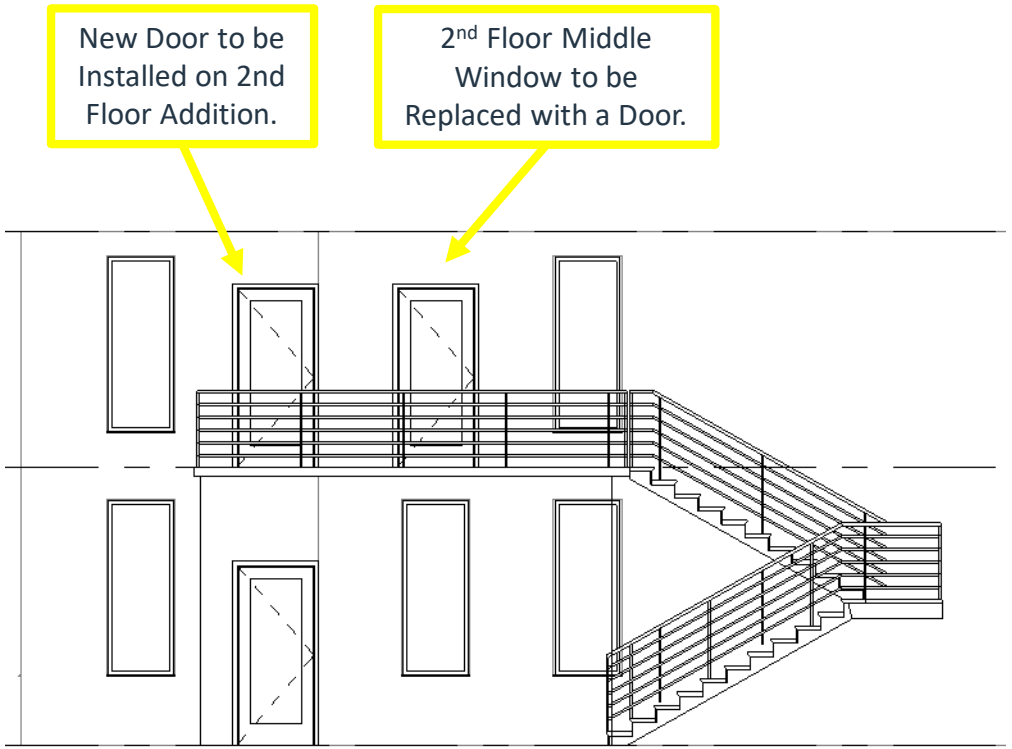
Friederich Hartmann House

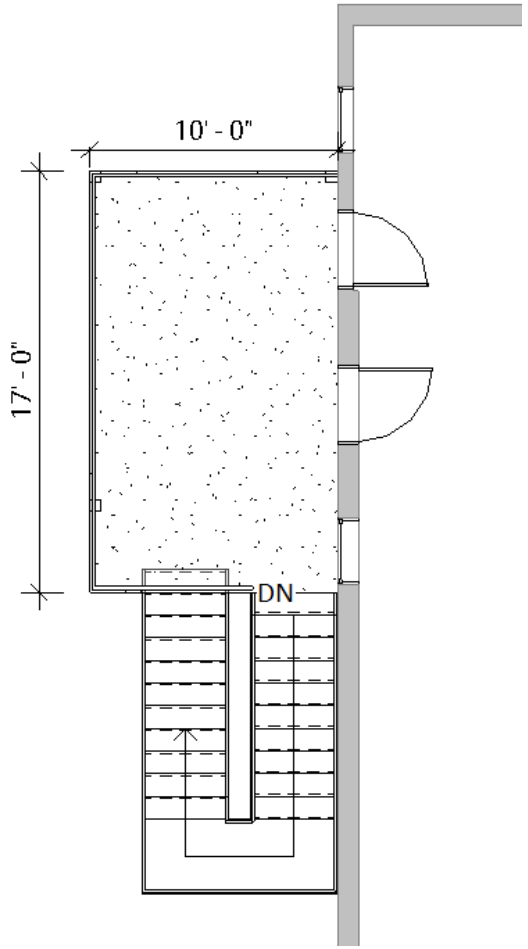
604 West 5th Street – Project Scope

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West Elevation





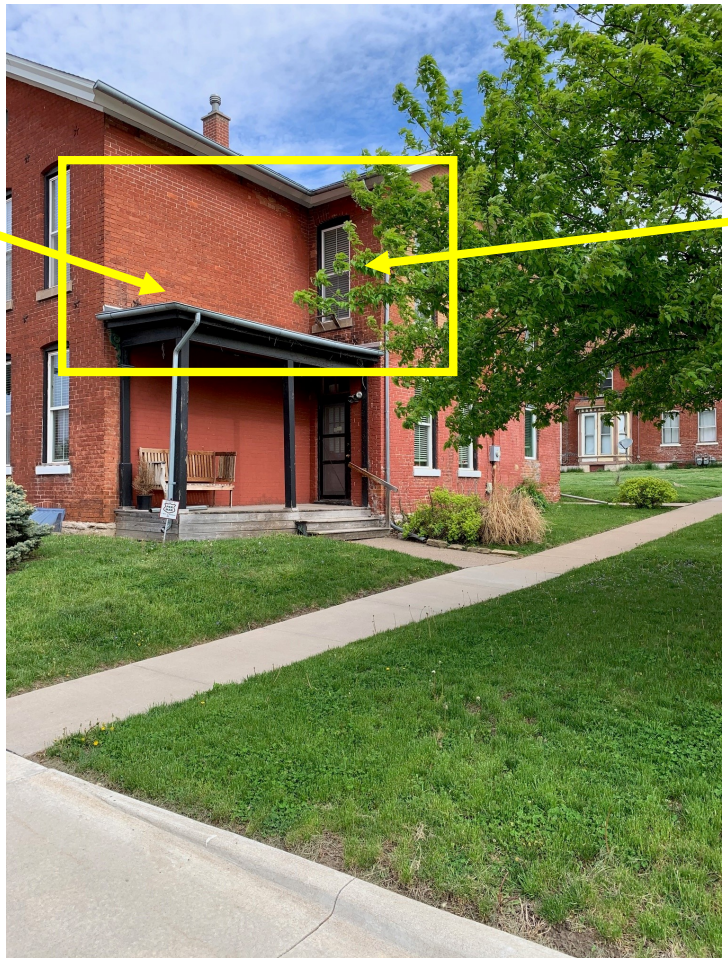
Proposed Deck

Friederich Hartmann House

604 West 5th Street – Project Scope

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Railings Installed on Existing Porch Roof.



Window to be Replaced with Door.

East Elevation

ARCHITECTURAL / HISTORICAL SURVEY

DAVENPORT, IOWA

The Architects Office
Wehner, Nowysz, Pattschull and Pfiffner
201 dey building, iowa city, iowa 52240

DAVENPORT COMMUNITY DEVELOPMENT DEPARTMENT
IOWA DIVISION OF HISTORIC PRESERVATION

SITE SHEET



SITE #82-10- 5-W605 MAP # 1

HIST. DIST. Hamburg

NAME Friederich Hartmann House (H) C

ADDRESS 604 W. 5th Street

LEGAL DES. Original Town (SUB-DIVISION) 29 (BLOCK) S70' (PARCEL) of Lot 4 (SUB-PARCEL)

UTM 15 710178 4599640 (EASTING / NORTHING) ACREAGE .1 ZONE M-1

OWNER Maria Angeles Perez Kuck
1714 Belle Ave., Davenport, IA 52803

TITLE H. (IF DIFF) Maurice J. Lofgren



ARCHITECTURE

DESCRIPTION

FORM 2 story, L-plan, front-gable, w/2-story addition at rear CONST. DATE 1868

MATERIALS Brick in 6-course common bond on stone fnd. ARCH STYLE Vernac. Greek Revival

FENESTRATION Segmental arched, with stone sills

DIST. FEATURES Starbolts above 1st & 2nd story windows, gable-end oculi, eutasuce porch with chamfered bracketted posts and spindle balustrades

ALTERATIONS

SITE & RELATED STR Slightly elevated lot in area of similar houses

STATEMENT

This is a representative example of a distinctive Davenport house type, here expressed in a cross-gable form. Segmental brick arches, gable end oculus, and 3-bay division of the main facade are characteristic features. Note the single-bay entrance porch with scroll brackets and small pendant.

SOURCES

HISTORY

SIGNIFICANCE

DESCRIPTION

Friederich Harmann was the original owner of this house and because Hartmann worked as a brick mason, he probably built this house as well. The Hartmanns resided here from 1868 until 1899.

SOURCES

Scott County Auditor's Deed Transfer Books, Vol. 4:32.
City Directories, 1866, 1867, 1868-69, 1873, 1876, 1878, 1881, 1884-85, 1888-89, 1890-91.

ARCHITECTURAL HISTORIAN: Martha Bowers | HISTORIAN: MARLYS SVENDSEN-ROESLER | SURVEY COMP. 1981

EVALUATION

ARCHITECTURAL

I. ARCH. EVALUATION: Good
II. ENVIR. STATURE: Incident
III. INT. OF CONTEXT: Excellent
IV. INT. OF FABRIC: Excellent

LEVEL OF SIGNIFICANCE:
☐ NAT. ☐ STATE ☐ LOCAL ☐ N. ELIG.

HISTORICAL

I. THEME(S) OF SIGNIFICANCE:
A. PRIMARY
B. SECONDARY

II. LEVEL OF SIGNIFICANCE:
☐ NAT. ☐ STATE ☐ LOCAL

III. N.R.H.P.
ELIGIBLE ☐ NOT ELIGIBLE ☐

HISTORIC DISTRICT CLASSIFICATION

☒ A. ☐ B. ☐ C.

FOR DIVISION OF HISTORIC PRESERVATION USE ONLY

1. DATE RECEIVED
2. DATE OF STAFF EVALUATION

	A. ARCHITECTURAL	B. HISTORICAL
ELIGIBLE FOR N.R.H.P.	☐	☐
NOT ELIGIBLE FOR N.R.H.P.	☐	☐

3. N.R.H.P. ACTION
A. STATE REVIEW COMM. APP. ☐ DISAPP. ☐ TABLED ☐ DATE
B. FEDERAL REVIEW APP. ☐ DISAPP. ☐ TABLED ☐ DATE

4. D.H.P. SOURCES
☐ COUNTY RESOURCES
☐ W'SHIELD SURVEY
■ N.R.H.P. 11/18/83
☐ GRANT
☐ DET. OF ELIGIBILITY
☐ R. & C.
■ DAVENPORT A/H SURVEY
☐
☐

5. SUBJECT TRACES

6. PHOTO
1612-5

City of Davenport
Historic Preservation Commission Work Session

Department: DNS **Date**
Contact Info: Matt Werderitch 563.888.2221 **5/11/2021**

Subject:
J. Monroe Parker-Ficke House: Tuckpointing and Brick Replacement at 1208 Main Street

Recommendation:
Provide feedback for the proposed tuckpointing and brick replacement.

Background:
The applicant is proposing the following masonry work:

1. Tuckpoint the masonry on all four building elevations.
2. Replace deteriorated brick with a similar brick in color, dimension, and composition. An estimated 1,200 bricks will be replaced.
3. Clean the exterior masonry with Sure Klean 600 detergent.

The purpose of the work session is to provide the applicant a clear direction for preservation and reconstruction.

The J. Monroe Parker-Fick House is a locally designated historic landmark and located within the College Square Historic District.

ATTACHMENTS:

	Type	Description
🗋	Backup Material	Background Material-Photos
🗋	Backup Material	Tuckpointing Spec Mix
🗋	Backup Material	Sure Klean 600 Masonry Cleaner
🗋	Backup Material	National Park Service Masonry Brief
🗋	Backup Material	Site Inventory Sheet
🗋	Backup Material	Building Blueprints

REVIEWERS:

Department	Reviewer	Action	Date
Community Planning & Economic Development	Werderitch, Matt	Approved	5/4/2021 - 10:13 AM

J. Monroe Parker-Ficke House

DAVENPORT
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- Locally Designated Historic Landmark
- College Square Historic District
- Constructed: 1881
- Architectural Style: Second Empire
- Column Porches Identified as a Distinctive Feature on Historical Survey



Proposed East Porch Reconstruction

DAVENPORT
IOWA | USA

- Purpose: Deterioration of Front (East) Porch
- Scope of Work: Demo all existing porch structures, except roof and iron lattice around the base of porch. Roof is to stay. It matches all other roofs on house. Iron lattice is in good shape and will be re-used on new porch. New porch to be constructed to exact dimensions and to as similar in appearance as possible.
- New Porch Includes:
  - New footings
  - New concrete piers around stairs.
  - New treated framing
  - New Composite deck boards, (brown in color). Most likely "Mahogony" color from Azek.
  - New framed piers for columns to sit on, trimmed out in white PVC board.
  - New columns (Round) and type in some kind of load bearing ceramic product.
  - New concrete steps with nosings (to match what is existing).
  - New White composite railings to be similar in design to what is existing.
  - Re-install lattice
  - New Fypon dental molding under soffit to match existing as best as possible
- All elements of project to meet local building codes and comply with historical area standards.



J. Monroe Parker-Ficke House
East Porch Reconstruction

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J. Monroe Parker-Ficke House
East Porch Reconstruction

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J. Monroe Parker-Ficke House
East Porch Reconstruction

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Proposed Masonry Work

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Scope of Work:

1. Tuckpoint the masonry on all four building elevations.
2. Replace deteriorated brick with a similar brick in color, dimension, and composition. An estimated 1,200 bricks will be replaced.
3. Clean the exterior masonry with Sure Klean 600 detergent.





J. Monroe Parker-Ficke House
Brick Replacement

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J. Monroe Parker-Ficke House
Brick Replacement

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J. Monroe Parker-Ficke House
Brick Replacement

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J. Monroe Parker-Ficke House
Brick Replacement





Proposed Brick Against Replaced Brick

J. Monroe Parker-Ficke House
Tuckpointing

DAVENPORT
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Sample Type O Mortar Mix



Proposed Brick & Mortar

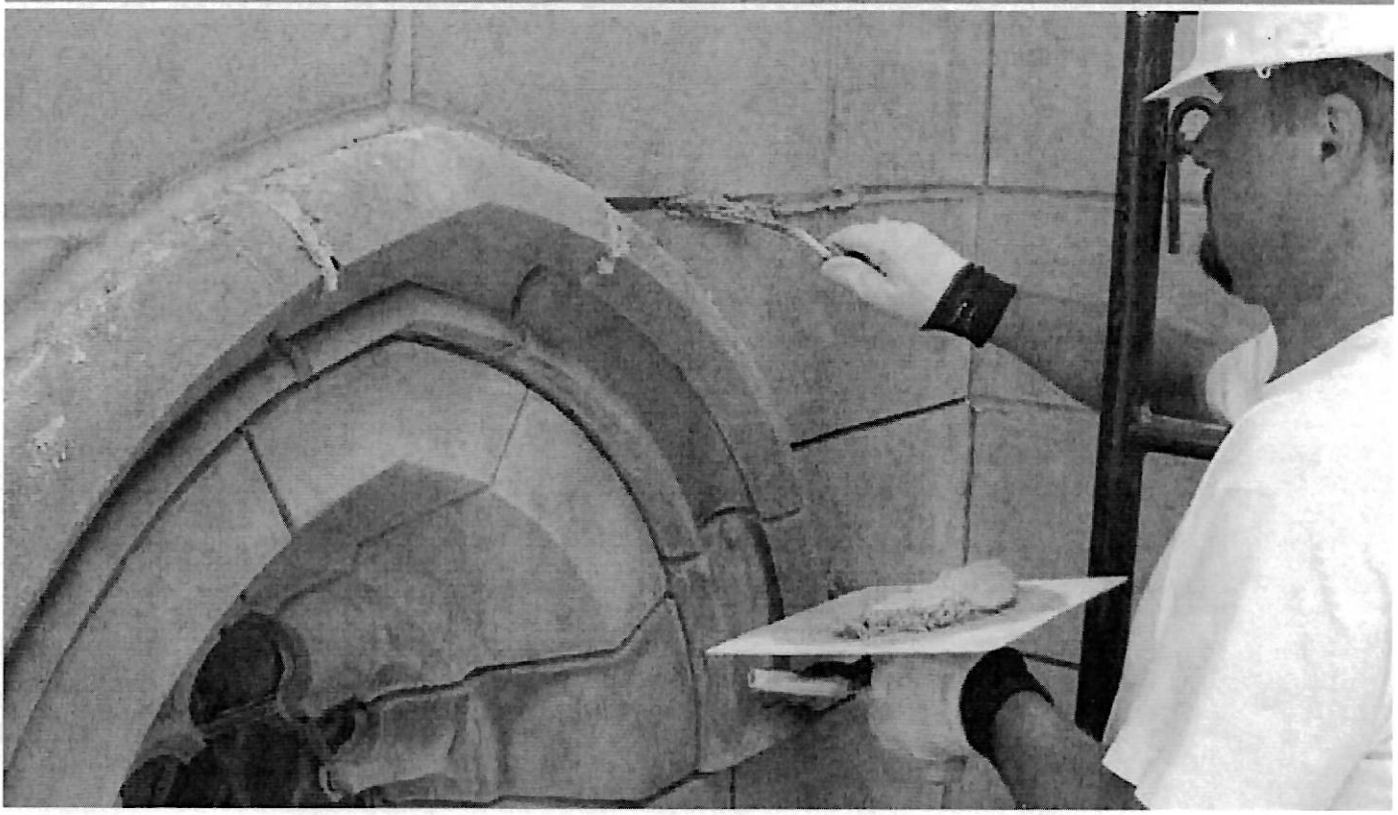


Portions of Building were Tuckpointed with Type N Mortar Mix

SPEC MIX®

04 DIVISION MORTAR

TUCKPOINT MORTAR



Increased Bond. Reduced Shrinkage.

SPEC MIX® Tuckpoint Mortar is a dry preblended mortar mix containing portland cement, hydrated lime and dried masonry sand formulated for superior bond, water retention and board life. The mix design incorporates the maximum amount of lime for optimal bond to the masonry unit to permit the pointed wall to expand and contract, while mitigating the occurrence of potential cracking and spalling that is common with inflexible, high strength mortars. SPEC MX Tuckpoint Mortar is thoroughly pretested to ensure it meets ASTM C 270, ASTM C 1714 and CSA A179 requirements. SPEC MIX Tuckpoint Mortar is available in standard or custom colors. In addition to custom mix designs that are available for specific applications or properties, the standard Tuckpoint Mortar is designed to be compatible with the characteristics of the specified masonry unit. It is acceptable for all types of masonry construction.

SPEC MIX Tuckpoint Mortar is produced under strict manufacturing standards, and complete quality control measures are implemented with each batch. A digital printout displaying the proper proportions per batch may be kept as a permanent record. Submittals are available upon request for certification to applicable ASTM, TMS, and CSA standards.

TYPICAL MATERIALS

PORTLAND CEMENT
HYDRATED LIME
SAND
PIGMENT



STANDARD (TP-01)
COLOR (TP-05)

AVAILABLE IN COLOR

6917125

SPEC MIX

TUCKPOINT MORTAR

INSTALLATION/APPLICATION

For optimal results, grind the mortar joint to be repaired back 3/4 in (19 mm) and ensure that the receiving surface is free of dust and debris.

A sample of the proposed product will be provided by the manufacturer for architectural approval and testing, if required. Preparation of a panel with all materials and systems employed in the final project is imperative. Retain the mock-up or field sample through the completion of the project.

Allow mortar to cure a minimum of 7 days but no more than 28 days before cleaning. Consult manufacturer of the masonry units and cleaning chemicals for further instructions to ensure proper washing procedures.

Clean masonry only with a national proprietary cleaning agent (following the manufacturer's instructions) or potable water. SPEC MIX products must be kept dry, covered, and protected from weather and other damage.

SIZES AND EQUIPMENT

SPEC MIX Tuckpoint Mortar is available in 80 lb (36.2 kg) packages for easy hand loading or in 3,000 lb (1,360.7 kg) reusable bulk bags to be used with the various SPEC MIX silo systems. When using the silo system, once the bulk bags of mortar are delivered to the project site, the portable silo is loaded with a jobsite forklift and the product is dispensed into a mechanical batch mixer.

MIXING INSTRUCTIONS

WEAR IMPERVIOUS GLOVES, such as nitrile.

1. Mixing is best accomplished by using a mechanical mixer to ensure optimal workability and performance.
2. Use clean, potable water; add the amount of water consistent with optimum workability which provides adequate water to satisfy the initial rate of absorption of the masonry units.
3. Mix for five minutes. Let the mortar stand for prehydration according to job specifications and local building codes. Add sufficient water to bring the mortar to the proper consistency for tuckpointing, somewhat drier than mortar used for laying the units.
4. Maintain the same mixing procedures to maintain consistency throughout the project.
5. Tool mortar joints when the surface is thumb-print hard. Keep tooling times consistent.
6. Hand mix mortar only with written approval by the specifier who should outline procedures.
7. Use mortar within 2.5 hours after initial mixing.
8. Retemper mortar only when mixing water is lost due to evaporation.

ASTM C 270 PROPERTY SPECIFICATIONS (laboratory prepared)

Type	Average compressive strength at 28 days, minimum PSI	Water retention, minimum %	Air content, maximum %
N	750 PSI	75	14
O	350 PSI	75	14

CSA A179 PROPERTY SPECIFICATIONS (laboratory prepared)

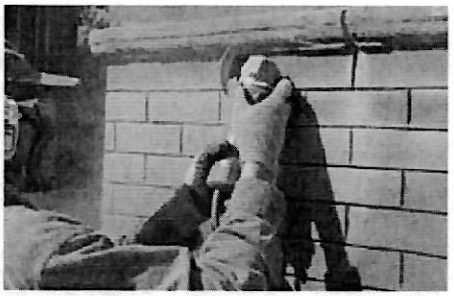
Type	Minimum compressive strength at 28 days, MPa	Water retention, minimum %	Air content, maximum %
N	5 MPa	70	18
O	2.5 MPa	70	18

ESTIMATED YIELDS

	Coverage on Modular Brick per 80 lb (36.2 kg) Bag		
Joint Thickness:	3/8 in (9.5 mm)	1/2 in (13 mm)	5/8 in (16 mm)
1/2 in (13 mm) Grind Depth	85 to 95 ft² (7.9 to 8.8 m²)	65 to 70 ft² (6.0 to 6.5 m²)	52 to 56 ft² (4.8 to 5.2 m²)
3/4 in (19 mm) Grind Depth	55 to 65 ft² (5.1 to 6.0 m²)	40 to 45 ft² (3.7 to 4.2 m²)	33 to 37 ft² (3.0 to 3.4 m²)
	Coverage on Modular Brick per 3,000 lb (1,360.7 kg) Bag		
Joint Thickness:	**3/8 in (9.5 mm)**	**1/2 in (13 mm)**	**5/8 in (16 mm)**
1/2 in (13 mm) Grind Depth	3,185 to 3,560 ft² (296 to 331 m²)	2,435 to 2,625 ft² (226 to 244 m²)	1,950 to 2,100 ft² (181 to 195 m²)
3/4 in (19 mm) Grind Depth	2,060 to 2,435 ft² (191 to 226 m²)	1,500 to 1,685 ft² (139 to 156 m²)	1,235 to 1,385 ft² (115 to 129 m²)

Note: The yields given above are approximate and depend on labor practices, site conditions and design of work. Yields include typical waste. Some areas such as FL, CA, OR, and WA experience higher yields due to construction practices. Please contact your local representative for more specific yield information in your area.

Note: Each 80 lb (36.2 kg) bag yields approximately 1,296 cu in (21.2 L) of wet mortar.



9. Whenever possible, do not retemper colored SPEC MIX masonry mortars by adding additional water; retempering may affect color consistency.

LIMITATIONS

SPEC MIX Tuckpoint Mortar should be installed in accordance with the provisions of the local building code and applicable ASTM standards. Good workmanship coupled with proper detailing and design assures durable, functional, watertight construction. Follow proper cold-weather and hot-weather masonry procedures at temperatures below 40 °F (4 °C) or above 100 °F (38 °C) respectively.

LIMITED WARRANTY

IN THE UNITED STATES

NOTICE: Obtain the applicable LIMITED WARRANTY at www.specmix.com/product-warranty or send a written request to SPEC MIX, LLC, Five Concourse Parkway, Atlanta, GA 30328, USA.

AVISO: Obtenga la GARANTÍA LIMITADA correspondiente en www.specmix.com/product-warranty o envíe una solicitud por escrito a SPEC MIX, LLC, Five Concourse Parkway, Atlanta, GA 30328, USA.

IN CANADA

NOTICE: Obtain the applicable LIMITED WARRANTY at www.specmix.com/product-warranty or send a written request to SPEC MIX, LLC, Five Concourse Parkway, Atlanta, GA 30328, USA.

AVIS: Obtenez la GARANTIE LIMITÉE applicable sur www.specmix.com/produit-garantie. Ou envoyez une demande écrite à SPEC MIX, LLC, Five Concourse Parkway, Atlanta, GA 30328, USA.

TECHNICAL SUPPORT

- CONTACT YOUR LOCAL SPEC MIX® MANUFACTURER
- VISIT WWW.SPECMIX.COM
- CONTACT SPEC MIX®
  PHONE: 888-733-2649 FAX: 651-454-5315

SPEC MIX PRODUCTS ARE PRODUCED BY ITS MANUFACTURING FACILITIES THROUGHOUT THE U.S. AND CANADA. EACH MANUFACTURER ADHERES TO A STRICT QUALITY ASSURANCE PROGRAM TO ENSURE COMPLETE QUALITY CONTROL IN EVERY BATCH.
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PROSOCO

Sure Klean®

CLEANING & PROTECTIVE TREATMENTS

600

Sure Klean® 600 is a general purpose, concentrated acidic cleaner for brick, tile and concrete surfaces. Sure Klean® 600 dissolves mortar smears and construction dirt quickly, leaving the masonry clean and uniform with no acid burning or streaking.

ADVANTAGES

- **The No. 1-selling proprietary cleaner for new masonry.**
- **Proven effective through years of use.**
- **Recommended by many brick, tile and mortar manufacturers.**
- **Safer than muriatic acid for new masonry surfaces.**
- **Removes efflorescence on bricks, new concrete and new stone construction.**
- **Fast and easy to apply – use with cold water rinse.**
- **Special wetting agents let larger masonry surfaces be cleaned at one time, eliminating streaking.**

Limitations

- May not be suitable for cleaning buff-colored brick and brick, stone or tile with manganese or other metallic additives. See product literature on Sure Klean® Vana Trol®.
- Not suitable for cleaning polished or certain glazed surfaces. Always test to ensure suitability.
- Repeated applications may leave a detergent residue. Always prewet to reduce potential for detergent residue. Rinse thoroughly. Do not apply more than twice.
- Not effective for removing atmospheric dirt and black carbon stains. Use the appropriate Sure Klean® restoration cleaner to remove atmospheric staining from older masonry surfaces.
- Not for use on treated low-E glass; acrylic and polycarbonate sheet glazing; and glazing with surface-applied reflective, metallic or other synthetic coatings and films.

REGULATORY COMPLIANCE

VOC Compliance

Sure Klean® 600 is compliant with all national, state and district VOC regulations.

TYPICAL TECHNICAL DATA

FORM	Clear, slight amber liquid Pungent odor
SPECIFIC GRAVITY	1.130
pH	0.1 @ 1:9 dilution
WT/GAL	9.4 lbs
ACTIVE CONTENT	not applicable
TOTAL SOLIDS	not applicable
VOC CONTENT	not applicable
FLASH POINT	not applicable
FREEZE POINT	<–22° F (<–30° C)
SHELF LIFE	3 years in tightly sealed, unopened container

SAFETY INFORMATION

Always read full label and SDS for precautionary instructions before use. Use appropriate safety equipment and job site controls during application and handling.

24-Hour Emergency Information:
INFOTRAC at 800-535-5053

PREPARATION

Before use, test all substrates not intended to be treated with Sure Klean® 600. If testing indicates adverse effects, the substrate must be protected before full scale application. Vapors and liquid can damage a variety of metals and fabrics. Best practices are to protect people, vehicles, property, metal, painted surfaces, plants and other non masonry materials from product, splash, residue, wind drift and fumes. When working over traffic, clean when traffic is at a minimum. Protect or divert traffic if necessary.

Best practices are to clean masonry before installing windows, doors, finished flooring, metal fixtures, hardware, light fixtures, roofing materials and other non masonry items that the cleaner could harm. If already installed, protect with polyethylene before application. Sure Klean® Strippable Masking is appropriate for use with this product to protect windows.

Recommended for these substrates. Always test. Coverage is in sq.ft./m. per gallon of concentrate.

Substrate	*Type*	*Use?*	*Coverage*
Architectural Concrete Block◆	Burnished Smooth Split-faced Ribbed	no yes yes yes	300–400 sq.ft. 28–37 sq.m.
Concrete◆	Brick Tile Precast Panels Pavers Cast-in-place	yes yes yes yes yes	600–1100 sq.ft. 56–102 sq.m.
Fired Clay	Brick Tile Terra Cotta (unglazed) Pavers	yes yes yes yes	500–900 sq.ft. 46–84 sq.m.
Marble, Travertine, Limestone	Polished	no	N/A
	Unpolished	no	N/A
Granite	Polished	no	N/A
	Unpolished	yes	600–1200 sq.ft. 56–111 sq.m.
Sandstone	Unpolished	yes	600–900 sq.ft. 56–84 sq.m.
Slate	Unpolished	yes	600–1100 sq.ft. 56–102 sq.m.

◆Repeated applications may damage surfaces. Sure Klean® Custom Masonry Cleaner is a more appropriate product.

Always test to ensure desired results. Coverage estimates depend on surface texture and porosity.

All caulking and sealant materials should be in place and thoroughly cured before cleaning.

Construction soiling and mortar residues on new brick and tile surfaces clean most effectively if the cleaning is done within 14–28 days of installation. Mortar and grout smears left on the surface longer result in a more difficult clean down and may cause undesirable results. Cleaning high-strength mortar/grout within seven days improves results.

The presence of excessive moisture in the wall contributes to efflorescence and other staining. Always protect open wall cavities from rain during construction.

Surface and Air Temperatures

For best results, clean when air and masonry surface temperatures are 40° F (4° C) or above. To avoid harming masonry, do not clean when temperatures are below freezing or will be overnight. If freezing conditions existed before application, let the masonry thaw.

Equipment

Apply with low-pressure (50 psi max) spray or densely-packed, soft-fibered masonry-washing brush. Do not atomize. Do not apply with pressure spray over 50 psi. Such application will drive the chemicals deep into the surface, making complete rinse difficult. Test spray equipment for compatibility and to avoid discoloration.

Rinse with enough water and pressure to flush spent cleaner and dissolved soiling from the masonry surface and surface pores without damage. Inadequate rinsing leaves residues which may stain the cleaned surface.

Masonry-washing equipment generating 400–1000 psi with a water flow rate of 6–8 gallons per minute is the best water/pressure combination for rinsing porous masonry. Use a 15–45° fan spray tip. Heated water (150–180° F; 65–82° C) may improve cleaning efficiency. Use adjustable equipment for reducing water flow-rates and rinsing pressure as needed for sensitive surfaces.

Rinsing pressures greater than 1000 psi and fan spray tips smaller than 15° may permanently damage sensitive masonry. Water flow-rates less than 6 gallons per minute may reduce cleaning productivity and contribute to uneven cleaning results.

Storage and Handling

Transport and store in a cool, dry place with adequate ventilation. Always seal container after dispensing. Do not alter or mix with other chemicals. Published shelf life assumes upright

storage of factory-sealed container in a dry place. Maintain temperatures of 45–100° F (7–38° C). Do not double stack pallets. Dispose of unused product and container in accordance with local, state and federal regulations.

APPLICATION

Read "Preparation" and the Safety Data Sheet before use.

ALWAYS TEST a small area (minimum 4-ft x 4-ft) of each surface to confirm suitability and desired results before beginning overall application. Test each type of masonry and each type of stain. Test with the same equipment, recommended surface preparation and application procedures planned for general application. Let test area dry 3–7 days before inspection and approval. Make the test panel available for comparison throughout the cleaning project.

If test panel indicates metallic discoloration, or if stains are present before testing, refer to the Metallic Discolorations section on page 4.

Dilution

Dilute one part product with between four and 12 parts clean water, based on test results. Always pour COLD water into empty bucket first, then carefully add product. Never use hot water.

Handle in polypropylene buckets or sprayers only. Acidic materials and fumes attack metal.

Typical Coverage Rates

Reference the substrate chart on page 2. The coverage rate chart assumes an average coverage rate of 100 square feet per gallon of prepared cleaner.

When calculating the volume of cleaner required for porous, textured surfaces, assume 50 square feet per gallon of prepared cleaner.

For dense, smooth surfaces, assume up to 150 square feet per gallon of prepared cleaner.

Application Instructions

Test thoroughly before general cleaning. Provide adequate ventilation. *CAUTION*: Multiple applications may lighten the mortar color.

Exterior Surfaces

1. Working from the bottom to the top, thoroughly prewet a large area with fresh water.
2. Apply the diluted solution freely from the bottom of the work area to the top.
3. Let cleaning solution stay on the wall for 3 to 5 minutes. Do not let cleaner dry into the masonry. This may leave residue or stains. Fresh water rinse the surfaces below areas being cleaned to prevent streaking.
4. Reapply cleaner and scrape off heavy buildup of excess mortar using a wooden scraper or piece of brick. Take care not to harm the masonry surface.
5. Working from the bottom of the work area to the top, rinse thoroughly with clean water, removing all cleaning compound, free sand, loose material and debris.
6. Reapply as needed following steps 1–5.

Interior Surfaces

Proper ventilation is necessary. Follow exterior application procedures. Use a sponge or soft-fibered brush to rinse thoroughly.

BEST PRACTICES

Construction soiling and mortar residues on new brick and tile surfaces clean most effectively if the cleaning is done within 14–28 days of installation. Mortar and grout smears left on the surface longer result in a more difficult clean down and may cause undesirable results. Cleaning high-strength mortar/grout within seven days improves results.

Presence of excessive moisture in the wall contributes to efflorescence and other staining. Always protect open wall cavities from rain during construction.

Do not apply with pressure spray over 50 psi. Such application will drive the chemicals deep into the surface, making complete rinse difficult.

Always pour COLD water into empty bucket first, then carefully add product. Never use hot water.

Test spray equipment for compatibility and to avoid discoloration. Handle in polypropylene buckets or sprayers only. Acidic materials and fumes attack metal.

Rinse with enough water and pressure to flush spent cleaner and dissolved soiling from the masonry surface and surface pores without damage. Inadequate rinsing leaves residues which may stain the cleaned surface.

Never go it alone. For problems or questions, contact your local PROSOCO distributor or field representative. Or call PROSOCO technical Customer Care toll-free at 800-255-4255.

If conditions don't allow enough water for complete rinsing, use a neutralizing rinse following this procedure:

1. Rinse with clean water.
2. Apply neutralizing rinse of 2 ounces baking soda to 1 gallon water.
3. Saturate. Leave solution on surface 3 to 5 minutes.
4. Apply final rinse of clear water.

Cleanup

Clean tools and equipment using fresh water.

Metallic Discolorations

Because of the metallic oxides contained in many colors of brick in use today, green and brown stains can form on the masonry surface. These stains occur when vanadium, manganese or other oxides migrate to the surface of the brick. Where significant levels of metallic oxides are present in the masonry, an improper dilution of Sure Klean® 600 can contribute to staining.

If the brick shows metallic staining before or after testing, follow these additional steps:

- If stains are light to moderate, test using Sure Klean® 600 at a dilution rate of 8 parts water to 1 part concentrate. After rinsing, let brick weather 10 to 14 days. Minor stains will often disappear if allowed to weather.
- If results are acceptable, clean using this dilution rate. When cleaning is done, let the wall weather. Spot treat minor stains that have not weathered with Sure Klean® stain removal products.
- If severe stains are apparent before original testing or become a problem at any time during the testing, use Sure Klean® Vana Trol® instead of Sure Klean® 600. Vana Trol® is a cleaning compound formulated specifically to control metallic staining. Follow the procedures outlined in the Vana Trol® product literature. In some cases, Vana Trol® will remove vanadium staining. If test panels do not prove effective, test using Sure Klean® 800 Stain Remover and/or Sure Klean® Ferrous Stain Remover.

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The information and recommendations made are based on our own research and the research of others, and are believed to be accurate. However, no guarantee of their accuracy is made because we cannot cover every possible application of our products, nor anticipate every variation encountered in masonry surfaces, job conditions and methods used. The purchasers shall make their own tests to determine the suitability of such products for a particular purpose.

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2 PRESERVATION BRIEFS

Repointing Mortar Joints in Historic Masonry Buildings

Robert C. Mack, FAIA
John P. Speweik



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

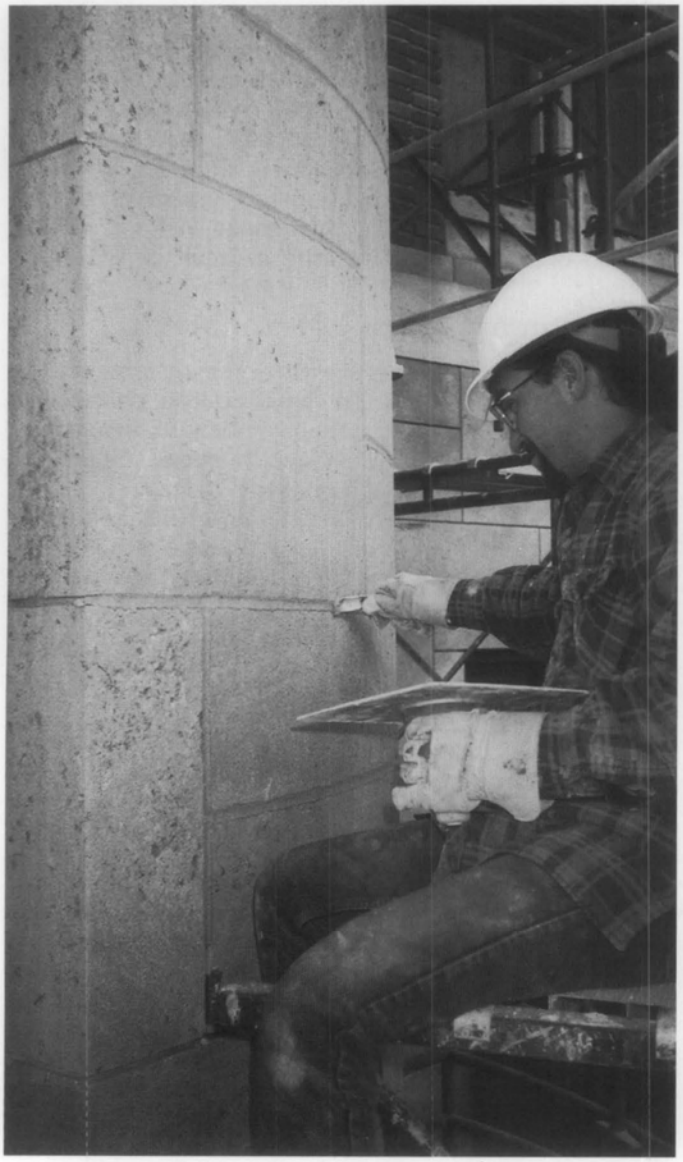


Figure 1. After removing deteriorated mortar, an experienced mason repoints a portion of this early-20th century limestone building. Photo: Robert C. Mack, FAIA.

Masonry — brick, stone, terra-cotta, and concrete block — is found on nearly every historic building. Structures with all-masonry exteriors come to mind immediately, but most other buildings at least have masonry foundations or chimneys. Although generally considered "permanent," masonry is subject to deterioration, especially at the mortar joints. Repointing, also known simply as "pointing"or—somewhat inaccurately—"tuck pointing"*, is the process of removing deteriorated mortar from the joints of a masonry wall and replacing it with new mortar (Fig. 1). Properly done, repointing restores the visual and physical integrity of the masonry. Improperly done, repointing not only detracts from the appearance of the building, but may also cause physical damage to the masonry units themselves.

The purpose of this Brief is to provide general guidance on appropriate materials and methods for repointing historic masonry buildings and it is intended to benefit building owners, architects, and contractors. The Brief should serve as a guide to prepare specifications for repointing historic masonry buildings. It should also help develop sensitivity to the particular needs of historic masonry, and to assist historic building owners in working cooperatively with architects, architectural conservators and historic preservation consultants, and contractors. Although specifically intended for historic buildings, the guidance is appropriate for other masonry buildings as well. This publication updates *Preservation Briefs 2: Repointing Mortar Joints in Historic Brick Buildings* to include all types of historic unit masonry. The scope of the earlier Brief has also been expanded to acknowledge that the many buildings constructed in the first half of the 20th century are now historic and eligible for listing in the National Register of Historic Places, and that they may have been originally constructed with portland cement mortar.

*Tuckpointing technically describes a primarily decorative application of a raised mortar joint or lime putty joint on top of flush mortar joints.

Historical Background

Mortar consisting primarily of lime and sand has been used as an integral part of masonry structures for thousands of years. Up until about the mid-19th century, lime or quicklime (sometimes called lump lime) was delivered to construction sites, where it had to be slaked, or combined with water. Mixing with water caused it to boil and resulted in a wet lime putty that was left to mature in a pit or wooden box for several weeks, up to a year. Traditional mortar was made from lime putty, or slaked lime, combined with local sand, generally in a ratio of 1 part lime putty to 3 parts sand by volume. Often other ingredients, such as crushed marine shells (another source of lime), brick dust, clay, natural cements, pigments, and even animal hair were also added to mortar, but the basic formulation for lime putty and sand mortar remained unchanged for centuries until the advent of portland cement or its forerunner, Roman cement, a natural, hydraulic cement.

Portland cement was patented in Great Britain in 1824. It was named after the stone from Portland in Dorset which it resembled when hard. This is a fast-curing, hydraulic cement which hardens under water. Portland cement was first manufactured in the United States in 1872, although it was imported before this date. But it was not in common use throughout the country until the early 20th century. Up until the turn of the century portland cement was considered primarily an additive, or "minor ingredient" to help accelerate mortar set time. By the 1930s, however, most masons used a mix of equal parts portland cement and lime putty. Thus, the mortar found in masonry structures built between 1873 and 1930 can range from pure lime and sand mixes to a wide variety of lime, portland cement, and sand combinations.

In the 1930s more new mortar products intended to hasten and simplify masons' work were introduced in the U.S. These included **masonry cement**, a premixed, bagged mortar which is a combination of portland cement and ground limestone, and **hydrated lime**, machine-slaked lime that eliminated the necessity of slaking quicklime into putty at the site.

Identifying the Problem Before Repointing

The decision to repoint is most often related to some obvious sign of deterioration, such as disintegrating mortar, cracks in mortar joints, loose bricks or stones, damp walls, or damaged plasterwork. It is, however, erroneous to assume that repointing alone will solve deficiencies that result from other problems (Fig. 2). The root cause of the deterioration—leaking roofs or gutters, differential settlement of the building, capillary action causing rising damp, or extreme weather exposure—should always be dealt with prior to beginning work. Without appropriate repairs to eliminate the source of the problem, mortar deterioration will continue and any repointing will have been a waste of time and money.

Use of Consultants. Because there are so many possible causes for deterioration in historic buildings, it may be desirable to retain a consultant, such as a historic architect or architectural conservator, to analyze the building. In addition to determining the most appropriate solutions to the problems, a consultant can prepare specifications which reflect the particular requirements of each job and can provide oversight of the work in progress. Referrals to preservation consultants frequently can be obtained from State Historic Preservation Offices, the American Institute for Conservation of Historic and Artistic Works (AIC), the Association for Preservation Technology (APT), and local chapters of the American Institute of Architects (AIA).

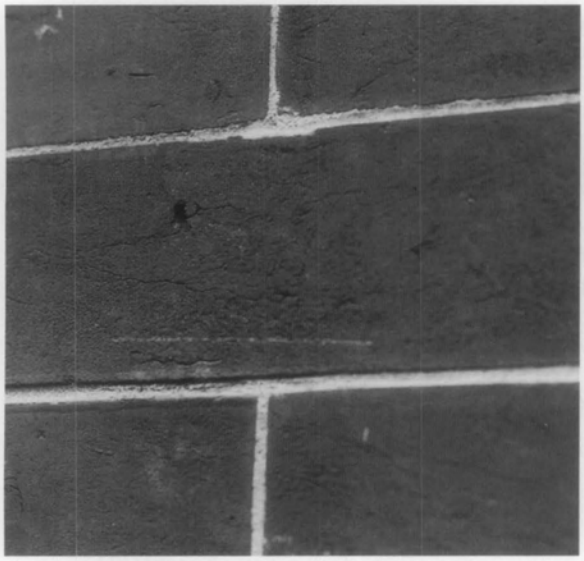


Figure 2. Much of the mortar on this building has been leached away by water from a leaking downspout. The downspout must be replaced and any other drainage problems repaired before repointing. Photo: Robert C. Mack, FAIA.

Finding an Appropriate Mortar Match

Preliminary research is necessary to ensure that the proposed repointing work is both physically and visually appropriate to the building. Analysis of unweathered portions of the historic mortar to which the new mortar will be matched can suggest appropriate mixes for the repointing mortar so that it will not damage the building because it is excessively strong or vapor impermeable. Examination and analysis of the masonry units—brick, stone or terra cotta—and the techniques used in the original construction will assist in maintaining the building's historic appearance (Figs. 3-4). A simple, non-technical, evaluation of the masonry units and mortar can provide information concerning the relative strength and permeability of each–critical factors in selecting the repointing mortar—while a visual analysis of the historic mortar can provide the information necessary for developing the new mortar mix and application techniques.

Although not crucial to a successful repointing project, for projects involving properties of special historic significance, a mortar analysis by a qualified laboratory can be useful by providing information on the original ingredients. However, there are limitations with such an analysis, and replacement mortar specifications should not be based solely on laboratory analysis. Analysis requires interpretation, and there are important factors which affect the condition and performance of the mortar that cannot be established through laboratory analysis. These may include: the original water content, rate of curing, weather conditions during original construction, the method of mixing and placing the mortar, and the cleanliness and condition of the sand. *The most useful information that can come out of laboratory analysis is the identification of sand by*



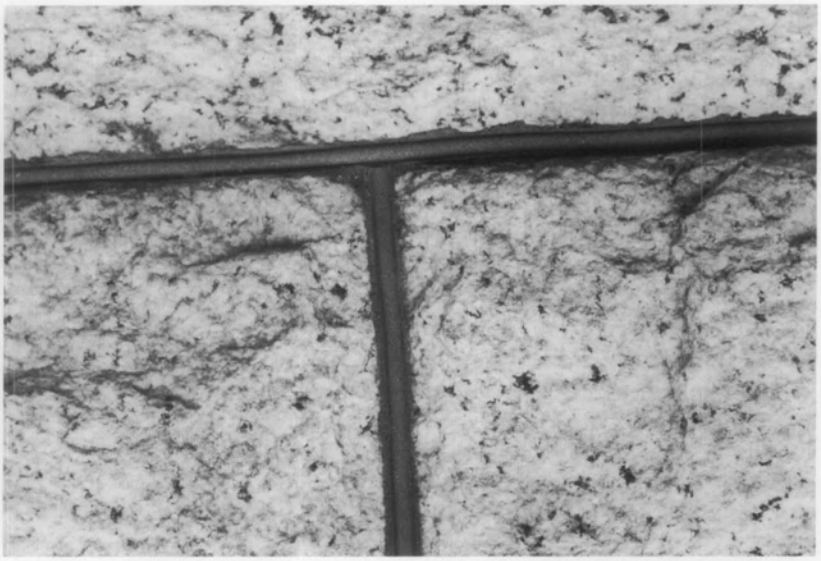


Figure 3. Good-quality repointing closely replicates the original in composition, texture, joint type and profile on this 19th century brick building (left), and on this late-19th century granite on H.H. Richardson's Glessner House in Chicago (right). Photos: Charles E. Fisher: Sharon C. Park, FAIA.

gradation and color. This allows the color and the texture of the mortar to be matched with some accuracy because sand is the largest ingredient by volume.

In creating a repointing mortar that is compatible with the masonry units, the objective is to achieve one that matches the historic mortar as closely as possible, so that the new material can coexist with the old in a sympathetic, supportive and, if necessary, sacrificial capacity. The exact physical and chemical properties of the historic mortar are not of major significance as long as the new mortar conforms to the following criteria:

- The new mortar must match the historic mortar in color, texture and tooling. (If a laboratory analysis is undertaken, it may be possible to match the binder components and their proportions with the historic mortar, if those materials are available.)

- The sand must match the sand in the historic mortar. (The color and texture of the new mortar will usually fall into place if the sand is matched successfully.)

- The new mortar must have **greater vapor permeability** and be **softer** (measured in compressive strength) than the masonry units.

- The new mortar must be **as vapor permeable** and **as soft or softer** (measured in compressive strength) than the historic mortar. (Softness or hardness is not necessarily an indication of permeability; old, hard lime mortars can still retain high permeability.)

Properties of Mortar

Mortars for repointing should be softer or more permeable than the masonry units and no harder or more impermeable than the historic mortar to prevent damage to the masonry units. It is a common error to assume that hardness or high strength is a measure of appropriateness, particularly for lime-based historic mortars. Stresses within a wall caused by expansion, contraction, moisture migration, or settlement must be accommodated in some manner; in a masonry wall these

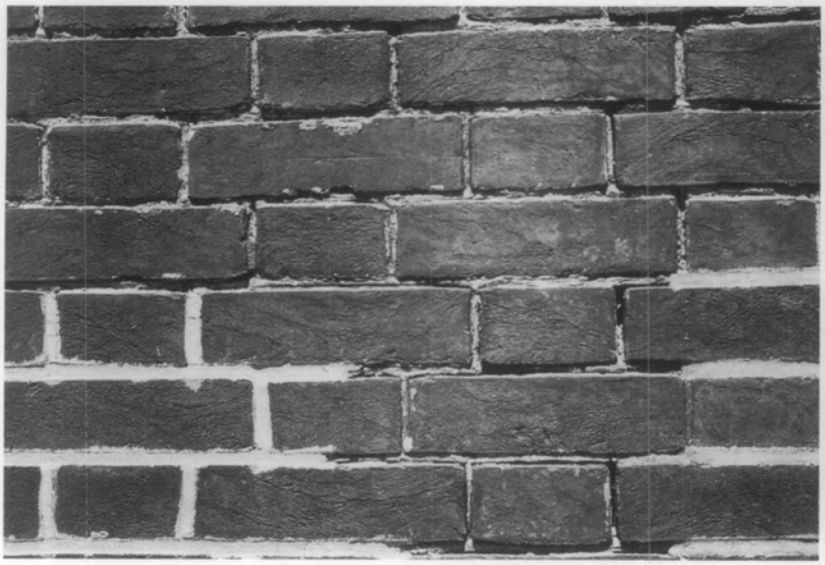




Figure 4. (left) The poor quality of this repointing–it appears to have been "tooled" with the mason's finger–does not match the delicacy of the original beaded joint on this 19th-century brick wall. (right) It is obvious that the repointing on this "test patch" is not an appropriate replacement mortar joint for this early-19th century stone foundation. Photos: Lee H. Nelson, FAIA.

stresses should be relieved by the mortar rather than by the masonry units. A mortar that is stronger in compressive strength than the masonry units, will not "give," thus causing the stresses to be relieved through the masonry units—resulting in permanent damage to the masonry, such as cracking and spalling, that cannot be repaired easily (Fig. 5). While stresses can also break the bond between the mortar and the masonry units, permitting water to penetrate the resulting hairline cracks, this is easier to correct in the joint through repointing than if the break occurs in the masonry units.

Permeability, or rate of vapor transmission, is also critical. High lime mortars are more permeable than denser cement mortars. Historically, mortar acted as a bedding material–not unlike an expansion joint–rather than a "glue" for the masonry units, and moisture was able to migrate through the mortar joints rather than the masonry units. When moisture evaporates from the masonry it deposits any soluble salts either on the surface as *efflorescence* or below the surface as *subflorescence*. While salts deposited on the surface of masonry units are usually relatively harmless, salt crystallization within a masonry unit creates pressure that can cause parts of the outer surface to spall off or delaminate. If the mortar does not permit moisture or moisture vapor to migrate out of the wall and evaporate, the result will be damage to the masonry units.

Components of Mortar

Sand. Sand is the largest component of mortar and the material that gives mortar its distinctive color, texture and cohesiveness. Sand must be free of impurities, such as salts or clay. The three key characteristics of sand are: particle shape, gradation and void ratios.



Figure 5. The use of hard, portland-cement mortar that is less permeable than the soft bricks has resulted in severe damage to this brick wall. Moisture trapped in the wall was unable to evaporate through the mortar which is intended to be sacrificial, and thus protect the bricks. As a result the moisture remained in the walls until water pressure eventually popped the surface off the bricks. Photo: National Park Service Files.

When viewed under a magnifying glass or low-power microscope, particles of sand generally have either rounded edges, such as found in beach and river sand, or sharp, angular edges, found in crushed or manufactured sand. For repointing mortar, rounded or natural sand is preferred for two reasons. It is usually similar to the sand in the historic mortar and provides a better visual match. It also has better working qualities or plasticity and can thus be forced into the joint more easily, forming a good contact with the remaining historic mortar and the surface of the adjacent masonry units. Although manufactured sand is frequently more readily available, it is usually possible to locate a supply of rounded sand.

The gradation of the sand (particle size distribution) plays a very important role in the durability and cohesive properties of a mortar. Mortar must have a certain percentage of large to small particle sizes in order to deliver the optimum performance. Acceptable guidelines on particle size distribution may be found in ASTM C 144 (American Society for Testing and Materials). However, in actuality, since neither historic nor modern sands are always in compliance with ASTM C 144, matching the same particle appearance and gradation usually requires sieving the sand.

A scoop of sand contains many small voids between the individual grains. A mortar that performs well fills all these small voids with binder (cement/lime combination or mix) in a balanced manner. Well-graded sand generally has a 30 per cent void ratio by volume. Thus, 30 per cent binder by volume generally should be used, unless the historic mortar had a different binder: aggregate ratio. This represents the 1:3 binder to sand ratios often seen in mortar specifications.

For repointing, sand generally should conform to ASTM C 144 to assure proper gradation and freedom from impurities; some variation may be necessary to match the original size and gradation. Sand color and texture also should match the original as closely as possible to provide the proper color match without other additives.

Lime. Mortar formulations prior to the late-19th century used lime as the primary binding material. Lime is derived from heating limestone at high temperatures which burns off the carbon dioxide, and turns the limestone into quicklime. There are three types of limestone—calcium, magnesium, and dolomitic—differentiated by the different levels of magnesium carbonate they contain which impart specific qualities to mortar. Historically, calcium lime was used for mortar rather than the dolomitic lime (calcium magnesium carbonate) most often used today. But it is also important to keep in mind the fact that the historic limes, and other components of mortar, varied a great deal because they were natural, as opposed to modern lime which is manufactured and, therefore, standardized. Because some of the kinds of lime, as well as other components of mortar, that were used historically are no longer readily available, even when a conscious effort is made to replicate a "historic" mix, this may not be achievable due to the differences between modern and historic materials.

Lime, itself, when mixed with water into a paste is very plastic and creamy. It will remain workable and soft indefinitely, if stored in a sealed container. Lime (calcium hydroxide) hardens by carbonation absorbing carbon dioxide primarily from the air, converting itself to calcium carbonate. Once a lime and sand mortar is mixed and placed in a wall, it begins the process of carbonation. If lime mortar is left to dry too rapidly, carbonation of the mortar will be reduced, resulting in poor adhesion and poor durability. In addition, lime mortar is slightly water soluble and thus is able to re-seal any hairline cracks that may develop during the life of the mortar. Lime mortar is soft, porous, and changes little in volume during temperature fluctuations, thus making it a good choice for historic buildings. *Because of these qualities, high calcium lime mortar may be considered for many repointing projects, not just those involving historic buildings.*

For repointing, lime should conform to ASTM C 207, Type S, or Type SA, Hydrated Lime for Masonry Purposes. This machine-slaked lime is designed to assure high plasticity and water retention. The use of quicklime which must be slaked and soaked by hand may have advantages over hydrated lime in some restoration projects if time and money allow.

Lime putty. Lime putty is slaked lime that has a putty or paste-like consistency. It should conform to ASTM C 5. Mortar can be mixed using lime putty according to ASTM C 270 property or proportion specification.

Portland cement. More recent, 20th-century mortar has used portland cement as a primary binding material. A straight portland cement and sand mortar is extremely hard, resists the movement of water, shrinks upon setting, and undergoes relatively large thermal movements. When mixed with water, portland cement forms a harsh, stiff paste that is quite unworkable, becoming hard very quickly. (Unlike lime, portland cement will harden regardless of weather conditions and does not require wetting and drying cycles.) Some portland cement assists the workability and plasticity of the mortar without adversely affecting the finished project; it also provides early strength to the mortar and speeds setting. Thus, it may be appropriate to add some portland cement to an essentially lime-based mortar even when repointing relatively soft 18th or 19th century brick under some circumstances when a slightly harder mortar is required. The more portland cement that is added to a mortar formulation the harder it becomes—and the faster the initial set.

For repointing, portland cement should conform to ASTM C 150. White, non-staining portland cement may provide a better color match for some historic mortars than the more commonly available grey portland cement. But, it should not be assumed, however, that white portland cement is always appropriate for all historic buildings, since the original mortar may have been mixed with grey cement. The cement should not have more than 0.60 per cent alkali to help avoid efflorescence.

Masonry cement. Masonry cement is a preblended mortar mix commonly found at hardware and home repair stores. It is designed to produce mortars with a compressive strength of 750 psi or higher when mixed

MORTAR ANALYSIS

Methods for analyzing mortars can be divided into two broad categories: **wet chemical** and **instrumental**. Many laboratories that analyze historic mortars use a simple **wet-chemical** method called *acid digestion*, whereby a sample of the mortar is crushed and then mixed with a dilute acid. The acid dissolves all the carbonate-containing minerals not only in the binder, but also in the aggregate (such as oyster shells, coral sands, or other carbonate-based materials), as well as any other acid-soluble materials. The sand and fine-grained acid-insoluble material is left behind. There are several variations on the simple acid digestion test. One involves collecting the carbon dioxide gas given off as the carbonate is digested by the acid; based on the gas volume the carbonate content of the mortar can be accurately determined (Jedrzejewska, 1960). Simple acid digestion methods are rapid, inexpensive, and easy to perform, but the information they provide about the original composition of a mortar is limited to the color and texture of the sand. The gas collection method provides more information about the binder than a simple acid digestion test.

Instrumental analysis methods that have been used to evaluate mortars include polarized light or thin-section microscopy, scanning electron microscopy, atomic absorption spectroscopy, X-ray diffraction, and differential thermal analysis. All instrumental methods require not only expensive, specialized equipment, but also highly-trained experienced analysts. However, instrumental methods can provide much more information about a mortar. Thin-section microscopy is probably the most commonly used instrumental method. Examination of thin slices of a mortar in transmitted light is often used to supplement acid digestion methods, particularly to look for carbonate-based aggregate. For example, the new ASTM test method, ASTM C 1324-96 "Test Method for Examination and Analysis of Hardened Mortars" which was designed specifically for the analysis of modern lime-cement and masonry cement mortars, combines a complex series of wet chemical analyses with thin-section microscopy.

The drawback of most mortar analysis methods is that mortar samples of known composition have not been analyzed in order to evaluate the method. Historic mortars were not prepared to narrowly defined specifications from materials of uniform quality; they contain a wide array of locally derived materials combined at the discretion of the mason. While a particular method might be able to accurately determine the original proportions of a lime-cement-sand mortar prepared from modern materials, the usefulness of that method for evaluating historic mortars is questionable unless it has been tested against mortars prepared from materials more commonly used in the past.

Lorraine Schnabel.

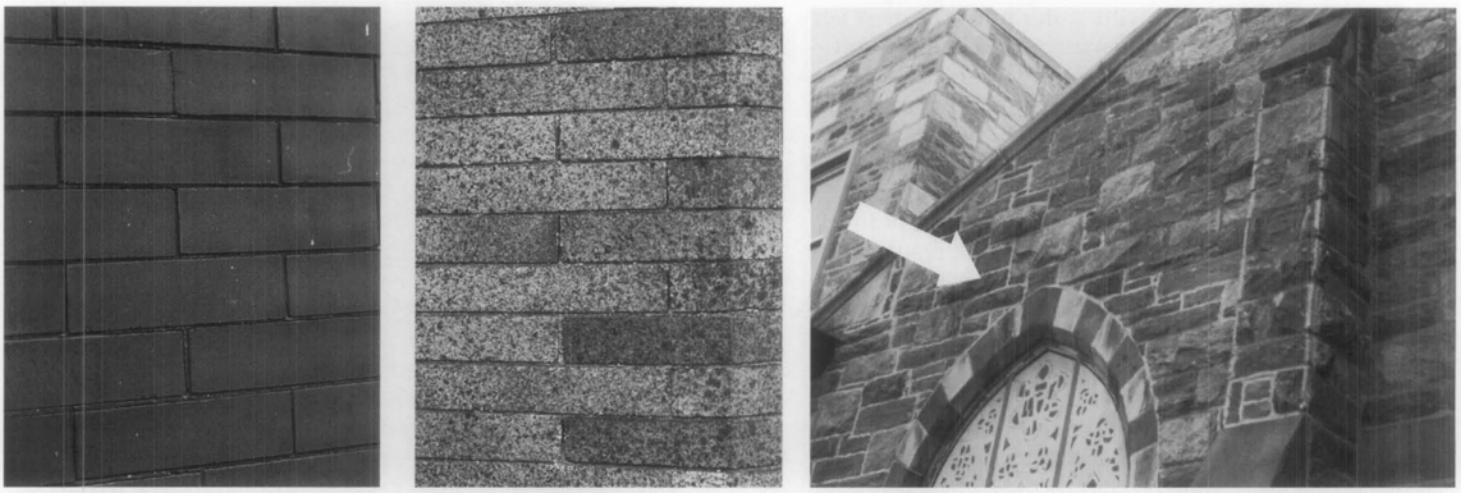


Figure 6. Tinted mortar. (left)Black mortar with a beaded joint was used here on this late-19th century hard pressed red brick and, (center) a dark brown tinted mortar with an almost flush joint was used on this early-20th century Roman brick. (right) When constructed at the turn-of-the-century, this building was pointed with a dark gray mortar to blend with the color of the stone, but the light-colored mortar used in spot repointing has destroyed this harmony and adversely impacts the building's historic character. Photos: Anne Grimmer.

with sand and water at the job site. It may contain hydrated lime, but it always contains a large amount of portland cement, as well as ground limestone and other workability agents, including air-entraining agents. Because masonry cements are not required to contain hydrated lime, and generally do not contain lime, they produce high strength mortars that can damage historic masonry. *For this reason, they generally are not recommended for use on historic masonry buildings.*

Lime mortar (pre-blended). Hydrated lime mortars, and pre-blended lime putty mortars with or without a matched sand are commercially available. Custom mortars are also available with color. In most instances, pre-blended lime mortars containing sand may not provide an exact match; however, if the project calls for total repointing, a pre-blended lime mortar may be worth considering as long as the mortar is compatible in strength with the masonry. If the project involves only selected, "spot" repointing, then it may be better to carry out a mortar analysis which can provide a custom pre-blended lime mortar with a matching sand. In either case, if a preblended lime mortar is to be used, it should contain Type S or SA hydrated lime conforming to ASTM C 207.

Water. Water should be potable—clean and free from acids, alkalis, or other dissolved organic materials.

Other Components

Historic components. In addition to the color of the sand, the texture of the mortar is of critical importance in duplicating historic mortar. Most mortars dating from the mid-19th century on—with some exceptions—have a fairly homogeneous texture and color. Some earlier mortars are not as uniformly textured and may contain lumps of partially burned lime or "dirty lime", shell (which often provided a source of lime, particularly in coastal areas), natural cements, pieces of clay, lampblack or other pigments, or even animal hair. The visual characteristics of these mortars can be duplicated through the use of similar materials in the repointing mortar.

Replicating such unique or individual mortars will require writing new specifications for each project. If possible, suggested sources for special materials should be included. For example, crushed oyster shells can be obtained in a variety of sizes from poultry supply dealers.

Pigments. Some historic mortars, particularly in the late 19th century, were tinted to match or contrast with the brick or stone (Fig. 6). Red pigments, sometimes in the form of brick dust, as well as brown, and black pigments were commonly used. Modern pigments are available which can be added to the mortar at the job site, but they should not exceed 10 per cent by weight of the portland cement in the mix, and carbon black should be limited to 2 per cent. Only synthetic mineral oxides, which are alkali-proof and sun-fast, should be used to prevent bleaching and fading.

Modern components. Admixtures are used to create specific characteristics in mortar, and whether they should be used will depend upon the individual project. *Air-entraining agents*, for example, help the mortar to resist freeze-thaw damage in northern climates. *Accelerators* are used to reduce mortar freezing prior to setting while *retarders* help to extend the mortar life in hot climates. Selection of admixtures should be made by the architect or architectural conservator as part of the specifications, not something routinely added by the masons.

Generally, modern chemical additives are unnecessary and may, in fact, have detrimental effects in historic masonry projects. The use of antifreeze compounds is not recommended. They are not very effective with high lime mortars and may introduce salts, which may cause efflorescence later. A better practice is to warm the sand and water, and to protect the completed work from freezing. No definitive study has determined whether air-entraining additives should be used to resist frost action and enhance plasticity, but in areas of extreme exposure requiring high-strength mortars with lower permeability, air-entrainment of 10-16 percent may be desirable (see formula for "severe weather exposure" in **Mortar Type and Mix**). Bonding agents are not a substitute for proper joint preparation, and they should generally be avoided. If the joint is properly prepared, there will be a good bond between the new mortar and the adjacent surfaces. In addition, a bonding agent is difficult to remove if smeared on a masonry surface (Fig. 7).

Mortar Type and Mix

Mortars for repointing projects, especially those involving historic buildings, typically are custom mixed in order to ensure the proper physical and visual qualities. These materials can be combined in varying proportions to create a mortar with the desired performance and durability. The actual specification of a particular mortar type should take into consideration all of the factors affecting the life of the building including: current site conditions, present condition of the masonry, function of the new mortar, degree of weather exposure, and skill of the mason. Thus, no two repointing projects are exactly the same. Modern materials specified for use in repointing mortar should conform to specifications of the American Society for Testing and Materials (ASTM) or comparable federal specifications, and the resulting mortar should conform to ASTM C 270, Mortar for Unit Masonry.

Specifying the proportions for the repointing mortar for a specific job is not as difficult as it might seem. Five mortar types, each with a corresponding recommended mix, have been established by ASTM to distinguish high strength mortar from soft flexible mortars. The ASTM designated them in decreasing order of approximate general strength as Type M (2,500 psi), Type S (1,800 psi), Type N (750 psi), Type O (350 psi) and Type K (75 psi). (The letters identifying the types are from the words MASON WORK using every other letter.) Type K has the highest lime content of the mixes that contain portland cement, although it is seldom used today, except for some historic preservation projects. The designation "L" in the accompanying chart identifies a straight lime and sand mix. Specifying the appropriate ASTM mortar by proportion of ingredients, will ensure the desired physical properties. Unless specified otherwise, measurements or proportions for mortar mixes are always given in the following order: cement-lime-sand. Thus, a Type K mix, for example, would be referred to as 1-3-10, or 1 part cement to 3 parts lime to 10 parts sand. Other requirements to create the desired visual qualities should be included in the specifications.

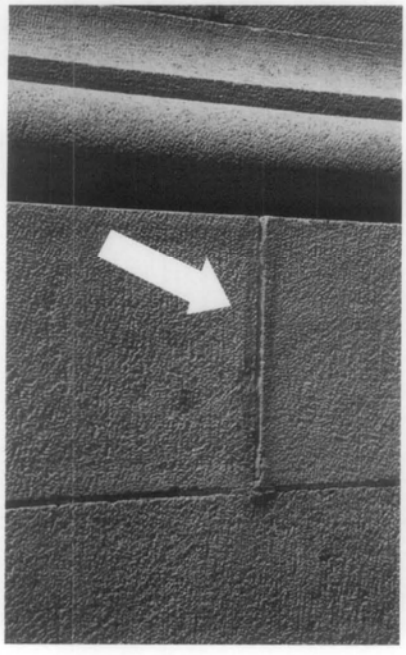


Figure 7. The dark stain on either side of the vertical joint on this sandstone watertable probably resulted from the use of a bonding agent that was not properly cleaned off the masonry after repointing. Photo: Anne Grimmer.



Figure 8. Due to inadequate joint preparation, the repointing mortar has not adhered properly and is falling out of the joint. Photo: Robert C. Mack, FAIA.

The strength of a mortar can vary. If mixed with higher amounts of portland cement, a harder mortar is obtained. The more lime that is added, the softer and more plastic the mortar becomes, increasing its workability. A mortar strong in compressive strength might be desirable for a hard stone (such as granite) pier holding up a bridge deck, whereas a softer, more permeable lime mortar would be preferable for a historic wall of soft brick. Masonry deterioration caused by salt deposition results when the mortar is less permeable that the masonry unit. A strong mortar is still more permeable than hard dense stone. However, in a wall constructed of soft bricks where the masonry unit itself has a relatively high permeability or vapor transmission rate, a soft, high lime mortar is necessary to retain sufficient permeability.

Budgeting and Scheduling

Repointing is both expensive and time consuming due to the extent of handwork and special materials required. It is preferable to repoint only those areas that require work rather than an entire wall, as is often specified. But, if 25 to 50 per cent or more of a wall needs to be repointed, repointing the entire wall may be more cost effective than spot repointing. Total repointing may also be more sensible when access is difficult, requiring the erection of expensive scaffolding (unless the majority of the mortar is sound and unlikely to require replacement in the foreseeable future). Each project requires judgement based on a variety of factors. Recognizing this at the outset will help to prevent many jobs from becoming prohibitively expensive.

In scheduling, seasonal aspects need to be considered first. Generally speaking, wall temperatures between 40 and 95 degrees F (8 and 38 degrees C) will prevent freezing or excessive evaporation of the water in the mortar. Ideally, repointing should be done in shade, away from strong sunlight in order to slow the drying process, especially during hot weather. If necessary, shade can be provided for large-scale projects with appropriate modifications to scaffolding.

The relationship of repointing to other work proposed on the building must also be recognized. For example, if paint removal or cleaning is anticipated, and if the mortar joints are basically sound and need only selective repointing, it is generally better to postpone repointing

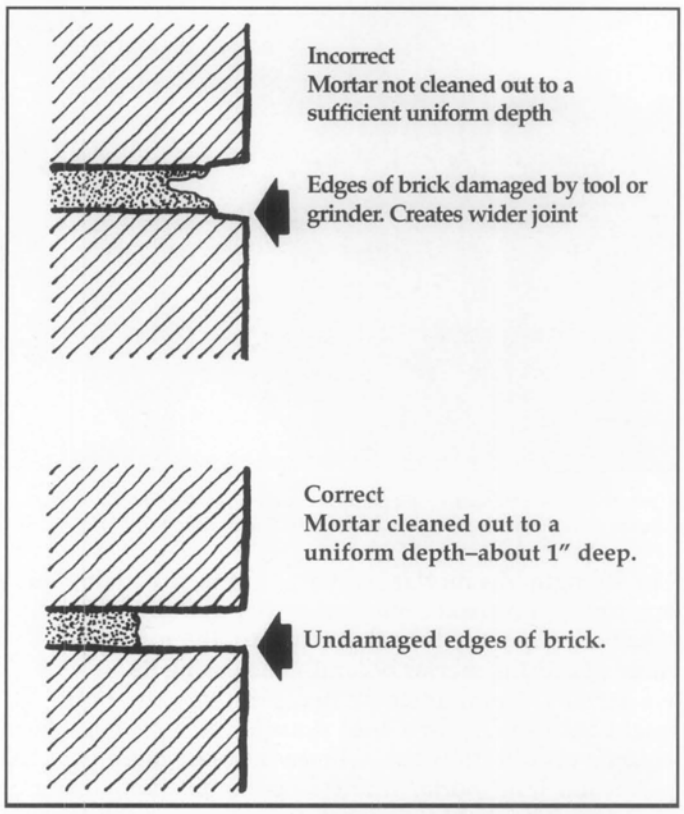


Figure 9. Comparison of incorrect and correct preparation of mortar joints for repointing. Drawing: Robert C. Mack, FAIA, and David W. Look, AIA.

until after completion of these activities. However, if the mortar has eroded badly, allowing moisture to penetrate deeply into the wall, repointing should be accomplished before cleaning. Related work, such as structural or roof repairs, should be scheduled so that they do not interfere with repointing and so that all work can take maximum advantage of erected scaffolding.

Building managers also must recognize the difficulties that a repointing project can create. The process is time consuming, and scaffolding may need to remain in place for an extended period of time. The joint preparation process can be quite noisy and can generate large quantities of dust which must be controlled, especially at air intakes to protect human health, and also where it might damage operating machinery. Entrances may be blocked from time to time making access difficult for both building tenants and visitors. Clearly, building managers will need to coordinate the repointing work with other events at the site.

Contractor Selection

The ideal way to select a contractor is to ask knowledgeable owners of recently repointed historic buildings for recommendations. Qualified contractors then can provide lists of other repointing projects for inspection. More commonly, however, the contractor for a repointing project is selected through a competitive bidding process over which the client or consultant has only limited control. In this situation it is important to ensure that the specifications stipulate that masons must have a minimum of five years' experience with repointing historic masonry buildings to be eligible to bid on the project. Contracts are awarded to the lowest *responsible* bidder, and bidders who have performed poorly on other projects usually can be eliminated from consideration on this basis, even if they have the lowest prices.

The contract documents should call for unit prices as well as a base bid. Unit pricing forces the contractor to determine in advance what the cost addition or reduction will be for work which varies from the scope of the base bid. If, for example, the contractor has fifty linear feet less of stone repointing than indicated on the contract documents but thirty linear feet more of brick repointing, it will be easy to determine the final price for the work. Note that each type of work—brick repointing, stone repointing, or similar items—will have its own unit price. The unit price also should reflect quantities; one linear foot of pointing in five different spots will be more expensive than five contiguous linear feet.

Execution of the Work

Test Panels. These panels are prepared by the contractor using the same techniques that will be used on the remainder of the project. Several panel locations—preferably not on the front or other highly visible location of the building—may be necessary to include all types of masonry, joint styles, mortar colors, and other problems likely to be encountered on the job. If cleaning tests, for



Figure 10. Using a hammer and masonry chisel is the least damaging and, thus, generally the preferred method of removing old mortar in preparation for repointing historic masonry. Photo: John P. Speweik.

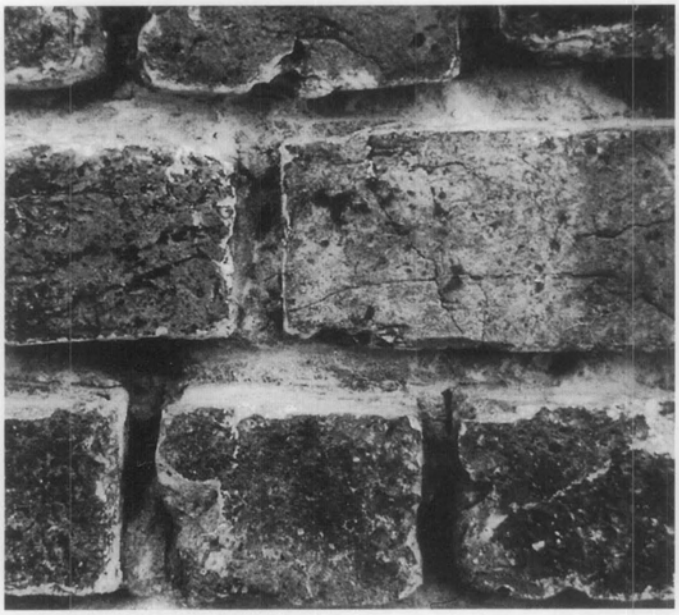


Figure 11. The damage to the edges and corners of these historic bricks was caused by using a mechanical grinder to rake out the joints. Note the overcutting of the head joint and the damage to the arises (corners) of the bricks. Photo: Lee H. Nelson, FAIA.

example, are also to be undertaken, they should be carried out in the same location. Usually a 3 foot by 3 foot area is sufficient for brickwork, while a somewhat larger area may be required for stonework. These panels establish an acceptable standard of work and serve as a benchmark for evaluating and accepting subsequent work on the building.

Joint Preparation. Old mortar should be removed to a minimum depth of 2 to 2- $^1/_2$ times the width of the joint to ensure an adequate bond and to prevent mortar "popouts" (Fig. 8). For most brick joints, this will require removal of the mortar to a depth of approximately $^1/_2$ to 1 inch; for stone masonry with wide joints, mortar may need to be removed to a depth of several inches. Any loose or disintegrated mortar beyond this minimum depth also should be removed (Fig. 9).

Although some damage may be inevitable, careful joint preparation can help limit damage to masonry units. The traditional manner of removing old mortar is through the use of hand chisels and mash hammers (Fig. 10). Though labor-intensive, in most instances this method poses the least threat for damage to historic masonry units and produces the best final product.

The most common method of removing mortar, however, is through the use of power saws or grinders. The use of power tools by unskilled masons can be disastrous for historic masonry, particularly soft brick. Using power saws on walls with thin joints, such as most brick walls, almost always will result in damage to the masonry units by breaking the edges and by overcutting on the head, or vertical joints (Fig. 11).

However, small pneumatically-powered chisels generally can be used safely and effectively to remove mortar on historic buildings as long as the masons maintain appropriate control over the equipment.



Figure 12.. A power grinder, operated correctly by a skilled mason may be used in preparation for repointing to cut wide, horizontal mortar joints, typical of many early-20th century brick structures without causing damage to the brick. Note the use of protective safety equipment. Photo: Robert C. Mack, FAIA.

Under certain circumstances, thin diamond-bladed grinders may be used to cut out *horizontal* joints only on hard portland cement mortar common to most early-20th century masonry buildings (Fig. 12). Usually, automatic tools most successfully remove old mortar without damaging the masonry units when they are used in combination with hand tools in preparation for repointing. Where horizontal joints are uniform and fairly wide, it may be possible to use a power masonry saw to assist the removal of mortar, such as by cutting along the middle of the joint; final mortar removal from the sides of the joints still should be done with a hand chisel and hammer. Caulking cutters with diamond blades can sometimes be used successfully to cut out joints without damaging the masonry. Caulking cutters are slow; they do not rotate, but vibrate at very high speeds, thus minimizing the possibility of damage to masonry units (Fig. 13). Although mechanical tools may be used safely in limited circumstances to cut out horizontal joints in preparation for repointing, they should never be used on vertical joints because of the danger of slipping and cutting into the brick above or below the vertical joint. Using power tools to remove mortar without damaging the surrounding masonry units also necessitates highly skilled masons experienced in working on historic masonry buildings. Contractors



Figure 13. (left) In preparation for repointing, the mortar joints on these granite steps are first cut out mechanically (note the vacuum attached to the cutting tool in foreground to cut down on dust). (right) Final removal of the old mortar is done by hand to avoid damage to the edges of the joints. Mechanical preparation of horizontal joints by an experienced mason may sometimes be acceptable, especially where the joints are quite wide and the masonry is a very hard stone. Photos: Anne Grimmer.

should demonstrate proficiency with power tools before their use is approved.

Using any of these power tools may also be more acceptable on hard stone, such as quartzite or granite, than on terra cotta with its glass-like glaze, or on soft brick or stone. The test panel should determine the acceptability of power tools. If power tools are to be permitted, the contractor should establish a quality control program to account for worker fatigue and similar variables.

Mortar should be removed cleanly from the masonry units, leaving square corners at the back of the cut. Before filling, the joints should be rinsed with a jet of water to remove all loose particles and dust. At the time of filling, the joints should be damp, but with no standing water present. For masonry walls—limestone, sandstone and common brick—that are extremely absorbent, it is recommended that a continual mist of water be applied for a few hours before repointing begins.

Mortar Preparation. Mortar components should be measured and mixed carefully to assure the uniformity of visual and physical characteristics. Dry ingredients are measured by volume and thoroughly mixed before the addition of any water. Sand must be added in a damp, loose condition to avoid over sanding. Repointing mortar is typically pre-hydrated by adding water so it will just hold together, thus allowing it to stand for a period of time before the final water is added. Half the water should be added, followed by mixing for approximately 5 minutes. The remaining water should then be added in small portions until a mortar of the desired consistency is reached. The total volume of water necessary may vary from batch to batch, depending on weather conditions. It is important to keep the water to a minimum for two reasons: first, a drier mortar is cleaner to work with, and it can be compacted tightly into the joints; second, with no excess water to evaporate, the mortar cures without shrinkage cracks. Mortar should be used within approximately 30 minutes of final mixing, and "retempering," or adding more water, should not be permitted.

Using Lime Putty to Make Mortar. Mortar made with lime putty and sand, sometimes referred to as roughage or course stuff, should be measured by volume, and may require slightly different proportions from those used with hydrated lime (Fig. 14). No additional water is usually needed to achieve a workable consistency because enough water is already contained in the putty. Sand is proportioned first, followed by the lime putty, then mixed for five minutes or until all the sand is thoroughly coated with the lime putty. But mixing, in the familiar sense of turning over with a hoe, sometimes may not be sufficient if the best possible performance is to be obtained from a lime putty mortar. Although the old practice of chopping, beating and ramming the mortar has largely been forgotten, recent field work has confirmed that lime putty and sand rammed and beaten with a wooden mallet or ax handle, interspersed by chopping with a hoe, can significantly improve workability and performance. The intensity of this action increases the overall lime/sand contact and removes any surplus water by compacting the other ingredients. It may also be advantageous for larger projects to use a mortar pan mill for mixing. Mortar pan mills which have a long tradition in Europe produce a superior lime putty mortar not attainable with today's modern paddle and drum type mixers.

For larger repointing projects the lime putty and sand can be mixed together ahead of time and stored indefinitely, on or off site, which eliminates the need for piles of sand on the job site. This mixture, which resembles damp brown sugar, must be protected from the air in sealed containers with a wet piece of burlap over the top or sealed in a large plastic bag to prevent evaporation and premature carbonation. The lime putty and sand mixture can be recombined into a workable plastic state months later with no additional water.

If portland cement is specified in a lime putty and sand mortar—Type O (1:2:9) or Type K (1:3:11)—the portland cement should first be mixed into a slurry paste before adding it to the lime putty and sand. Not only will this ensure that the portland cement is evenly distributed throughout the mixture, but if dry portland cement is added to wet ingredients it tends to "ball up," jeopardizing dispersion. (Usually water must be added to the lime putty and sand anyway once the portland cement is introduced.) Any color pigments should be added at this stage and mixed for a full five minutes. The mortar should be used within 30 minutes to 1 ½ hours and it should not be retempered. Once portland cement has been added the mortar can no longer be stored.

Filling the Joint. Where existing mortar has been removed to a depth of greater than 1 inch, these deeper areas should be filled first, compacting the new mortar in several layers. The back of the entire joint should be filled successively by applying approximately ¼ inch of mortar, packing it well into the back corners. This



Figure 14. Mixing mortar using lime putty: (a) proportioning sand; (b) proportioning lime putty; (c) placing lime putty on top of sand; (d) mixing sand over lime putty; (e) hand mixing mortar; and, (f) sample of mortar after mixing. Photos: John P. Speweik.

application may extend along the wall for several feet. As soon as the mortar has reached thumb-print hardness, another ¼ inch layer of mortar—approximately the same thickness—may be applied. Several layers will be needed to fill the joint flush with the outer surface of the masonry. It is important to allow each layer time to harden before the next layer is applied; most of the mortar shrinkage occurs during the hardening process and layering thus minimizes overall shrinkage.

When the final layer of mortar is thumb-print hard, the joint should be tooled to match the historic joint (Fig. 15). Proper timing of the tooling is important for uniform color and appearance. If tooled when too soft, the color will be lighter than expected, and hairline cracks may occur; if tooled when too hard, there may be dark streaks called "tool burning," and good closure of the mortar against the masonry units will not be achieved.

If the old bricks or stones have worn, rounded edges, it is best to recess the final mortar slightly from the face of the masonry. This treatment will help avoid a joint which is visually wider than the actual joint; it also will avoid creation of a large, thin featheredge which is easily damaged, thus admitting water (Fig. 16). After tooling, excess mortar can be removed from the edge of the joint by brushing with a natural bristle or nylon brush. Metal bristle brushes should never be used on historic masonry.

Curing Conditions. The preliminary hardening of high-lime content mortars—those mortars that contain more lime by volume than portland cement, i.e., Type O (1:2:9), Type K (1:3:11), and straight lime/sand, Type "L"(0:1:3) —takes place fairly rapidly as water in the mix is lost to the porous surface of the masonry and through evaporation. A high lime mortar (especially Type "L") left to dry out too rapidly can result in chalking, poor adhesion, and poor durability. Periodic wetting of the repointed area after the mortar joints are thumb-print hard and have been finish tooled may significantly accelerate the carbonation process. When feasible, misting using a hand sprayer with a fine nozzle can be simple to do for a day or two after repointing. Local conditions will dictate the frequency of wetting, but initially it may be as often as every hour and gradually reduced to every three or four hours. Walls should be covered with burlap for the first three days after repointing. (Plastic may be used, but it should be tented out and not placed directly against the wall.) This helps keep the walls damp and protects them from direct sunlight. Once carbonation of the lime has begun, it will continue for many years and the lime will gain strength as it reverts back to calcium carbonate within the wall.

***Aging* the Mortar.** Even with the best efforts at matching the existing mortar color, texture, and materials, there will usually be a visible difference between the old and

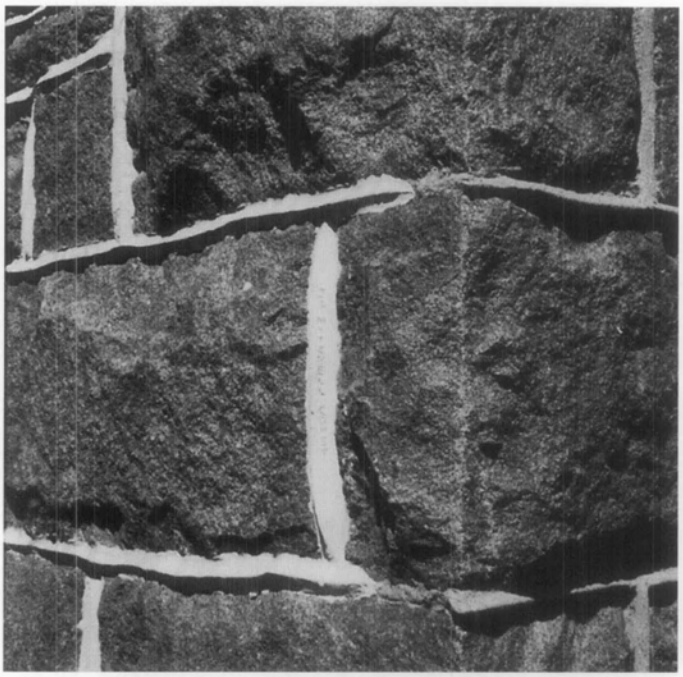


Figure 15. The profile of the repointed joints on the left replicate the historic joints around the corner to the right on the front of this stone building in Leesburg, VA. The contractor's pride in the repointing work is evident by the signature in the vertical joint. Photo: Anne Grimmer.

new work, partly because the new mortar has been matched to the unweathered portions of the historic mortar. Another reason for a slight mismatch may be that the sand is more exposed in old mortar due to the slight erosion of the lime or cement. Although spot repointing is generally preferable and some color difference should be acceptable, if the difference between old and new mortar is too extreme, it may be advisable in some instances to repoint an entire area of a wall, or an entire feature such as a bay, to minimize the difference between the old and the new mortar. If the mortars have been properly matched, usually the best way to deal with surface color differences is to let the mortars age naturally. Other treatments to overcome these differences, including cleaning the non-repointed areas or staining the new mortar, should be carefully tested prior to implementation.

Staining the new mortar to achieve a better color match is generally not recommended, but it may be appropriate in some instances. Although staining may provide an initial match, the old and new mortars may weather at different rates, leading to visual differences after a few seasons. In addition, the mixtures used to stain the mortar may be harmful to the masonry; for example, they may introduce salts into the masonry which can lead to efflorescence.

Cleaning the Repointed Masonry. If repointing work is carefully executed, there will be little need for cleaning other than to remove the small amount of mortar from the edge of the joint following tooling. This can be done with a stiff natural bristle or nylon brush after the mortar has dried, but before it is initially set (1-2 hours). Mortar that has hardened can usually be removed with a wooden paddle or, if necessary, a chisel.

Further cleaning is best accomplished with plain water and natural bristle or nylon brushes. If chemicals must

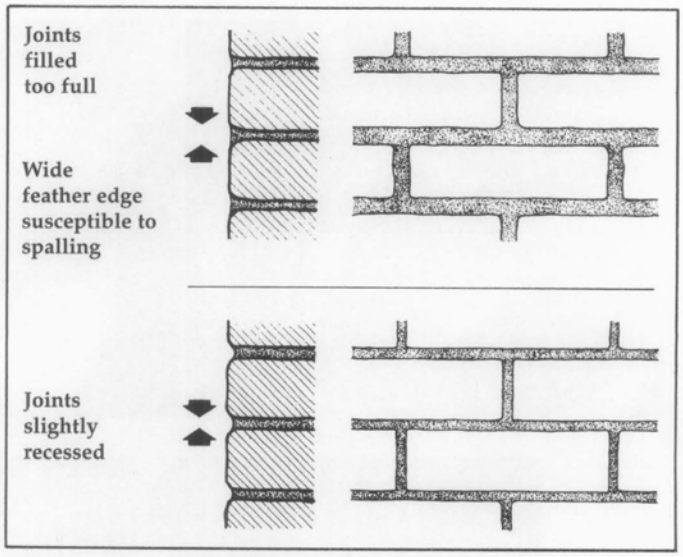


Figure 16. Comparison of visual effect of full mortar joints vs. slightly recessed joints. Filling joints too full hides the actual joint thickness and changes the character of the original brickwork. Drawing: Robert C. Mack, FAIA.

be used, they should be selected with extreme caution. Improper cleaning can lead to deterioration of the masonry units, deterioration of the mortar, mortar smear, and efflorescence. New mortar joints are especially susceptible to damage because they do not become fully cured for several months. Chemical cleaners, particularly acids, should never be used on dry masonry. The masonry should always be completely soaked once with water before chemicals are applied. After cleaning, the walls should be flushed again with plain water to remove all traces of the chemicals.

Several precautions should be taken if a freshly repointed masonry wall is to be cleaned. First, the mortar should be fully hardened before cleaning. Thirty days is usually sufficient, depending on weather and exposure; as mentioned previously, the mortar will continue to cure even after it has hardened. Test panels should be prepared to evaluate the effects of different cleaning



Figure 17. This photograph shows the significant visual change to the character of this historic brick building that has resulted from improper repointing procedures and a noticeably increased thickness of the mortar joints. Photo: Lee H. Nelson, FAIA.

Mortar Types			
(Measured by volume)			
Designation	Cement	Hydrated Lime or Lime Putty	Sand
M	1	1/4	3 - 3 3/4
S	1	1/2	4 - 4 1/2
N	1	1	5 - 6
O	1	2	8 - 9
K	1	3	10 - 12
"L"	0	1	2 1/4 - 3

Suggested Mortar Types for Different Exposures			
	Exposure		
Masonry Material	Sheltered	Moderate	Severe
Very Durable: granite, hard-cored brick, etc.	O	N	S
Moderately Durable: limestone, durable stone, molded brick	K	O	N
Minimally Durable: soft hand-made brick	"L"	K	O

methods. Generally, on newly repointed masonry walls, only very low pressure (100 psi) water washing supplemented by stiff natural bristle or nylon brushes should be used, except on glazed or polished surfaces, where only soft cloths should be used.**

New construction "bloom" or efflorescence occasionally appears within the first few months of repointing and usually disappears through the normal process of weathering. If the efflorescence is not removed by natural processes, the safest way to remove it is by dry brushing with stiff natural or nylon bristle brushes followed by wet brushing. Hydrochloric (muriatic) acid, is generally ineffective, and it should not be used to remove efflorescence. It may liberate additional salts, which, in turn, can lead to more efflorescence.

Surface Grouting is sometimes suggested as an alternative to repointing brick buildings, in particular. This process involves the application of a thin coat of cement-based grout to the mortar joints and the mortar/brick interface. To be effective the grout must extend slightly onto the face of the masonry units, thus widening the joint visually. The change in the joint appearance can alter the historic character of the structure to an unacceptable degree. In addition, although masking of the bricks is intended to keep the grout off the remainder of the face of the bricks, some level of residue, called "veiling," will inevitably remain. Surface grouting cannot substitute for the more extensive work of repointing, and it is not a recommended treatment for historic masonry.

**Additional information on masonry cleaning is presented in *Preservation Briefs 1: The Cleaning and Waterproof Coating of Masonry Buildings*, Robert C. Mack, AIA, Washington, D.C.: Technical Preservation Services, National Park Service, U.S. Department of the Interior, 1975; and *Keeping it Clean: Removing Exterior Dirt, Paint, Stains & Graffiti from Historic Masonry Buildings*, Anne E. Grimmer, Washington, D.C.: Technical Preservation Services, National Park Service, U.S. Department of the Interior, 1988.

Summary

For the Owner/Administrator. The owner or administrator of a historic building should remember that repointing is likely to be a lengthy and expensive process. First, there must be adequate time for evaluation of the building and investigation into the cause of problems. Then, there will be time needed for preparation of the contract documents. The work itself is precise, time-consuming and noisy, and scaffolding may cover the face of the building for some time. Therefore, the owner must carefully plan the work to avoid problems. Schedules for both repointing and other activities will thus require careful coordination to avoid unanticipated conflicts. The owner must avoid the tendency to rush the work or cut corners if the historic building is to retain its visual integrity and the job is to be durable.

For the Architect/Consultant. Because the primary role of the consultant is to ensure the life of the building, a knowledge of historic construction techniques and the special problems found in older buildings is essential. The consultant must assist the owner in planning for logistical problems relating to research and construction. It is the consultant's responsibility to determine the *cause* of the mortar deterioration and ensure that it is corrected before the masonry is repointed. The consultant must also be prepared to spend more time in project inspections than is customary in modern construction.

For the Masons. Successful repointing depends on the masons themselves. Experienced masons understand the special requirements for work on historic buildings and the added time and expense they require. The entire masonry crew must be willing and able to perform the work in conformance with the specifications, even when the specifications may not be in conformance with standard practice. At the same time, the masons should not hesitate to question the specifications if it appears that the work specified would damage the building.

Visually Examining the Mortar and the Masonry Units

A simple in-situ comparison will help determine the hardness and condition of the mortar and the masonry units. Begin by scraping the mortar with a screwdriver, and gradually tapping harder with a cold chisel and mason's hammer. Masonry units can be tested in the same way beginning, even more gently, by scraping with a fingernail. This relative analysis which is derived from the 10-point hardness scale used to describe minerals, provides a good starting point for selection of an appropriate mortar. It is described more fully in "The Russack System for Brick & Mortar Description" referenced in **Selected Reading** at the end of this Brief.

Mortar samples should be chosen carefully, and picked from a variety of locations on the building to find unweathered mortar, if possible. Portions of the building may have been repointed in the past while other areas may be subject to conditions causing unusual deterioration. There may be several colors of mortar dating from different construction periods or sand used from different sources during the initial construction. Any of these situations can give false readings to the visual or physical characteristics required for the new mortar. Variations should be noted which may require developing more than one mix.

1) Remove with a chisel and hammer three or four unweathered samples of the mortar to be matched from several locations on the building. (Set the largest sample aside—this will be used later for comparison with the repointing mortar). Removing a full representation of samples will allow selection of a "mean" or average mortar sample.

2) Mash the remaining samples with a wooden mallet, or hammer if necessary, until they are separated into their constituent parts. There should be a good handful of the material.

3) Examine the powdered portion—the lime and/or cement matrix of the mortar. Most particularly, note the color. There is a tendency to think of historic mortars as having white binders, but grey portland cement was available by the last quarter of the 19th century, and traditional limes were also sometimes grey. Thus, in some instances, the natural color of the historic binder may be grey, rather than white. The mortar may also have been tinted to create a colored mortar, and this color should be identified at this point.

4) Carefully blow away the powdery material (the lime and/or cement matrix which bound the mortar together).

5) With a low power (10 power) magnifying glass, examine the remaining sand and other materials such as lumps of lime or shell.

6) Note and record the wide range of color as well as the varying sizes of the individual grains of sand, impurities, or other materials.

Other Factors to Consider

Color. Regardless of the color of the binder or colored additives, the sand is the primary material that gives mortar its color. A surprising variety of colors of sand may be found in a single sample of historic mortar, and the different sizes of the grains of sand or other materials, such as incompletely ground lime or cement, play an important role in the texture of the repointing mortar. Therefore, when specifying sand for repointing mortar, it may be necessary to obtain sand from several sources and to combine or screen them in order to approximate the range of sand colors and grain sizes in the historic mortar sample.



Figure 19. Mortar joints of 18th century brick buildings were often as much as 1/2 inch wide, cut flush and struck with a grapevine joint, but for window and door surrounds where a finer quality rubbed brick was used, mortar joints were very thin. Photo: National Park Service Files.

Pointing Style. Close examination of the historic masonry wall and the techniques used in the original construction will assist in maintaining the visual qualities of the building (Fig. 18). Pointing styles and the methods of producing them should be examined. It is important to look at both the horizontal and the vertical joints to determine the order in which they were tooled and whether they were the same style. Some late-19th and early-20th century buildings, for example, have horizontal joints that were raked back while the vertical joints were finished flush and stained to match the bricks, thus creating the illusion of horizontal bands. Pointing styles may also differ from one facade to another; front walls often received greater attention to mortar detailing than side and rear walls (Fig. 19). **Tuckpointing** is not true repointing but the

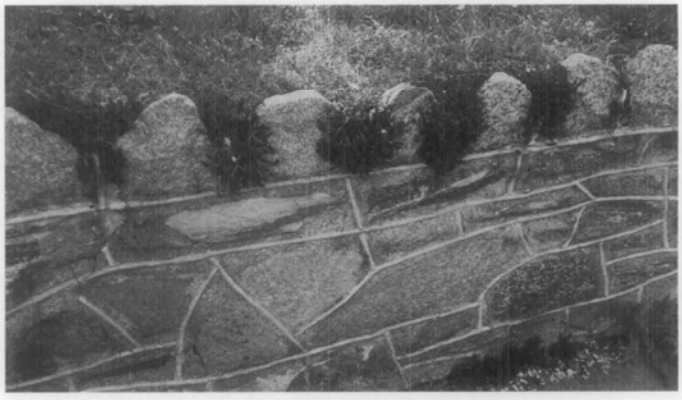
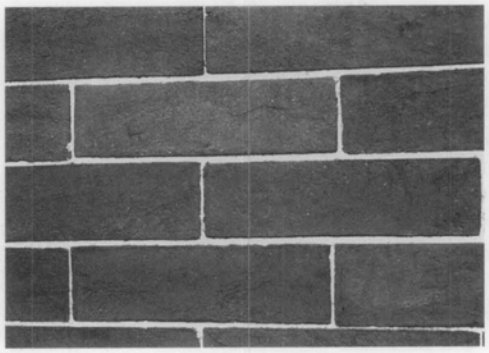


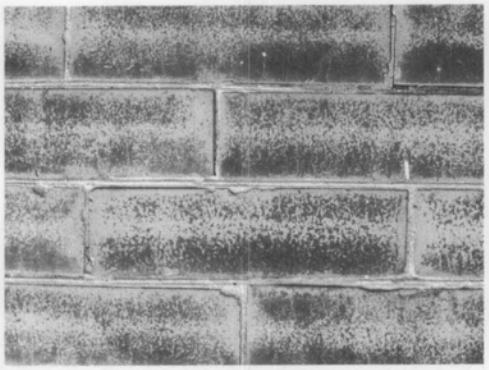
Figure 20. This stone garden wall was tuckpointed to match the tuckpointing on the c. 1920s house on the property. Photo: Anne Grimmer.



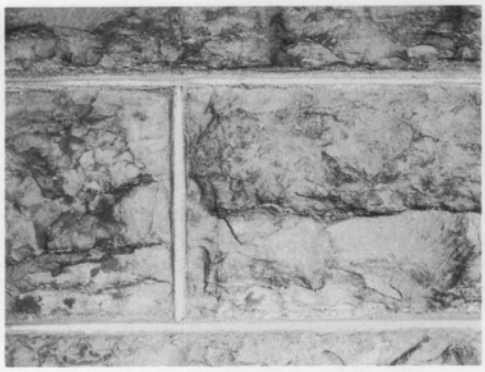
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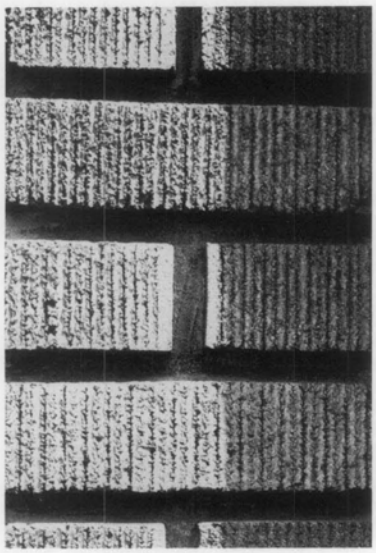
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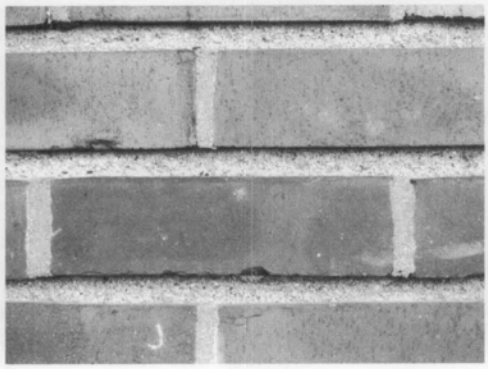
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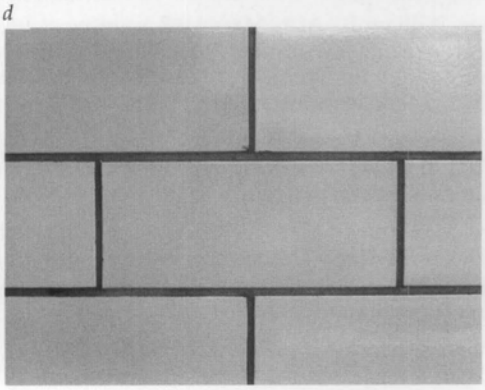
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Figure 18. A cross-section of mortar joint types. (a) Grapevine joints on a mid-18th century brick building; (b) flush joints on a mid-to-late 19th century brick building; (c) beaded joints on a late-19th century brick building; (d) early-20th century beaded joints on rough-cut limestone where the vertical joints were struck prior to the horizontal joints; (e) raked joints on 1920s wire brick; (f) horizontal joints on a 1934 building designed by Frank Lloyd Wright were raked back from the face of the bricks, and the vertical joints were filled with a red-tinted mortar to emphasize the horizontality of the narrow bricks, and struck flush with the face of the bricks; (g) the joints on this 20th century glazed terra-cotta tile building are raked slightly, emphasizing the glazed block face. Photos: National Park Service Files (a,b,e); Robert C. Mack, FAIA (c,d,f,g).

application of a raised joint or lime putty joint on top of flush mortar joints (Fig. 20). **Penciling** is a purely decorative, painted surface treatment over a mortar joint, often in a contrasting color.

Masonry Units. The masonry units should also be examined so that any replacement units will match the historic masonry. Within a wall there may be a wide range of colors, textures, and sizes, particularly with hand-made brick or rough-cut, locally-quarried stone. Replacement units should blend in with the full range of masonry units rather than a single brick or stone.

Matching Color and Texture of the Repointing Mortar

New mortar should match the unweathered interior portions of the historic mortar. The simplest way to check the match is to make a small sample of the proposed mix and allow it to cure at a temperature of approximately 70 degrees F for about a week, or it can be baked in an oven to speed up the curing; this sample is then broken open and the surface is compared with the surface of the largest "saved" sample of historic mortar.

If a proper color match cannot be achieved through the use of natural sand or colored aggregates like crushed marble or brick dust, it may be necessary to use a modern mortar pigment.

During the early stages of the project, it should be determined how closely the new mortar should match the historic mortar. Will "quite close" be sufficient, or is "exactly" expected? The specifications should state this clearly so that the contractor has a reasonable idea how much time and expense will be required to develop an acceptable match.

The same judgment will be necessary in matching replacement terra cotta, stone or brick. If there is a known source for replacements, this should be included in the specifications. If a source cannot be determined prior to the bidding process, the specifications should include an estimated price for the replacement materials with the final price based on the actual cost to the contractor.

Conclusion

A good repointing job is meant to last, at least 30 years, and preferably 50-100 years. Shortcuts and poor craftsmanship result not only in diminishing the historic character of a building, but also in a job that looks bad, and will require future repointing sooner than if the work had been done correctly (Fig. 17). The mortar joint in a historic masonry building has often been called a wall's "first line of defense." Good repointing practices guarantee the long life of the mortar joint, the wall, and the historic structure. Although careful maintenance will help preserve the freshly repointed mortar joints, it is important to remember that mortar joints are intended to be sacrificial and will probably require repointing some time in the future. Nevertheless, if the historic mortar joints proved durable for many years, then careful repointing should have an equally long life, ultimately contributing to the preservation of the entire building.

Selected Reading

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Speweik, John P. "Repointing Right: Why Using Modern Mortar Can Damage a Historic House." *Old-House Journal*. Vol. XXV, No. 4 (July-August 1997), pp. 46-51.

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"Moisture Resistance of Brick Masonry: Maintenance." 7F. February 1986.
"Mortars for Brick Masonry." 8 Revised II. November 1989.
"Standard Specification for Portland Cement-Lime Mortar for Brick Masonry." 8A Revised. September 1988.
"Mortar for Brick Masonry-Selection and Controls." 8B Reissued. September 1988. (July/August 1976).
"Guide Specifications for Brick Masonry, Part V Mortar and Grout."11E Revised. September 1991.
"Bonds and Patterns in Brickwork." 30 Reissued. September 1988.

Useful Addresses

Brick Institute of America
11490 Commerce Park Drive
Reston, VA 22091

Portland Cement Association
5420 Old Orchard Road
Skokie, IL 60077

National Lime Association
200 N. Glebe Road, Suite 800
Arlington, VA 22203

Acknowledgments

Robert C. Mack, FAIA, is a principal in the firm of MacDonald & Mack, Architects, Ltd., an architectural firm that specializes in historic buildings in Minneapolis, Minnesota. **John P. Speweik, CSI**, Toledo, Ohio, is a 5th-generation stonemason, and principal in U.S. Heritage Group, Inc., Chicago, Illinois, which does custom historic mortar matching. **Anne Grimmer**, Senior Architectural Historian, Heritage Preservation Services Program, National Park Service, was responsible for developing and coordinating the revision of this Preservation Brief, incorporating professional comments, and the technical editing.

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The original version of this brief, *Repointing Mortar Joints in Historic Brick Buildings*, was written by Robert C. Mack in 1976, and was revised and updated in 1980 by Robert C. Mack, de Teel Patterson Tiller, and James S. Askins.

This publication has been prepared pursuant to the National Historic Preservation Act of 1966, as amended, which directs the Secretary of the Interior to develop and make available information concerning historic properties. Comments about this publication should be directed to de Teel Patterson Tiller, Chief, Heritage Preservation Services Program, National Park Service, 1849 C Street, N.W. Suite NC200, Washington, D.C. 20240. This publication is not copyrighted and can be reproduced without penalty. Normal procedures for credit to the authors and the National Park Service are appreciated.

Front Cover: Repointing a historic brick building using a lime-based mortar. Traditional lime mortars have a consistency that enables the mortar to cling to a repointing tool while in a vertical position. Photo: John P. Speweik.

ISSN:0885-7016 *October 1998*

ARCHITECTURAL / HISTORICAL SURVEY

DAVENPORT, IOWA

The Architects Office
Wehner, Nowysz, Pattschull and Pfiffner
201 dey building, iowa city, iowa 52240

DAVENPORT COMMUNITY DEVELOPMENT DEPARTMENT
IOWA DIVISION OF HISTORIC PRESERVATION

SITE SHEET

SITE #82-10- MA-1208 MAP # 3

HIST. DIST. College Square

NAME J. Monroe Parker Residence (Ficke) (H) C

ADDRESS 1208 Main Street

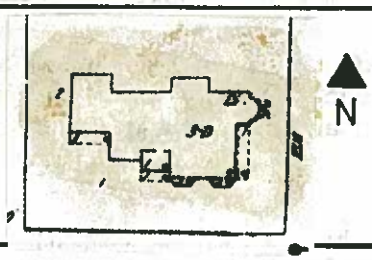
LEGAL DES. Allen's 2nd Add. (SUB-DIVISION) 10 (BLOCK) Lots 1, 2 and 3 (PARCEL) (SUB-PARCEL)

UTM 15 [7|10|2|2|4|0] (EASTING) [4|6|0|0|4|6|0] (NORTHING) ACREAGE 1 ZONE R-6M

OWNER Delta Sigma Chi Fraternity
1208 Main St., Davenport, IA 52803

TITLE H. (IF DIFF.) D.L. Swan & Wife





ARCHITECTURE

DESCRIPTION

FORM 2 stories, irregular plan
CONST. DATE 1881
MATERIALS Stone, brick, wood, cast & wrought iron
ARCH STYLE Second Empire
FENESTRATION Rectangular 1/1 D.H.S. in broad surrounds w/incised heads
DIST. FEATURES Slate mansard w/iron cresting, bracketted cornice w/paneled frieze, 2-story polygonal window bays, columned porches
ALTERATIONS 1 or 2 porch columns missing; converted to fraternity/apartment building
SITE & RELATED STR. Corner lot north of Sheldon Hall & high school

STATEMENT

The Ficke House is perhaps the finest example of Second Empire architecture in Iowa, rivalled only by Terrace Hill in Des Moines. From the extraordinary roofscape - crested, dormered, sheathed in polychrome shingles - to the richly detailed cornices, porches and window surrounds, the Ficke House is the ultimate expression of Victorian excess, beautifully composed and finely-executed.

SOURCES

Davenport Democrat & Leader, 30, May, 1904.
HABS Inventory Form, Iowa Division of Historic Preservation

SIGNIFICANCE

This building is associated with a moderately important local political leader and elected official, C.A. Ficke. As an active German-American politician, his career typified the change from Republican party to Democrat party evidenced in the German electorate between 1860 and 1885. Since City Hall remains extant, the value of this property is diminished.

Architect and contractor for the house was T. W. McClelland and Co., with the slate roof by Victor Huot. The design may possibly be credited to Benjamin W. Gartside, who was architect with the McClelland firm from 1878 until becoming vice-president in 1889.

HISTORY

DESCRIPTION

Charles August Ficke came to Davenport as a child in 1851. He became established as a lawyer in 1877 following reading in H.R. Claussen's office and formal study. A successful attorney, Ficke was also active in real estate and several local banks. In 1880, Ficke changed from Republican to Democrat, over such issues as prohibition and women's suffrage. He was elected County Attorney in 1886 and mayor in 1890 & 91. His second election was the largest majority registered by a major to date. His administration as mayor was marked by improved paving and sewer construction. His career typified the successful professional and business career of many local German-Americans.

SOURCES

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ARCHITECTURAL HISTORIAN: Martha Bowers | HISTORIAN: MARLYS SVENDSEN-ROESLER | SURVEY COMP 1981

EVALUATION

ARCHITECTURAL

I. ARCH. EVALUATION: Exceptional
II. ENVIR. STATURE: Landmark
III. INT. OF CONTEXT: Good
IV. INT. OF FABRIC: Excellent

LEVEL OF SIGNIFICANCE:
☒ NAT. ☐ STATE ☐ LOCAL ☐ N. ELIG.

HISTORICAL

I. THEME(S) OF SIGNIFICANCE
A. PRIMARY: Gov't. & Politics
B. SECONDARY: _____

II. LEVEL OF SIGNIFICANCE
☐ NAT. ☐ STATE ☒ LOCAL

III. N.R.H.P.
ELIGIBLE ☒ NOT ELIGIBLE ☐

HISTORIC DISTRICT CLASSIFICATION

☒ A. ☐ B. ☐ C.

FOR DIVISION OF HISTORIC PRESERVATION USE ONLY

1. DATE RECEIVED: _____
2. DATE OF STAFF EVALUATION: _____

	A. ARCHITECTURAL	B. HISTORICAL
ELIGIBLE FOR N.R.H.P.	☐	☐
NOT ELIGIBLE FOR N.R.H.P.	☐	☐

3. N.R.H.P. ACTION
A. STATE REVIEW COMM. APP. ☐ DISAPP. ☐ TABLED ☐ DATE _____
B. FEDERAL REVIEW APP. ☐ DISAPP. ☐ TABLED ☐ DATE _____

4. D.H.P. SOURCES
☐ COUNTY RESOURCES
☐ W'SHIELD SURVEY
■ N.R.H.P. 11/18/83
☐ GRANT _____
☐ DET. OF ELIGIBILITY
☐ R. & C. _____
■ DAVENPORT A/H SURVEY
☐ _____
☐ _____

5. SUBJECT TRACES

6. PHOTO
1620-2,3,4, & 5

ARCHITECTURAL/HISTORICAL SURVEY

DAVENPORT, IOWA

The Architects Office
Wehner, Nowysz, Pattschull and Pfiffner
201 dey building, iowa city, iowa 52240

DAVENPORT COMMUNITY DEVELOPMENT DEPARTMENT
IOWA DIVISION OF HISTORIC PRESERVATION

CONTINUATION

82-10- MA-1208

ADDITIONAL PHOTOGRAPHS:







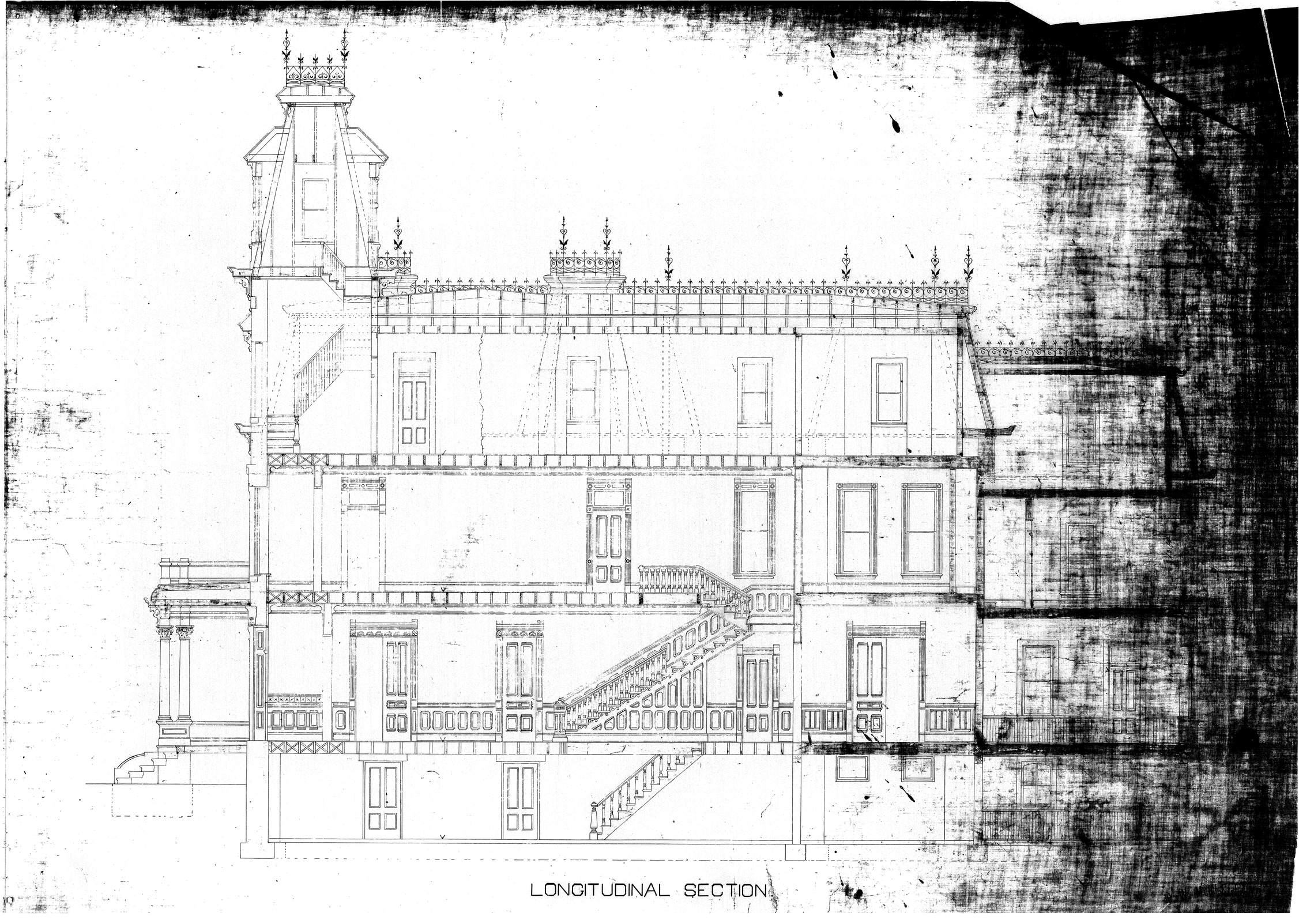


Scale, 1/4 In. = 1 Ft.

FRONT ELEVATION.

OF RESIDENCE FOR J. MONROE PAPKER ESQ.

T. W. McCLELLAND & CO.
ARCHITECTS.



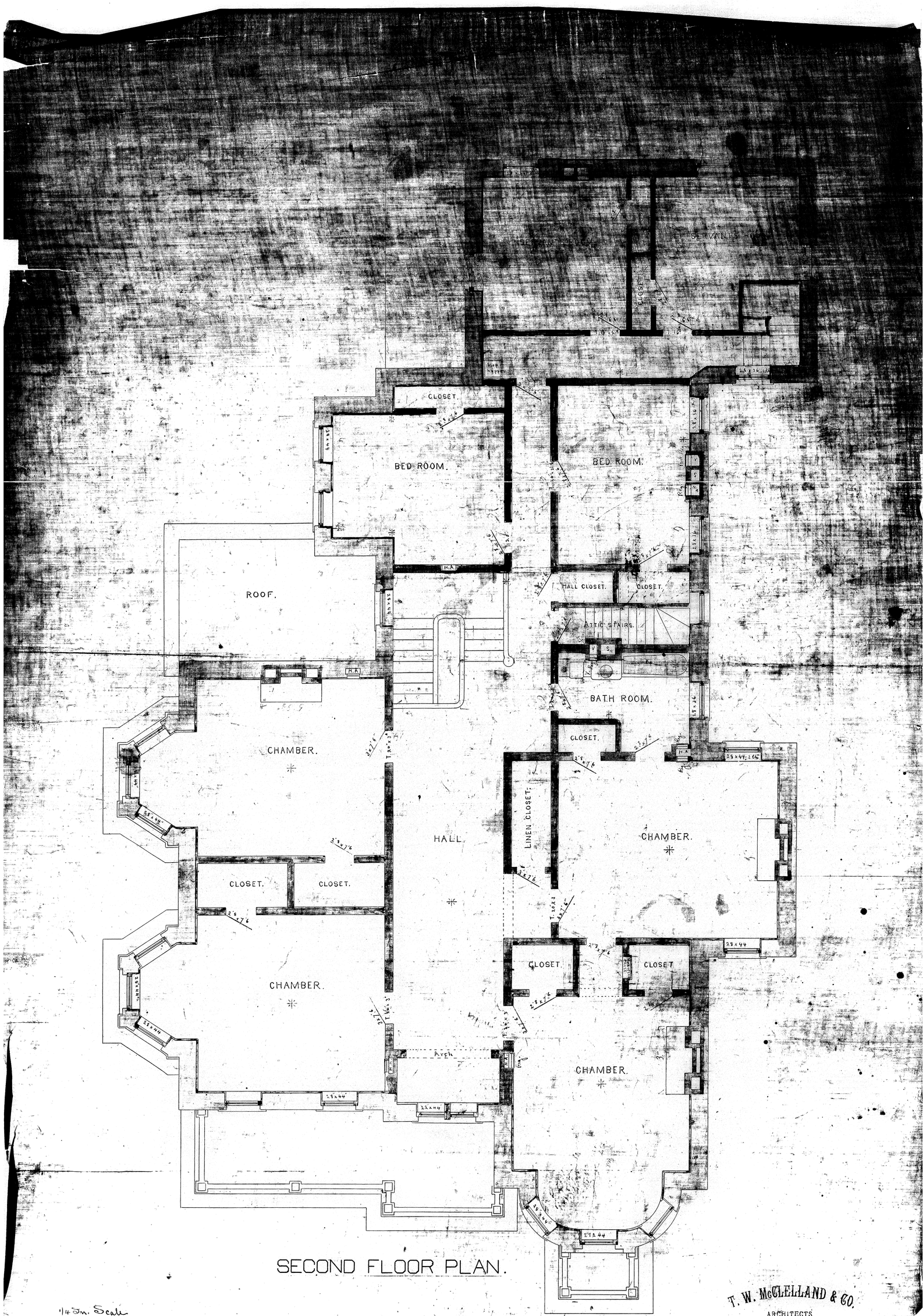
LONGITUDINAL SECTION



SOUTH ELEVATION.

T. W. McCLELLAND & CO.
ARCHITECTS.

ATTIC FLOOR PLAN.



SECOND FLOOR PLAN.

1/4 In. Scale

T. W. McCLELLAND & CO.
ARCHITECTS.

GROUND PLAN

PARLOR

PARLOR

OFFICE

HALL

VESTIBULE

SITTING ROOM

BED ROOM

BATH ROOM

CLOSET

CLOSET

CLOSET

DINING ROOM

PANTRY

City of Davenport
Historic Preservation Commission Work Session

Department: DNS
Contact Info: Matt Werderitch 563.888.2221

Date
5/11/2021

Subject:
Presentation on the Rehabilitation of the Hiller House at 314 Gaines Street.

ATTACHMENTS:

	Type	Description
🗋	Backup Material	Site Inventory Form: Hiller House

REVIEWERS:

Department	Reviewer	Action	Date
Community Planning & Economic Development	Werderitch, Matt	Approved	5/4/2021 - 10:24 AM

National Register 7/7/83

82-01882 82-010-161

ARCHITECTURAL/HISTORICAL SURVEY — DAVENPORT, IOWA

The Architects Office
Wehner, Nowysz, Pottschull and Pfiffner
201 dey building, iowa city, iowa 52240

DAVENPORT COMMUNITY DEVELOPMENT DEPARTMENT
IOWA DIVISION OF HISTORIC PRESERVATION

SITE SHEET

SITE #82-10- HA-309 MAP # 1

HIST. DIST.

NAME Ficke Block H C

ADDRESS 307 & 309 Harrison Street

LEGAL DES. LeClaire's 1st Add. (SUB-DIVISION) 44 (BLOCK) S45' of N 85' of lot 1 (PARCEL) (SUB-PARCEL)

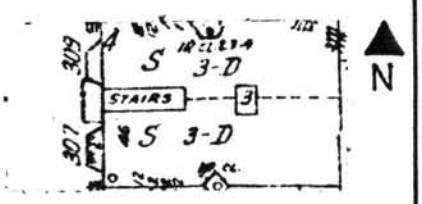
UTM 2 15 (EASTING) 7,0,2,1,9,0 (NORTHING) 4,5,9,9,4,4,0 ACREAGE -1 ZONE C-4

OWNER Norma J. Grothus

Box 623, Bettendorf, IA 52722

TITLE H. (IF DIFF.)





ARCHITECTURE

DESCRIPTION

FORM 4 story commercial block CONST. DATE 1899-1900

MATERIALS Brick, stone pressed metal ARCH STYLE Late commercial Italianate

FENESTRATION Plate glass shopfronts, w/mixed rectangular 4 round arched above

DIST. FEATURES 2-story projecting window bays; iron railings at 2nd & 3rd floors

ALTERATIONS Window sash replaced, storefronts modified somewhat

SITE & RELATED STR. CBD

STATEMENT

This late Victorian commercial block is fairly well preserved and with some paint & repair could make a real contribution to the streetscape. It has several important features; polychrome achieved through brick and stone, the handsome projecting window bays with spandrels decorated with narrow panels inset w/swags, the metal cornice with modillions, brackets and paneled frieze. The shopfronts have not been extensively modernized, and thus do not detract from the overall integrity of the facade.

SOURCES

82-010-161

SIGNIFICANCE

HISTORY

DESCRIPTION

The Ficke Block was erected in 1899-1900 and was first occupied by the McCormick Division of the International Harvesting Company of America. The first floor was used as offices and the upper floors as residential flats.

SOURCES

C[illegible] Directories, 1889, 1890-91, 1898-99, 1900, 1900-01, 1902-03.

ARCHITECTURAL HISTORIAN: Martha Bowers | HISTORIAN: MARLYS SVENDSEN-ROESLER | SURVEY COMP. 1981

EVALUATION

ARCHITECTURAL

I. ARCH. EVALUATION: Good
II. ENVIR. STATURE: Tissue
III. INT. OF CONTEXT: Fair
IV. INT. OF FABRIC: Good

LEVEL OF SIGNIFICANCE:
☐ NAT. ☐ STATE ☒ LOCAL ☐ N. ELIG.

HISTORICAL

I. THEME(S) OF SIGNIFICANCE:
A. PRIMARY _____
B. SECONDARY _____

II. LEVEL OF SIGNIFICANCE:
☐ NAT. ☐ STATE ☐ LOCAL

III. N.R.H.P.
ELIGIBLE ☐ NOT ELIGIBLE ☐

HISTORIC DISTRICT CLASSIFICATION

☐ A ☐ B ☐ C

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1. DATE RECEIVED _____
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ELIGIBLE FOR N.R.H.P.	☐	☐
NOT ELIGIBLE FOR N.R.H.P.	☐	☐

3. N.R.H.P. ACTION
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B. FEDERAL REVIEW APP. ☐ DISAPP. ☐ TABLED ☐ DATE _____

4. D.H.P. SOURCES
☐ COUNTY RESOURCES
☐ W'SHIELD SURVEY
☐ N.R.H.P.
☐ GRANT _____
☐ DET. OF ELIGIBILITY
☐ R. & C. _____
■ DAVENPORT A/H SURVEY
☐ _____
☐ _____

5. SUBJECT TRACES
_____
_____
_____
_____

6. PHOTO
1610-7

IOWA, Scott County, Davenport, Claussen, William, House (Davenport MRA), 2215 W. 2nd St. (07/07/83)
IOWA, Scott County, Davenport, Clifton-Metropolitan Hotel (Davenport MRA), 130 W. River Dr. (07/07/83)
IOWA, Scott County, Davenport, Cook, Clarissa, Home for the Friendless (Davenport MRA), 2223 W. 1st St. (07/07/83)
IOWA, Scott County, Davenport, Cottage at 1514 and 1516 W. Second Street (Davenport MRA), 1514—1516 W. 2nd St. (07/07/83)
IOWA, Scott County, Davenport, Currier House (Davenport MRA), 1421 Grand Ave. (07/07/83)
IOWA, Scott County, Davenport, Davenport Hotel (Davenport MRA), 324 Main St. (07/07/83)
IOWA, Scott County, Davenport, Democrat Building (Davenport MRA), 407—411 Brady St. (07/07/83)
IOWA, Scott County, Davenport, Dillon Memorial (Davenport MRA), S. Main St. (07/07/83)
IOWA, Scott County, Davenport, Dils-Downer House (Davenport MRA), 1020 E. 15th St. (07/07/83)
IOWA, Scott County, Davenport, Donahue Building (Davenport MRA), 114 W. 3rd St. (07/07/83)
IOWA, Scott County, Davenport, Ewert, Ferdinand, Building (Davenport MRA), 1107 W. 2nd St. (07/07/83)
IOWA, Scott County, Davenport, Ferner, Matthias, Building (Davenport MRA), 212 Main St. (07/07/83)
IOWA, Scott County, Davenport, Ficke Block (Davenport MRA), 307—309 Harrison St. (07/07/83)
IOWA, Scott County, Davenport, Finch, Fred, House (Davenport MRA), 719 Main St. (07/07/83)
IOWA, Scott County, Davenport, First Bible Missionary Church (Davenport MRA), 2202 W. 4th St. (07/07/83)
IOWA, Scott County, Davenport, First National Bank Building (Davenport MRA), 201 W. 2nd. St. (07/07/83)
IOWA, Scott County, Davenport, First Presbyterian Church (Davenport MRA), 316 E. Kirkwood Blvd. (07/07/83)
IOWA, Scott County, Davenport, Fisher, Lewis M., House (Davenport MRA), 1003 Arlington Ave., (07/07/83)
IOWA, Scott County, Davenport, French, Alice, House (Davenport MRA), 321 E. 10th St. (07/07/83)
IOWA, Scott County, Davenport, Gabbert, William, House (Davenport MRA), 1210 Tremont St. (07/07/83)
IOWA, Scott County, Davenport, Gannon, M.V., House (Davenport MRA), 631 Farnham St. (07/07/83)
IOWA, Scott County, Davenport, Gaspard, D. Julius, House (Davenport MRA), 510 W. 10 1/2 St. (07/07/83)
IOWA, Scott County, Davenport, Germania-Miller/Standard Hotel (Davenport MRA), 712 W. 2nd St. (07/07/83)
IOWA, Scott County, Davenport, Glaspell, Isaac, House (Davenport MRA), 621 LeClaire St. (07/07/83)
IOWA, Scott County, Davenport, Goering, Jacob, House (Davenport MRA), 721 Harrison St. (07/07/83)
IOWA, Scott County, Davenport, Goodrich, William T., House (Davenport MRA), 1156 E. 15th St. (07/07/83)
IOWA, Scott County, Davenport, Hauschild's Hall (Davenport MRA), 1136 W. 3rd St. (07/07/83)
IOWA, Scott County, Davenport, Hebert, Louis, House (Davenport MRA), 914 Farnan St. (07/07/83)
IOWA, Scott County, Davenport, Heinz, Bonaventura, House (second) (Davenport MRA), 1130 W. 5th St. (07/07/83)
IOWA, Scott County, Davenport, Henne, Robert, House (Davenport MRA), 1445 W. 3rd St. (07/07/83)
IOWA, Scott County, Davenport, Hibernia Hall (Davenport MRA), 421 Brady St. (07/07/83)
IOWA, Scott County, Davenport, Hoffman Building (Davenport MRA), 510 W. 2nd St. (07/07/83)
IOWA, Scott County, Davenport, Hoffman, Samuel, Jr., House (Davenport MRA), 2108 W. 3rd St. (07/07/83)
IOWA, Scott County, Davenport, Hose Station No. 1 (Davenport MRA), 117 Perry St. (07/07/83)
IOWA, Scott County, Davenport, Hose Station No. 6 (Davenport MRA), 1410 Marquette St. (07/07/83)
IOWA, Scott County, Davenport, Hose Station No. 7 (Davenport MRA), 1354 W. 4th St. (07/07/83)
IOWA, Scott County, Davenport, House at 1646 W. Second Street (Davenport MRA), 1646 W. 2nd St. (07/07/83)
IOWA, Scott County, Davenport, House at 2123 W. Second Street (Davenport MRA), 2123 W. 2nd St.


KENNEDY

INDIVIDUAL NOMINATIONS, DAVENPORT MULTIPLE RESOURCE NOMINATION

MAP NUMBER TWO

Address	Easting	Northing	Key Reference
201 W. 2nd	702,300	4,599,240	A
506-8 "	701,880	4,599,260	B
2215 "	702,330	4,599,130	C
203 W. 3rd	702,270	4,599,350	D
1119-21 "	701,110	4,599,320	E
1353 "	700,760	4,599,300	F
1531 "	700,450	4,599,300	G
2122 "	699,430	4,599,310	H
2204-10 "	699,220	4,599,300	I
2318 "	699,100	4,599,300	J
1130 W. 5th	701,060	4,599,620	K
1235 "	700,920	4,599,560	L
2143-7 "	699,360	4,599,500	M
414 E. 6th	702,840	4,599,800	N
512 "	702,950	4,599,800	O
700 "	703,220	4,599,870	P
1226 W. 6th	700,940	4,599,720	Q
406 E. 10th	702,800	4,600,260	R
407-11 Brady	702,000	4,599,240	S
514 "	702,400	4,599,700	T
732 "	702,380	4,599,960	U
1325 "	702,420	4,600,640	V
631 Franklin	703,040	4,599,870	W
728 "	703,000	4,599,980	X
909 "	703,040	4,600,130	Y
519 Fillmore	700,770	4,599,640	Z
307-9 Harrison	702,190	4,599,640	AA
602 "	702,130	4,599,760	BB
407 Main	702,330	4,599,540	CC
529 "	702,310	4,599,730	DD
309 Perry	702,560	4,599,420	EE
122-4 W. River Drive	702,340	4,599,170	FF


INDIVIDUAL NOMINATION UTM'S
DAVENPORT MULTIPLE RESOURCE NOMINATION
MAP NUMBER TWO
DAVENPORT
Adams School
Newcomb Memorial Church
Isolation Hospital
Tower
Mercy Hosp
Sacred Heart Cemetery
St Vincents Sch
Calvary Church
Calvary Chapel
St Ambrose College
Holy Family Church
Holy Family School
Trinity Church
Jefferson School
St Anthonys Church
Immaculate Conception Academy
St Anthonys School
St Marys Church and School
St Joseph Church and School
St Anthonys Church and School
St Marys Cemetery
US Naval Reserve Training Center
Berea Church
Monroe School
Cedar Memorial Church
St Mark Church
Pine Knoll Sanitorium
Holy Family Cemetery
Drive-in theatre
Mississippi Valley Fair Grounds
Fejervary Park
Madison School
First Presbyterian Church
Washington School
Grand Avenue Church
Antoine LeClair
Boni Ameth
Sacred Heart School
Sacred Heart Cathedral
Temple Emanuel
Prospect Park
Lindsay Park
Calvary Church
Grand Church
Nicolin School
City Hall
Court House
Post Office
Public Library
Salvation Army
Full Gospel Tabernacle
Parking area
Antoine LeClair Park
Ball park
Lock and Dam No 15
Centennial Bridge
Government Bridge
City Cemetery
Sewage Disposal
Water
Gas
St Alphonsus Church and School
Court house
Post Office
City Hall
St Marys School
Water
IOWA
ILLINOIS
MISSISSIPPI
SYLVAN SLOUGH
ROCK ISLAND
SCOTT
COUNTY
COUNTY
T 78 N
T 77 N
T 78 N (Trol)
T 18 N
R 3 E
R 2 W
R3E R4E
R2W R1W
NORMAL POOL ELEVATION 545
MIL RES CITY BDY
CHICAGO MILWAUKEE ST PAUL AND PACIFIC
ROCK ISLAND AND PACIFIC
RIVER
ROAD
STREET
AVE
BM 582
BM 577
BM 567
Mile 481

City of Davenport
Historic Preservation Commission Work Session

Department: DNS
Contact Info: Matt Werderitch 563.888.2221

Date
5/11/2021

Subject:
Pending Items

REVIEWERS:

Department	Reviewer	Action	Date
Community Planning & Economic Development	Werderitch, Matt	Approved	5/4/2021 - 9:13 AM

City of Davenport
Historic Preservation Commission Work Session

Department: DNS
Contact Info: Matt Werderitch 563.888.2221

Date
5/11/2021

Subject:
Commission Training and Education

Background:
The purpose of this work session is to review the City of Davenport's Historic Preservation Ordinance.

The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings will be reviewed during the June 8, 2021 Work Session.

ATTACHMENTS:

	Type	Description
🗋	Backup Material	Title 14-Historic Preservation Ordinance

REVIEWERS:

Department	Reviewer	Action	Date
Community Planning & Economic Development	Werderitch, Matt	Approved	5/4/2021 - 9:20 AM

Title 14

HISTORIC PRESERVATION

Chapter 14.01
HISTORIC PRESERVATION

14.01.010. Short title. [Ord. No. 2019-02 § 4]

This chapter shall be known as the "Historic Preservation Ordinance" of the City of Davenport, Iowa.

14.01.020. Purpose. [Ord. No. 2019-02 § 4]

The purpose of this chapter is to promote the educational, cultural, aesthetic, economic and general welfare of the City of Davenport by:

A. Providing a mechanism for the community to identify, protect and enjoy the distinctive historical and architectural characteristics of Davenport which represent a visual legacy of the City's cultural, social, economic, political and architectural heritage; and

B. Fostering civic pride, through public education, by formally recognizing and honoring the notable accomplishments of past citizens as represented in the City's historic structures, sites, objects and districts; and

C. Stabilizing and/or increasing property values by encouraging the conservation, through sympathetic rehabilitation and/or reuse, of historically or architecturally significant properties; and

D. Preserving and enhancing the City's attractiveness to potential home buyers, tourists, businesses wanting to relocate and other visitors, thereby supporting and promoting commercial development and economic benefit to the City's economy; and lastly,

E. Encouraging the stabilization, rehabilitation and conservation of the existing building stock, including the prevention of needless demolition of structurally-sound buildings, in order to strengthen the City's neighborhoods and to prevent future urban blight.

14.01.030. Definitions. [Ord. No. 2019-02 § 4]

A. ALTERATION – Means any activity requiring a building, sign or demolition permit which materially or visually changes the exterior architectural features, elements and appearance of a structure. This includes, but is not limited to, construction, reconstruction, rehabilitation, relocation and demolition, in whole or in part.

B. APPURTENANT FIXTURE – Means something that belongs to or is attached to something else, either physically or legally.

C. ARCHITECTURAL FEATURE – Means and includes the exterior elements of a structure or site and their arrangement which define a particular architectural style, character and/or uniqueness. These elements include, but are not limited to, the following: facade materials,

windows, doors, mill-work, roof-cresting, fences, gates, light fixtures, signs, and all other appurtenant fixtures.

D. ARCHITECTURAL SIGNIFICANCE – Means a structure possessing any of the following characteristics is said to have architectural significance:

1. The structure is the work of or is associated with a noted architect, builder, craftsman or architectural firm; and/or

2. The structure is an exceptional example of a particular architectural design or style (whether local or typical) in terms of detail, material and workmanship; and/or

3. The structure is one of the few remaining examples of a particular use or is an example which does not clearly represent a major style but has a high degree of integrity, as defined herein; and/or

4. The structure is one of a contiguous grouping that provide a sense of cohesiveness expressed through a similarity of design, style, time period or method of construction and adding to the unique character of the area; and/or

5. The detail, material and workmanship can be valued in and of themselves as reflective of or similar to those of the majority of the other visual elements in the area.

E. BUILDING – Means a structure created to shelter any form of human activity, such as a house, garage (or carriage house), warehouse, factory, barn, church, hotel or similar structure. Buildings may refer to a historically-related grouping of structures such as a courthouse and jail or a house and barn. This term is a subset of "structure" as defined in this section.

F. CERTIFICATE OF APPROPRIATENESS – Means a document issued by the local historic preservation commission indicating its approval of work plans prior to a proposed change in the exterior architectural appearance, material or character of a designated landmark or a structure located within a designated historic district through alteration, rehabilitation, restoration, construction and reconstruction. It shall be required only for activities covered by the building and sign permit procedure.

G. CERTIFICATE OF ECONOMIC HARDSHIP – Means a certificate issued by the historic preservation commission, or by the City Council upon appeal, based on financial and economic criteria, authorizing the demolition, in whole or in part, of a designated structure.

H. CERTIFICATE OF PUBLIC HAZARD – Means a certificate issued by the historic preservation commission for the partial or complete demolition of a structure because it poses an immediate, definite and serious threat to the life, health and safety of the general public.

I. COMPATIBLE – Means to coexist with harmony and consistency.

J. CONSTRUCTION – Means building activity which physically attaches new floor space, walls and/or ceiling(s) to an existing structure or erects a new principal or accessory structure on a parcel of land.

K. DEMOLITION – Means any act requiring a building or demolition permit which removes or destroys, in whole or in part, any exterior architectural feature of a local landmark or a structure within a designated historic district.

L. DESIGN CRITERIA – Means a standard of appropriate and permissible work that will retain and preserve the architectural and historic character of a designated structure and/or district.

M. DESIGNATED – Means the status officially assigned to a structure or district by the City Council, based on a recommendation of the historic preservation commission, due to its architectural and/or historical significance, as defined herein.

N. DESIGNATED PROPERTY – Means the short term for a designated landmark, a designated district or a structure located within a designated district.

O. DISTRICT – Means an area of historical significance designated by ordinance of the City Council, as provided in Chapter 303.34 of the Iowa State Code.

P. EXTERIOR ARCHITECTURAL APPEARANCE – Means and includes the architectural treatment and general arrangement of all exterior elements of a structure. This includes, but is not limited to, the color, texture and kind of materials, and the type and size of all windows, doors, roof details, light fixtures, signs and appurtenant fixtures.

Q. HISTORICAL SIGNIFICANCE – Means structures or districts which possess any of the following traits are said to have historical significance:

1. Are significant in American history, architecture, archaeology and culture; and/or

2. Possess integrity of location, design, setting, materials, skill, feeling and association; and/or

3. Are associated with events that have been a significant contribution to the broad patterns of our history; or

4. Are associated with the lives of persons significant in our past; or

5. Embody the distinctive characteristics of a type, period, method of construction, represent the work of a master, possess high artistic values, represent a significant and distinguishable entity whose components may lack individual distinction; and

6. Have yielded, or may be likely to yield, information important in prehistory and history.

R. IMPROVEMENT – Means any structure, object, parking facility, fence, gate, wall, walkway, work of art, landscape feature or other item constituting a physical betterment of real property.

S. IMPROVEMENT PARCEL – Means the unit of land, which may contain an improvement as defined in this section and which is treated as a single entity for the purpose of levying real estate taxes.

T. INFILL DEVELOPMENT – Means new construction and/or other physical improvement of vacant land within a designated historic district.

U. INTEGRITY TAKEN AS A WHOLE, – Means the degree in which a structure, site, object or district retains its original design, materials, configuration or character.

V. LOCAL LANDMARK – Means a structure or district identified by the historic preservation commission and designated by the City Council as satisfying the criteria as architecturally and/or historically significant, as defined herein. Structures and districts officially receiving local landmark status shall hereby be regulated by this chapter and shall be listed on the "Davenport Register of Historic Properties".

W. LOCAL REGISTER – Means the short term for the Davenport Register of Historic Properties.

X. NOMINATED PROPERTY – Means a structure and/or district that is officially before the historic preservation commission and the City Council for review of eligibility for designation.

Y. NUISANCE – Means a building or structure found to be in substantial violation of City building, fire and/or housing codes.

Z. OWNER(S) OF RECORD – Means the person(s), corporation or other legal entity listed as owner(s) of real property for taxation purposes in the records of the Scott County, Iowa, Recorder of Deeds.

AA. REHABILITATION – Means the act of returning a property to a state of utility which makes possible a contemporary use while preserving those portions or features of the property which are significant to its historical, architectural and cultural values. Re-habilitation activities require a building permit.

BB. RELOCATION – Means the removing of a structure, in whole or in part, from its original site to be situated or reconstructed on another site.

CC. REPAIR – Means any maintenance of a structure that does not require a building permit.

DD. REPLACEMENT-IN-KIND – Means the act of replacing an architectural feature of a designated structure so as not to alter its visual appearance and character. This is accomplished by using replacement materials that replicate the previous historic feature in design, size, texture and visual appearance.

EE. RESTORATION – Means the act or process of accurately recovering the form and details, using documentary evidence, of a structure and/or a district and its setting, as it appeared at a particular period of time, by means of the removal of later work, repair or by replacement-in-kind of missing historic architectural features.

FF. SCALE IN A STRUCTURE – Is the relationship of vertical, horizontal and depth dimensions. With a district, it is the comparative relationship of the massing of the buildings, open spaces and landscape features.

GG. STRUCTURE – Means anything constructed or erected, the use of which requires permanent or temporary location on or in the ground, including but not limited to: buildings, fences, bridges, gazebos, fountains, statuary, advertising signs, billboards, backstops for tennis courts, radio and television antennas (including supporting towers and satellite dishes) and swimming pools.

14.01.040. Commission designation process. [Ord. No. 2019-02 § 4]

A. Application process. The legal owner(s) of record or the commission, may nominate a single structure for designation as a local landmark or an area as a historic district. Upon application, the commission secretary shall inform the applicant of the information needed by the commission to adequately consider the nomination.

To nominate a district for designation by the legal owners of record, a petition requesting nomination must be signed and submitted by the owners of record representing at least 51% of the total area of the proposed district, excluding public rights-of-way. After the names on the petition are verified as legal real property owners within the proposed district, the commission secretary shall notify the applicant(s) that the nomination process may continue. A copy of the petition shall also be submitted to the State Historical Society of Iowa for its review and recommendation.

B. Designation criteria. The commission shall, after such investigation as it deems necessary, make a recommendation to the City Council as to whether a nominated structure or district qualifies for the local register. To qualify, a property must satisfy one or more of the following criteria:

1. It is associated with events or persons that have made a significant contribution to the broad patterns of the history of the City, county, state and/or the nation; and/or

2. It embodies the distinctive characteristics of an architectural style valuable for the study of a type, period or method of construction; and/or

3. It represents the work of a master builder, craftsman, architect, engineer or landscape architect or possesses high artistic values.

C. Notification of nomination. Upon receipt of a properly completed application for designation, the commission shall place the nomination on the agenda within 60 calendar days. A notice shall be placed in a newspaper of general circulation not less than four nor more than 20 calendar days prior to the scheduled meeting stating the commission's intent to consider an application for designation. It shall contain, at the minimum, the nominated property's address, legal description and the date, time and location of the public meeting. If a district is nominated, in addition to the published public notice, a letter explaining the proposed designation shall be sent by regular mail to the owner(s) of record of real property within the proposed historic district. The commission's meeting agenda shall also be posted on the first floor City hall bulletin board used for such purposes no less than one business day prior to the scheduled time of the meeting.

D. Designation - public meeting. Upon submittal of a complete application, the commission shall conduct a public meeting to consider the designation of the nominated structure and/or district. Any interested person, group of persons or organization may submit oral and/or written testimony concerning the significance of the nominated property. The commission may also consider staff reports, and request and/or hear expert testimony.

E. Burden of documentation. The nominator(s) shall have the burden of proof to provide sufficient evidence and documentation that the nominated structure and/or district is worthy of local landmark status.

F. Recommendation by the commission. To recommend the designation of local landmarks or historic districts, the commission must pass by a simple majority vote of the members present, a vote in the affirmative. In the case of a proposed historic district, when owners of more than 33 1/3% of the proposed district's area, excluding public rights-of-way and other publicly-owned property, state their disapproval in writing on an owner comment on designation form before or during the commission's first public meeting conducted to formally consider the nomination, a super-majority vote of three-fourths of the commission members present shall be required to recommend designation as a local historic district.

The commission's recommendation for approval of the designation shall be forwarded to the City Council for final review and consideration. If the commission determines that the nominated property does not satisfy the criteria for designation, the nomination process shall cease. However, a property denied designation as part of a proposed historic

district may seek individual local landmark status at any time following the commission's or City Council's first denial. An individual structure denied designation as a local landmark may be considered for the Local Register as part of a nominated historic district at any time following its initial denial.

G. Documentation of recommendation. All commission recommendations shall be adopted by vote in a public meeting and shall be accompanied by a report stating the following information:

1. A map showing the location of the nominated structure and/or the boundaries of the proposed district; and

2. An explanation of the architectural and/or historical significance of the nominated structure and/or district as it relates to the designation criteria listed in Section 17.23.060B; and

3. An inventory of the significant exterior architectural features and property improvements that should be protected from inappropriate alterations; and

4. In the case of a designated district, a brief statement of the architectural and/or historical significance and character unique to the neighborhood that should be preserved for future generations. This statement may include design guidelines for new construction or infill development, signage, parking regulations and streetscape design or any other development issues affecting the physical appearance and use of the district.

H. Interim permit process. No building, sign or demolition permit for exterior work shall be issued for the alteration, construction, reconstruction, relocation or demolition of a nominated local landmark or for a property located within a nominated historic district from the date of filing an application for nomination with the commission until final disposition of said nomination by the commission and/or City Council. The commission shall, however, establish and exercise procedures allowing for the review and approval of emergency repairs during this process. In no event shall this limitation on permits apply for more than 120 calendar days without permission of the owner(s) of record of the property.

I. Nonapplicability. This section nor this chapter is in no way intended to and shall not prevent the demolition of a structure or object that the City housing, building, fire or legal department or the City Council had identified as being an immediate threat to the life, health and safety of the general public pursuant to the Uniform Housing Code, is a fire hazard pursuant to Uniform Fire Code or is a nuisance under state or City law.

This section or this chapter shall have no effect on and shall not prevent demolition of any building already documented as being in substantial

violation of the City's building, fire and/or housing codes before the date this chapter is adopted.

14.01.050. Designation by City Council. [Ord. No. 2019-02 § 4]

A. Action by City Council. The City Council may vote to approve with modifications or deny the ordinance for a proposed landmark or historic district designation. If the City Council denies local landmark status for the property and/or district, the same nominated property(s) may not be reconsidered by the commission for designation during the twenty-four-month period following the date of denial by the City Council, except pursuant to the exceptions stated in Section 14.01.040G.

B. Notification of decision. The commission secretary shall notify the nominator(s) by regular mail, of the City Council's determination. The notification letter shall be postmarked no later than 15 business days after the date of the City Council's ruling on said designation. If the property is designated, the commission shall pay for and cause said designation to be recorded on the property's chain of title by the Scott County, Iowa Recorder of Deeds.

C. Amendments or rescissions. The designation of any landmark or historic district may be amended or rescinded through the same procedure utilized for the original designation.

14.01.060. Certificate of appropriateness review process. [Ord. No. 2019-02 § 4]

A. Application for certificate of appropriateness. Upon application for a building or sign permit that involves a designated property, the office of construction code enforcement shall direct the applicant to the commission secretary to begin the certificate of appropriateness application process. A certificate of appropriateness must be obtained from the commission for any activity requiring a building or sign permit, except demolition, that would change the exterior architectural appearance of a structure designated as a local landmark or a structure located within a designated historic district. The activities covered shall include new construction, exterior alterations, relocations, reconstructions and infill development within designated historic districts. This approval must be obtained prior to the commencement of work and does not relieve the applicant from obtaining the other approvals required by the City.

B. Notification about application. The commission secretary shall inform the owner(s) of record of the date, time and location of the commission meeting at which the application will be considered. The commission secretary shall also post the commission's agenda on the first floor City hall bulletin board used for such purposes no less than one business day prior to the scheduled time of the meeting.

C. Commission review process - Standards for review. In considering an application for a certificate of appropriateness, the commission shall be guided by the following general standards in addition to any other standards or guidelines established by ordinance for a local landmark or historic district. In all cases, these standards are to be applied in a reasonable manner, taking into full consideration the issue of economic feasibility and other technical considerations.

1. Every reasonable effort shall be made to make the minimal number of changes necessary to maintain a designated property in a good state of repair, thereby minimizing the impact of the proposed alteration; and

2. The removal, alteration or concealing of distinguishing exterior architectural features and historic material of a designated property should be avoided when possible; and

3. All designated property shall be recognized as a product and physical record of its time, place and use. Changes that create a false sense of historical development, such as adding conjectural architectural features shall be discouraged; and

4. Most properties change over time, and those changes that have acquired architectural and/or historical significance in their own right shall be recognized, respected and retained; and

5. Distinctive architectural features, construction techniques and/or examples of craftsmanship that characterize a designated property shall be treated with due consideration; and

6. Deteriorated architectural features should, where possible, be repaired rather than replaced. Where the severity of deterioration requires replacement, 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; and

7. Activities that cause deterioration of a designated property and its architectural features shall be discouraged. In those cases where the damage would be irreversible, such as sand-blasting and wetblasting fire-hardened bricks, the activities shall be prohibited. If cleaning is to be done, the gentlest means possible shall be encouraged; and

8. Known significant archeological resources possibly affected by a proposed activity shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken; and

9. New additions and related new construction shall not be discouraged when such improvements do not destroy historic material and such design is compatible with the size, massing,

scale, color, materials and character of the property, neighborhood and district, if applicable.

D. Design criteria to implement review standards. When the commission is considering an application for a certificate of appropriateness, it shall consider the following architectural design criteria, or elements of design as they relate to the standards for review prescribed in Section 14.01.040C.

1. Height. The height of any proposed addition, construction or reconstruction should be compatible with the designated property and the surrounding structures, if located within a designated historic district; and

2. Proportions. The proportions (width versus height relationship) between doors and windows should be compatible, if not replicated, with the architectural design and character of the designated property; and

3. Scale. A proposed alteration, construction, reconstruction or addition should not negatively impact the scale of the designated property or district; and

4. Materials. Historic or original architectural features, or replacement elements which in all ways replicated the original, should be repaired whenever possible; and

5. Relationship of building masses and spaces. The relationship of a structure within a designated historic district to the rear, side and front yards between it and surrounding structures should be compatible; and

6. Roof shape. The roof design and shape should remain consistent with its original configuration and character; and

7. Site improvements. Landscaping and other site improvements, including off-street parking, should have as minimal of an impact as possible to the designated property's original plan/layout and its visual character.

E. Determination by the commission. The commission shall review a completed application for a certificate of appropriateness within 60 calendar days to determine if the proposed activity will change any exterior architectural features of the designated property. The commission shall accept, review and request additional evidence and testimony from the applicant during the public hearing. The commission shall work closely with the applicant and recognize the importance of finding an appropriate way to meet the current needs of the applicant. In addition, the commission shall recognize the importance of approving plans that will be reasonable for the applicant to carry out. The applicant may modify his/her plans as a result of the discussions with the commission and resubmit them for approval. If the

commission finds, by a simple majority, that the proposed activity conforms to the standards for review, as defined herein, then a certificate of appropriateness shall be issued approving said activity. If the commission fails to decide on an application within the specified time period, the application shall be deemed approved. If the commission denies the certificate of appropriateness, the applicant shall have the right of appeal to the City Council pursuant to Section 14.01.040I.

F. Notification of determination. The commission secretary shall notify the owner(s) of record within 15 business days of the commission's action. If the commission denies the certificate of appropriateness, the notification letter shall contain the reasons for denial and inform the applicant of his/her right to appeal.

The commission secretary shall also notify the office of construction code enforcement within three business days of the commission's action. If the commission issues the certificate of appropriateness, the commission secretary shall inform the chief building official of said approval and that the proposed work satisfies the intent of this chapter. However, if the commission denies the certificate of appropriateness, the commission secretary shall ask that the building or sign permit not be issued for said work unless an appeal to the City Council results in a reversal of the commission's denial.

G. Appeal of commission determination. The owner(s) of record may appeal the commission's decision to the City Council by filing a written appeal with the City Clerk's office within 30 calendar days of the postmark date of the notification of determination.

If no written appeals are submitted with the City Clerk's office within 30 calendar days, the commission's determination shall be the final action by the City.

H. Appeal fee. A fee of $75 shall be paid by the petitioner at the time of filing a written appeal to said determination with the City Clerk.

I. Appeal criteria. The City Council, after hearing all of the evidence, shall review the commission's decision and base its ruling on the following criteria:

1. Whether the commission has exercised its powers and followed the guidelines established by law and ordinance; and

2. Whether the commission's actions were patently arbitrary and capricious.

J. Appeal — Public meeting. The City Council shall, by simple majority of the members present, approve or disapprove the issuance of the certificate of appropriateness based upon the appeal criteria described in Section 14.01.040I.

14.01.070. Commission's demolition review process. [Ord. No. 2019-02 § 4]

The demolition of a designated local landmark or a property within a designated historic district shall be prohibited unless, upon application for and approval of, the commission issues a certificate of economic hardship allowing said demolition. The owner(s) of record or the City may apply for a demolition permit for designated properties.

A. Demolition application process. Demolition applications shall be made to the office of construction code enforcement. The office of construction code enforcement shall forward all demolition permit requests for local landmarks and properties within designated historic districts to the commission secretary within two business days of their receipt. No demolition permits shall be issued for local landmarks or properties within designated historic districts prior to the commission, or the City Council upon appeal, issuing a certificate of economic hardship, excluding the circumstances described in Section 14.01.090 of this chapter.

B. Criteria for demolition request. The commission shall request and receive from the applicant all information it deems necessary to adequately consider the demolition of a designated property. This may include, but is not limited to, the following:

1. A report from a licensed engineer or architect with experience in rehabilitation as to the structural soundness of the building(s) on the property, their suitability for rehabilitation, and possible new uses for the property; and

2. The assessed value of the land and improvements thereon according to the two most recent assessments; and

3. The real estate taxes paid during the previous two years; and

4. All appraisals obtained by the owner or applicant in connection with his purchase, financing or ownership of the property; and

5. Any listing of the property for sale or rent, price asked and offers received, if any; and

6. All building, fire and housing code violations which have been listed on the property for the past two years; and

7. Any federal, state or local citation(s) which have determined the building to be a nuisance under applicable law; and

8. Estimated market value of the property after completion of the proposed demolition and after renovation of the existing property for reuse; and

9. If the property is income-producing;

a. Annual gross income from the property for the previous two years; and

b. Itemized operating and maintenance expenses for the previous two years; and

c. Annual cash flow, if any, for the previous two years; and

d. Proof that efforts have been made by the owner to obtain a reasonable return on his investment.

C. Notification of proposed demolition. The commission agenda shall be posted on the first floor City hall bulletin board used for such purposes no less than one business day prior to the scheduled time of the meeting and shall serve as notice to the general public of the pending meeting.

D. Commission review process. The commission shall review all the evidence and information submitted by the applicant and receive testimony from other interested parties. If the commission finds that the building substantially violates the City building, fire and/or housing codes or the property owner cannot obtain a reasonable economic return therefrom, then the commission shall issue the demolition permit. The commission shall act on each application within 60 days after the receipt of a complete application.

E. Notification of determination. The commission secretary shall notify the owner(s) of record by regular mail within 15 business days of the commission's decision. The office of construction code enforcement shall be notified within two business days of the commission's action. If the certificate of economic hardship is issued, the commission secretary shall inform the chief building official of said approval. If the certificate of economic hardship is denied, the chief building official shall be instructed to withhold the demolition permit pending possible appeal of the commission's determination.

Notified parties will be informed of their right to appeal the commission's decision.

14.01.080. Appeal of commission's decision on demolition. [Ord. No. 2019-02 § 4]

A. Application to appeal. The owner may appeal the commission's determination regarding a proposed demolition of a local landmark. A written appeal must be submitted to the City Clerk's office within 30 calendar days of the commission's decision.

B. Appeal fee. A fee of $75 shall be paid by the petitioner to the City Clerk at the time of filing a written appeal.

C. Notification of appeal. The City Clerk shall notify the commission secretary within three business days of the filing of a written appeal. The commission secretary shall inform the office of construction code

enforcement of the pending appeal and instruct the chief building official to withhold the demolition permit until the City Council has ruled on same. The commission secretary shall also inform the owner(s) of record of the subject property of the date, time and location of the City Council meeting scheduled to hear the appeal. The City Council agenda shall serve as notice to the general public of the appeal and shall be posted on the first floor City hall bulletin board used for such purposes no less than one calendar day prior to the scheduled time of the meeting.

D. Review process. The City Council, within 30 calendar days of the filing of a written appeal or at a later time at the request of the petitioner, shall either accept or reject the commission's determination. In considering the commission's determination, the City Council may receive and review all relevant information, testimony and/or evidence submitted for its consideration, including that reviewed by the commission, and any additional material.

E. Notification of decision. The owner(s) of record shall be notified by regular mail of the City Council's decision within 15 business days. The office of construction code enforcement shall be notified within two business days of the City Council's decision. The publishing of the City Council meeting minutes shall serve as notice to the general public. The City Council's decision shall be the final City action.

14.01.090. Exclusions. [Ord. No. 2019-02 § 4]

A designated property may be altered, relocated, demolished or secured and maintained under the following circumstances and shall not be subject to any of the terms of this chapter.

A. Certificate of public hazard. If emergency circumstances affect a designated property which requires immediate relief, including demolition, the fire marshal and chief building official shall certify that such conditions exist and said conditions shall be eliminated as quickly as is practicable. Emergencies are defined as life or health-threatening conditions requiring immediate attention. A certificate of public hazard may be issued after the fact documenting the reasons for loss of the designated property. This section shall apply only in cases where it is impractical for the commission to consider a certificate of economic hardship prior to demolition.

B. Conflict with other regulations. The clauses and sections in other City Council-adopted codes and regulations which address life-safety, fire safety and legal nuisances, shall be excluded from the standards and provisions herein. In the event the City's legal, fire, housing or building officials determine that a structure or portion thereof is a life-safety hazard, a fire safety hazard or a nuisance, the fire, housing and building codes shall supersede this chapter.

C. Ordinary repair and maintenance. This chapter is not meant to prevent ordinary repair and maintenance activities of private property not requiring a building or sign permit.

14.01.100. Historic structure demolition review process. [Ord. No. 2019-02 § 4]

A. If the owner(s) of record or agent applies for a demolition permit to a building or structure listed on the National Register of Historic Places, which to date has not been designated as a local landmark, the office of construction code enforcement shall not issue the permit but instead shall direct the applicant to the commission secretary. Once the office of construction code enforcement refers the matter to the commission secretary, all demolition activity shall stop, if started, until after the commission or the City Council acts on the matter. The commission secretary shall place the demolition request on the agenda for the commission's next meeting.

B. In making its determination on whether to recommend continuance of the demolition stoppage and consideration by the City Council for designation as a local landmark, the commission shall consider the criteria as stated in Section 14.01.070B of this chapter. The commission, by a three-fourths vote of its members present may request the City Council to review a proposed demolition permit for a structure listed on the National Register of Historic Places which has not, to date, been designated as a local landmark. In the event the commission votes to delay demolition, the commission shall have staff prepare an individual property nomination for designation as a local landmark as outlined in Section 14.01.040. Said nomination shall be considered by the commission in a timely manner.

In the event the commission vote to nominate the property as a local landmark fails, the demolition permit may be issued and the matter does not proceed to the City Council.

In the event the commission votes first to delay demolition and then to nominate the property for designation as a local landmark, the commission shall submit written documentation to the City Council that the building is presently on the National Register of Historic Places, that the criteria for designation as a local landmark as listed in Section 14.01.040 have been met and that the provisions of Section 14.01.090 of the chapter are not applicable, as well as forward any application material submitted by the petitioner or prepared by staff relevant to either the demolition request or the landmark nomination.

C. The City Council shall give appropriate notice that a public hearing will be held on the demolition application and nomination for landmark designation.

At the public hearing, the City Council shall hear all written and oral statements of the interested parties. The City Council shall base its

decision on all relevant evidence presented at the public hearing, including whether Section 14.01.090 of the chapter is applicable.

The City Council shall determine by a majority of the entire Council either to allow the structure to be demolished or to approve the structure for local landmark status. If the local landmark status is approved the owner shall not be issued a demolition permit by the City.

Every effort shall be made by all parties to complete the designation process in the most timely fashion. The City Council shall act either allowing the structure to be demolished or designating it a local landmark within 120 days from the date of the commission's first public hearing.

14.01.110. Penalty. [Ord. No. 2019-02 § 4]

A. In the event work is being performed without the required certificate of appropriateness or the certificate of economic hardship, the commission or the commission secretary shall ask that a stop work order be issued. In the event work is being performed which is not in accordance with its certificate of appropriateness, the commission shall also ask that a stop work order be issued. In addition to other penalties and remedies, the City shall issue a stop work order, and all work shall cease on the designated property. No additional work shall be undertaken as long as such stop work order is in effect.

B. In the event work has been completed without the required certificate of appropriateness or certificate of economic hardship, the owner, the tenant, if a participating party to said work, and the person(s) performing such work shall be guilty of a misdemeanor or municipal infraction. Every day each such violation shall continue to exist shall constitute a separate violation.

C. Enforcement. The City's director of community and economic development department, or his/her designee, shall be responsible for the enforcement of the provisions of this chapter.