



# CPED STAFF REPORT

Prepared for the Heritage Preservation Commission  
 HPC Agenda Item #2  
 May 17, 2016  
 BZH-29075

## HERITAGE PRESERVATION APPLICATION SUMMARY

*Property Location:* 1721 University Avenue SE  
*Project Name:* Re-Stucco of the Students' Cooperative  
*Prepared By:* Shanna Sether, Senior City Planner, (612) 673-2307  
*Applicant:* Students' Co-Operative, Inc.  
*Project Contact:* Madeline Reed  
*Ward:* 2  
*Neighborhood:* University, near Prospect Park  
*Request:* To apply new stucco over the existing stucco building, remove permastone on the front and sides of the building and reapply stucco, repair window sills, repair the existing front porch and add a new metal railing.

*Required Applications:*

<b>Certificate of Appropriateness</b>	To allow for the repair and restoration of an existing contributing resource in the University of Minnesota Greek Letter Chapter House Historic District.
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## HISTORIC PROPERTY INFORMATION

<b>Current Name</b>	Students' Co-Op
<b>Historic Name</b>	Psi Upsilon Fraternity
<b>Historic Address</b>	1721 University Avenue SE
<b>Original Construction Date</b>	1908
<b>Original Architect</b>	Kees and Colburn
<b>Original Builder</b>	Maurice Schumacher
<b>Original Engineer</b>	Not applicable
<b>Historic Use</b>	Student housing – Fraternity
<b>Current Use</b>	Student Housing
<b>Proposed Use</b>	Student Housing

<b>Date Application Deemed Complete</b>	March 15, 2016	<b>Date Extension Letter Sent</b>	April 29, 2016
<b>End of 60-Day Decision Period</b>	May 14, 2016	<b>End of 120-Day Decision Period</b>	July 13, 2016

**CLASSIFICATION**

<b>Local Historic District</b>	University of Minnesota Greek Letter Chapter House Historic District
<b>Period of Significance</b>	1907 – 1930
<b>Criteria of Significance</b>	Events, Architecture
<b>Date of Local Designation</b>	2003
<b>Date of National Register Listing</b>	Not applicable
<b>Applicable Design Guidelines</b>	<i>University of Minnesota Greek Letter Chapter House Historic District Design Guidelines</i> <i>The Secretary of the Interior’s Standards for Treatment of Historic Properties</i>

**SUMMARY**

**BACKGROUND.** The three-story, stucco-clad building has a flat roof behind a peaked parapet. The original building permit states that the building was constructed with brick. According to *22 Preservation Briefs – The Preservation and Repair of Historic Stucco*, stucco was often applied as a coat over a less finished and less costly substrate, including brick, to give the building an appearance of being more expensive and important (Grimmer, 1990).

The raised terrace at ground level is faced in permastone. The stone is continued around the central recessed entry and watertable of the first story and covers the original classical entablature. The terrace has a central stair and wrought iron railing. The vaguely Beaux Arts exterior has a recessed entry sheltered by a shallow portico with two fluted concrete Doric columns. Shallow pilasters at the second and third stories frame the central bay containing six rectangular windows. Fifty-five of the windows were replaced in 2013 ([BZH 27901](#)).

The north, rear elevation is clad in painted common brick. There is a small, one-story rear addition clad in narrow clapboard that rests on a high limestone foundation. Windows contain double-hung sash. It is not known whether or not this addition was original to the structure or added afterward. This portion of the building received approvals by the HPC for a new roof and exterior cladding in 2012 ([BZH 27512](#)).

The building is a contributing property in the University of Minnesota Greek Letter Chapter House Historic District. This structure is the second oldest chapter house remaining on University Avenue and at the University of Minnesota. Despite alterations to the stucco and entry, it still exemplifies the scale and style of the pre-World War I period.

**APPLICANT’S PROPOSAL.** The applicant is proposing the following areas of the building for repair or restoration:

- I. Remove the existing permastone found on the front and side façades; install new galvanized metal lath to all of the existing stucco on the building and apply new stucco. The applicant was originally proposing to reconstruct the three historic emblems on the front of the structure; however, CPED staff and the applicant were unable to find any historic photos showing the original details and this is no longer included in the project. After the new stucco is finished, the

applicant will apply an acrylic finish, enabling a uniform color match with a smooth finish, consistent with the original building in color and texture.

2. Remove the existing permastone, re-stucco and replicate the original detail over the front entrance.
3. Remove all of the existing permastone and metal railing from the front porch. The applicant will create a form and pour a new concrete cap to replicate the historic concrete cap as seen in the historic photo. In addition, the applicant will install a new 42-inch high metal railing, for a total finished height of 48-inches.
4. Repair window sills where deteriorated; install galvanized metal lath and new stucco on the sills, followed by a smooth stucco finish to the sills to match the historic appearance of the building.

This application was continued from the April 19, 2016, Heritage Preservation Commission meeting to allow the applicant time to provide additional details about the window sills, the location of the proposed expansion joints in the stucco and details of the proposed guardrail on the existing open porch. The applicant has provided window sill details identifying sealants and galvanized metal lath and a three-coat stucco over the sills to avoid further deterioration of the window sills. The updated plans also include elevations showing the proposed vertical expansion joints on each of the interior façades of the structure. There are no proposed expansion joints on the front façade and the proposed expansion joints on the interior façades are set back over one structural bay from the front façade. Finally, the applicant has shown four examples of the proposed guardrail on the open front porch.

**RELATED APPROVALS.**

Planning Case #	Application	Description	Action
	Certificate of No Change	Masonry Repair – remove two chimneys; replace portion of one	Approved administratively 4/7/2004
	Certificate of No Change	Roofing and Masonry Repair	Approved administratively 4/20/2004
	Certificate of No Change	Retaining wall – replace existing railroad tie retaining wall with standard masonry retaining wall blocks	Approved administratively 5/10/2006
BZH 25330	Certificate of No Change	Rainleader Disconnect	Approved administratively 1/28/2008
<u>BZH 27512</u>	Certificate of Appropriateness	Rear wing rehab – new roof and cladding	Approved by the HPC on <u>11/5/2012</u> .
<u>BZH 27901</u>	Certificate of Appropriateness	Window replacement	Approved by the HPC on <u>12/10/2013</u> .

**PUBLIC COMMENTS.** No comments have been received as of the writing of this report. Any correspondence received prior to the public meeting will be forwarded on to the Heritage Preservation Commission for consideration.

## ANALYSIS

### CERTIFICATE OF APPROPRIATENESS

The Department of Community Planning and Economic Development has analyzed the application to apply new stucco over the existing stucco building, remove permastone on the front and sides of the building and reapply stucco, repair window sills, repair the existing front porch and add a new metal railing on the contributing resource located at 1721 University Avenue SE based on the following findings:

- I. *The alteration is compatible with the designation of the landmark or historic district, including the period and criteria of significance.*

The three-story, stucco-clad building has a flat roof behind a peaked parapet. The original building permit states that the building was constructed with brick. According to *22 Preservation Briefs – The Preservation and Repair of Historic Stucco*, stucco was often applied as a coat over a less finished and less costly substrate, including brick, to give the building an appearance of being more expensive and important (Grimmer, 1990).

The *22 Preservation Briefs – The Preservation and Repair of Historic Stucco* also states that complete replacement of stucco should be considered when “physical and visual integrity of the historic stucco has been so compromised by prior incompatible and ill-conceived repairs that patching would not be successful.” The exterior of the structure experienced the two most obvious incompatible material changes in 1952 with the application of the permastone<sup>1</sup> and the redashing of the stucco from the previous smooth texture. Additional repairs to the stucco were completed with a building permit in 1978.

The applicant is proposing to remove the existing permastone on the building and porch, attach metal lath to all areas with existing stucco, and apply a three-coat system to the main stuccoed areas of the building. The applicant will then apply an acrylic stucco finish to the smooth areas of the building, and a two-coat traditional stucco finish to all of the base coats, matching the historic color and texture, as closely as possible. In addition, the applicant is proposing to replicate the original detail over the porch using custom foam reproductions. This application was continued from a previous meeting to allow the applicant time to provide additional details showing the location of the proposed expansion joints in the stucco. The updated plans also include elevations showing the proposed vertical expansion joints on each of the interior façades of the structure. There are no proposed expansion joints on the front façade and the proposed expansion joints on the interior façades are set back over one structural bay from the front façade. CPED staff finds that the method of application and exterior material, uniformly applied and consistent in color and texture to the historic stucco and designed to protect the stucco through the use of expansion joints, and the replication of the historic building detail above the porch will be compatible with the designation of the historic district and emblematic of the period and criteria for significance.

The applicant will be repairing the porch, pouring a new concrete cap to replicate the one found in the historic photo (1935) and installing a new 42-inch metal railing, for a finished height of 48-inches. The applicant has shown four examples of the proposed guardrail on the open front porch CPED staff is recommending that the applicant use the contemporary wrought iron rail design as it is the

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<sup>1</sup> Permastone was a brand name for a stucco-like, simulated stone, popular in the 1950's.

most simple in design. Finally, the applicant is proposing to repair the window sills where deteriorated; install galvanized metal lath and new stucco on the sills, followed by a smooth stucco finish to the sills to match the historic appearance of the building. The applicant's additional submittals have included a window sill detail identifying sealants and galvanized metal lath and a three-coat stucco over the sills to avoid further deterioration of the window sills. CPED staff finds that the method and the replication of the historic concrete caps, the new metal railing and the window sill repair will be compatible with the designation of the historic district and emblematic of the period and criteria for significance.

2. *The alteration will ensure the continued integrity of the landmark or historic district.*

The proposed repair and restoration are intended to properly restore the original historic façade and comply with minimum guardrail height to meet the building code requirements.

**Location:** The University of Minnesota Greek Letter Chapter House Historic District is a non-contiguous district divided into two areas, "Fraternity Row" and "Sorority Row". "Fraternity Row" is the core of the district, extending east along University Avenue SE from 15<sup>th</sup> Avenue SE to 19<sup>th</sup> Avenue SE. The proposed work will not have an effect on the continued integrity of location.

**Design:** The three-story, stucco-clad building has a flat roof behind a peaked parapet, designed by master architects Kees and Colborn. The raised terrace at ground level is faced with permastone. The stone is continued around the central recessed entry and watertable of the first story and covers the original classical entablature. The terrace has a central stair and wrought iron railing. The vaguely Beaux Arts exterior has a recessed entry sheltered by a shallow portico with two fluted concrete Doric columns. Shallow pilasters at the second and third stories frame the central bay containing six rectangular windows. The proposed project intends to replicate the original exterior materials in terms of texture and color, the historic detail above the porch and concrete forms on the porch. The proposed project will not affect the integrity of design.

**Setting:** The emergence of a thriving Greek letter system at the University of Minnesota reflected the tremendous growth and prosperity of the University during the first three decades of the twentieth century. The rise and decline of Greek chapter membership revealed changing economic atmospheres, as well as students' evolving political and social ideas. Recognized as well for their highly symbolic, architecturally distinctive 20<sup>th</sup> century designs, the Fraternity and Sorority Row houses defined the northern edge of the campus. During the period of significance, from 1907 to 1930, a total of twenty-two chapter houses on Fraternity Row and eleven chapter houses on Sorority Row which were built still retain a fair level of historic integrity. Their presence along with their impressive facades and interiors are symbolic of permanence and influence of the Greek letter system at the University of Minnesota. The proposed project will not have a negative effect on the historic setting of the district.

**Materials:** The original building permit states that the building was constructed with brick. According to *22 Preservation Briefs – The Preservation and Repair of Historic Stucco*, stucco was often applied as a coat over a less finished and less costly substrate, including brick, to give the building an appearance of being more expensive and important (Grimmer, 1990).

The *22 Preservation Briefs – The Preservation and Repair of Historic Stucco* also state that complete replacement of stucco should be considered when "physical and visual integrity of the historic stucco has been so compromised by prior incompatible and ill-conceived repairs that patching would not be successful." The exterior of the structure experienced the two most obvious incompatible material changes in 1952 with the application of the permastone and the redashing of the stucco from the previous smooth texture. Additional repairs to the stucco were completed with a building permit in 1978.

The applicant is proposing to remove the existing permastone on the building and porch, attach metal lath to all areas with existing stucco, and apply a three-coat system to the main stuccoed areas of the building. The applicant will then apply an acrylic stucco finish to the smooth areas of the building, and a two-coat traditional stucco finish to all of the base coats, matching the historic color and texture, as closely as possible. In addition, the applicant is proposing to replicate the original detail over the porch using custom foam reproductions. The applicant is now showing elevation plans, highlighting the location of the proposed vertical expansion joints on each of the interior façades of the proposed structure. There are no proposed expansion joints on the front façade and the proposed expansion joints on the interior façades are set back over one structural bay from the front façade. CPED staff finds that the proposed exterior materials, uniformly applied and consistent in color and texture to the historic stucco, in a manner that will ensure the longevity of the stucco, and the replication of the building detail above the porch will support the integrity of this contributing resource in the historic district.

The applicant will be repairing the porch, pouring a new concrete cap to replicate the one found in the historic photo (1935) and installing a new 42-inch metal railing, for a finished height of 48-inches; CPED staff is recommending that the applicant use the contemporary wrought iron rail design. Finally, the applicant is proposing to repair the window sills where deteriorated; install galvanized metal lath and new stucco on the sills, followed by a smooth stucco finish to the sills to match the historic appearance of the building. CPED staff finds that the materials proposed to repair the porch and window sills will support the integrity of this contributing resource in the historic district.

**Workmanship:** The applicant is proposing to remove the existing permastone on the building and porch, attach metal lath to all areas with existing stucco, and apply a three-coat system to the main stuccoed areas of the building. The applicant will then apply an acrylic stucco finish to the smooth areas of the building, and a two-coat traditional stucco finish to all of the base coats, matching the historic color and texture, as closely as possible. In addition, the applicant is proposing to replicate the original detail over the porch using custom foam reproductions. CPED staff would like to emphasize the importance of the original details found on the front elevation and front porch and recommends that the applicant retain the details and insets during the project. CPED staff finds that the method of application of the stucco and the replication of the historic building detail above the porch will support the integrity of the workmanship of the historic building within the district.

The applicant will be repairing the porch, pouring a new concrete cap to replicate the one found in the historic photo (1935) and installing a new 42-inch metal railing, for a finished height of 48-inches. Finally, the applicant is proposing to repair the window sills where deteriorated; install galvanized metal lath and new stucco on the sills, followed by a smooth stucco finish to the sills to match the historic appearance of the building. CPED staff finds that the method and the replication of the historic concrete caps, the new metal railing and the window sill repair will support the workmanship integrity of the existing building.

**Feeling:** The emergence of a thriving Greek letter system at the University of Minnesota reflected the tremendous growth and prosperity of the University during the first three decades of the twentieth century. The rise and decline of Greek chapter membership revealed changing economic atmospheres, as well as students' evolving political and social ideas. Recognized as well for their highly symbolic, architecturally distinctive 20<sup>th</sup> century designs, the Fraternity and Sorority Row houses defined the northern edge of the campus. The proposed project will not alter the historic feeling of the district.

**Association:** The emergence of a thriving Greek letter system at the University of Minnesota reflected the tremendous growth and prosperity of the University during the first three decades of

the twentieth century. The rise and decline of Greek chapter membership revealed changing economic atmospheres, as well as students' evolving political and social ideas. The contributing structures on Fraternity Row are recognized for their highly symbolic, architecturally distinctive 20<sup>th</sup> century designs. The proposed project supports the continued integrity of this contributing resource in terms of association within the district.

3. *The alteration is consistent with the applicable design guidelines adopted by the commission.*

The *University of Minnesota Greek Letter Chapter House Historic District Design Guidelines* provide a framework for evaluating proposed alterations to existing buildings and new construction. Guidelines should be consulted before planning exterior maintenance tasks such as tuckpointing, masonry cleaning, and roofing, as well as major rehabilitation and adaptive reuse projects.

*UNIVERSITY OF MN GREEK LETTER CHAPTER HOUSE DISTRICT DESIGN GUIDELINES*

1. Decorative masonry features should be retained in repair or renovation projects. Deteriorated brick, stone, mortar, stucco, and other materials should be replaced with material used in the original construction or with materials that resemble the appearance of the original as closely as possible.
2. Stucco Resurfacing; other Resurfacing Repairs to historic stucco surfaces should duplicate the original in color, composition, and texture, if evidence exists. Smooth or heavy dashed surfaces should be avoided unless they were used on the historic surface. Stucco, artificial stone, brick veneer, vinyl, and aluminum products should not be applied over historic masonry surfaces.

CPED staff finds that the applicant is proposing to replicate features consistent with the historic building and treatments to the exterior that are consistent with the design guidelines for the district.

4. *The alteration is consistent with the applicable recommendations contained in The Secretary of the Interior's Standards for the Treatment of Historic Properties.*

CPED staff finds that the proposed project is consistent with the following recommendations contained in the *Secretary of the Interior's Standards for the Treatment of Historic Properties*:

- A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
- The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
- Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
- Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
- Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.
- Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

- Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
- New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

CPED staff finds that the proposed replications are consistent with the following recommendations contained in the *Secretary of the Interior's Standards for Reconstruction*:

- Reconstruction will be used to depict vanished or non-surviving portions of a property when documentary and physical evidence is available to permit accurate reconstruction with minimal conjecture, and such reconstruction is essential to the public understanding of the property.
- Reconstruction will include measures to preserve any remaining historic materials, features, and spatial relationships.
- Reconstruction will be based on the accurate duplication of historic features and elements substantiated by documentary or physical evidence rather than on conjectural designs or the availability of different features from other historic properties. A reconstructed property will re-create the appearance of the non-surviving historic property in materials, design, color, and texture.
- A reconstruction will be clearly identified as a contemporary re-creation.
- Designs that were never executed historically will not be constructed.

5. *The alteration is consistent with the spirit and intent of the preservation ordinance, the applicable policies of the comprehensive plan, and the applicable preservation policies in small area plans adopted by the city council.*

The proposed project is consistent with the following policies in the comprehensive plan:

**Heritage Preservation Policy 8.1: Preserve, maintain, and designate districts, landmarks, and historic resources which serve as reminders of the city's architecture, history, and culture.**

- 8.1.1 Protect historic resources from modifications that are not sensitive to their historic significance.

## RECOMMENDATIONS

The Department of Community Planning and Economic Development recommends that the Heritage Preservation Commission adopt staff findings for the application by Madeline Reed, on behalf of the Students Co-Op, for the property located at 1721 University Avenue SE in the University of Minnesota Greek Letter Chapter House Historic District:

### A. Certificate of Appropriateness.

Recommended motion: **Approve** the certificate of appropriateness to apply new stucco over the existing stucco building, remove permastone on the front and sides of the building and reapply stucco, repair window sills, repair the existing front porch and add a new metal railing on the existing building, subject to the following conditions:

1. The applicant shall apply the stucco in a professional manner, as to match the original texture and color and provide the expansion joints along the interior facades, set back at least one structural bay from the front façade.
2. CPED staff shall review the proposed replications for the concrete caps on the porch and the decorative elements above the porch.
3. The proposed railing shall be metal, open and decorative, not to exceed an overall height of 48-inches, and shall be consistent with the contemporary wrought iron rail design provided.
4. The architectural features, including insets and window bays, shall be preserved through the application of the new stucco.
5. By ordinance, approvals are valid for a period of two years from the date of the decision unless required permits are obtained and the action approved is substantially begun and proceeds in a continuous basis toward completion. Upon written request and for good cause, the planning director may grant up to a one year extension if the request is made in writing no later than May 17, 2018.
6. By ordinance, all approvals granted in this certificate of appropriateness shall remain in effect as long as all of the conditions and guarantees of such approvals are observed. Failure to comply with such conditions and guarantees shall constitute a violation of this Certificate of Appropriateness and may result in termination of the approval.

## ATTACHMENTS

1. BZH Map
2. Written description and findings submitted by applicant
3. Applicant's proposal with photos
4. *22 Preservation Briefs – The Preservation and Repair of Historic Stucco*
5. Building permit records from 1908 to 1974
6. 1934 Survey

NAME OF APPLICANT

WARD



PROPERTY ADDRESS

1721 University Avenue SE

FILE NUMBER

BZH-29075



**Foley Exteriors**  
451 Wilson Street NE  
Minneapolis, MN 55413

Phone: 612-331-6510  
Fax: 612-331-6207

Dear Shana,

As part of our Certificate of Appropriateness application, the following narrative is submitted:

## **Re: 1721 University Avenue SE Exterior Renovation**

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### **Background:**

The building at 1721 University Avenue SE was originally built in 1908. The building was originally commissioned as the Psi Upsilon Fraternity's chapter house. It is currently the second oldest chapter house remaining on Fraternity Row, and is a member of the Greek Letter Chapter House Historic District. In 1940, the building was converted to private student housing, and became home to the Students' Cooperative.

The original structure was a three-story stucco-clad building. There is a raised terrace at the entrance, which was also originally clad with stucco. Non-historic alterations appear to have been made throughout the building's history, including the installation of PermaStone to areas of the façade. There has also been stucco installation where historical details have deteriorated, including the area above the front entrance. There has also been different texture applications over other original architectural details, including the pillar and inset details on the center of the façade.

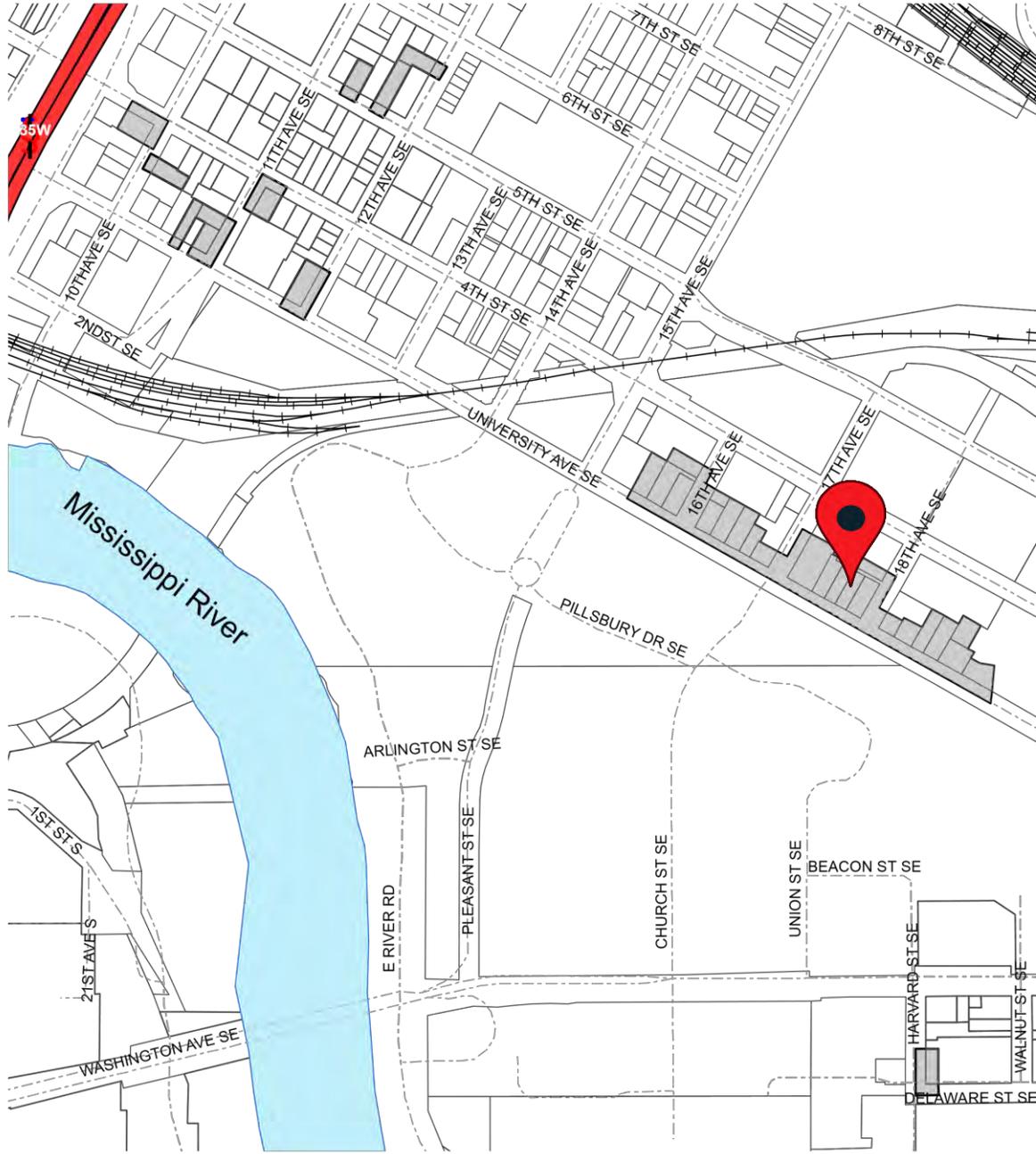
### **Certificate of Appropriateness Application:**

The Students' Co-op proposes to use Foley Exteriors to assist in returning the building at 1721 University Avenue SE to its original historically significant presence on Fraternity Row. Where possible, Foley Exteriors will use historically accurate materials, colors, and shapes. They will substitute more modern materials where necessary to achieve the historically significant look, while providing longevity and durability.



25224

# University of Minnesota Greek Letter Chapter House Historic District



On the front of the building, including some areas wrapping around the sides, Permastone was installed over the original stucco. Permastone was a brand name for a stucco-like simulated stone that was popular in the 1950's, and was probably added to the building about that time. In order to properly restore the original historic façade, we will remove all the remaining Permastone. We will then install new stucco using galvanized metal lath, a two-coat stucco base, and a stucco finish.



On the horizontal bands and window sills, we will repair all of the loose and missing stucco. We will replicate these accent bands and sills with galvanized metal lath and corner beads. We will then apply a two coat base. We will then apply an acrylic finish, enabling an exact color match combined with the smoother finish.



On the façade facing University Avenue, the center/inset details of the building originally had a smooth stucco finish. At some point in the building's history, these areas were "dashed," or textured with the same stucco texture that is on the main body of the rest of the building. We will first install galvanized metal lath and corner beads to recreate these details. We will then apply a stucco base coat to these areas, which will be leveled and floated to prepare the surface for the new stucco finish coats. We will then apply an acrylic stucco finish to these areas, which will restore the original color and texture of the inset areas and details.



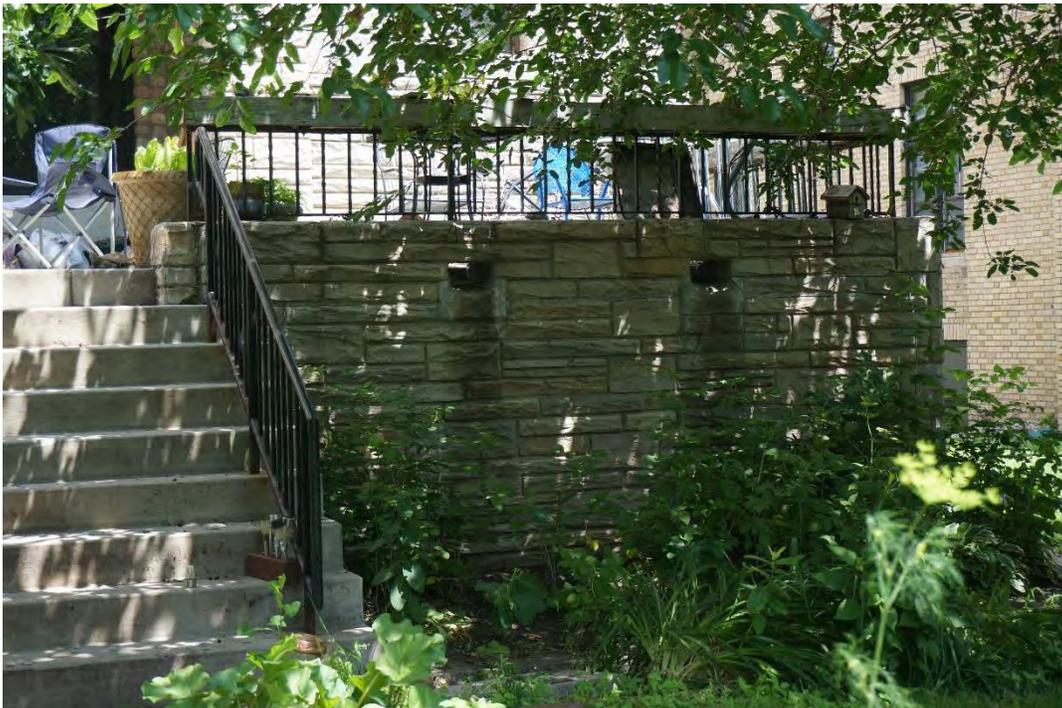
Also on the façade facing University Avenue, we will replicate the original detail over the front entrance. We will recreate this molding using a foam substrate, which will be covered with fiberglass mesh and an acrylic stucco base coat. The foam will enable us to create a similar shape to the original, while being much lighter than the original concrete. It appears that the original detail fell off or was removed prior to the 1950's, as an image from 1981 shows identical Permastone to the other areas at that location. More recently, this Permastone also deteriorated or fell off, and was patched with stucco.



On the east and west elevations of the home, we will install galvanized metal lath to the existing stucco. We will then apply a two-coat stucco base to the lath, which will be leveled and floated to prepare for the stucco finish. We will allow the base coats to dry and cure, and then we will apply a two-coat traditional stucco finish, matching the historic color and texture of the stucco as closely as possible.



On the front porch, we will remove all of the remaining PermaStone from the walls. We will also remove the existing railing. We will pour concrete cap to match the historic look of the original porch, while providing a drip edge for the walls of the porch. We will install galvanized metal lath to the walls of the porch, followed by a two-coat stucco base. We will then apply a two-coat traditional stucco finish, matching the color and texture of the body of the building. Following the installation of the new stucco to the porch, we will install a 36" high aluminum railing on top of the new cap in order to meet municipal code standards.



**Finishes:**

We will attach the galvanized metal lath to the stucco or brick on the front, east, and west elevations of the building. We will apply a two-coat stucco base, which consists of lime, Portland cement, masonry cement, common sand, and water.

A traditional stucco finish will be applied to all the textured areas on the house and porch. This stucco finish will be hand applied, or “dashed.” The stucco mix will consist of a combination of gray and/or white Portland cements, lime, silica sand, and water. The stucco finish coats will be gray in color, to match the historical color of the textured areas.

An acrylic stucco finish will be applied to the smooth areas on the building, including the center details of the façade, the window sills, and the horizontal band. The manufacturer of the finish will be Dryvit, Inc. The color used will be “Dover Sky,” and texture will be “Sandblast.”

Hard samples of all colors and textures will be provided for approval before installation.

Also on the façade facing University Avenue, we will replicate the original detail over the front entrance (as seen in the historical photo on the next page). We will recreate this molding using a foam substrate, which will be covered with fiberglass mesh and an acrylic stucco base coat. The foam will enable us to create a similar shape to the original, while being much lighter than the concrete. It appears that the original detail fell off or was removed prior to the 1950's, as an image from 1981 shows identical Permastone had been installed to that location. More recently, this Permastone also deteriorated or fell off, and was poorly patched with stucco. The allotment for the material created for this dentil molding replication will be \$2,500.00.





**Foley Exteriors**  
451 Wilson Street NE  
Minneapolis, MN 55413

Phone: 612-331-6510  
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## **STUCCO PROPOSAL**

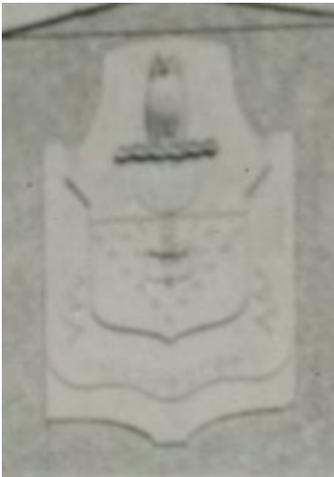


We propose to furnish the necessary material and labor for the restoration of the stucco on the historic property at 1721 University Avenue SE. The current stucco on the building has an inconsistent color and texture, due to fading paint and numerous repairs in the past. There are several areas of the existing stucco that are in poor condition. There are also several areas where permastone has been installed on the building, which is not original to the structure.

We will work with the Students' Cooperative, the Minneapolis Heritage Preservation Commission, and the Community Planning and Economic Development office in order to ensure that the work is completed in compliance with their requirements and historic standards. We will follow the University of Minnesota Greek Letter Chapter House District design guidelines, and will work with the Students' Cooperative to prepare and submit the necessary applications and plans regarding the project. We will commence work on the project once the necessary approvals are received.



In order to properly restore the stucco, we will first remove the permastone from the front and sides of the building. We will install galvanized metal lath and new stucco to these areas. We will match the historic details of the building, using historic photos to provide these details. To create some of the details, we will use traditional metal lath and stucco. We will replicate the emblems and seals as closely as possible, using materials approved by the HPC. For some of the other detailed bands, we may also recreate the details using custom foam reproductions. We will install a new three-coat stucco system to the main stucco areas on the building, matching the original color and texture of the historic stucco as closely as possible.



We will work with the Students' Co-op to replicate the emblems/seals on the front façade as closely as possible. We will determine which material will be best suited for the reproductions, considering foam, fiberglass, artificial stone, or another applicable material. We will work with the Historic Preservation Commission to have the materials and designs approved. We may require the Students' Co-op to provide a carving of the seals' exact design in order to create a mold for the replication. The allotment for the reproduction material is \$1,750.00.

On the façade facing University Avenue, the center/inset details of the building originally had a smooth stucco finish. At some point in the building's history, these areas were "dashed," or textured with the same stucco texture that is on the main body of the rest of the building. We will first install galvanized metal lath to these areas, followed by a two-coat stucco base to these areas in order to flatten the texture and to prepare the surface for the new stucco finish coats. We will then apply an acrylic stucco finish to these areas, which will restore the original color and texture of the inset areas and details.

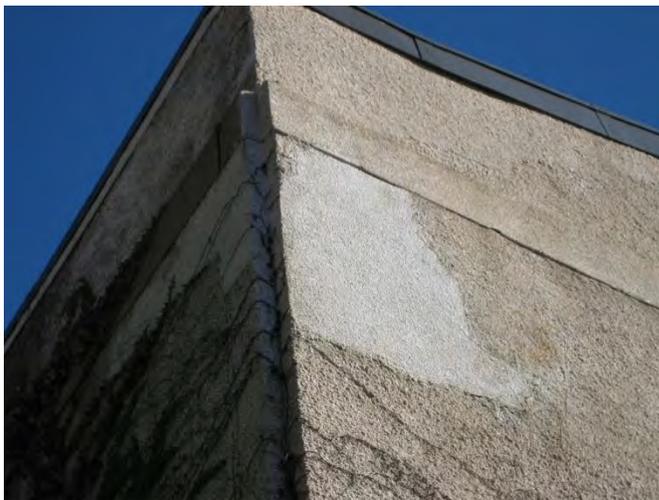




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These are typical cracks that currently exist in the stucco. There are several areas that have similar cracks. We will install new galvanized metal lath to all of the existing stucco on the building. We will fasten the lath into the existing stucco using  $\frac{3}{4}$ " and 1" stub nails. We will install stucco expansion joints wherever necessary and appropriate. We will apply a two-coat stucco base to the lath, which will be leveled and floated to prepare for the stucco finish. We will allow the base coats to dry and cure, and then we will return to apply a two-coat stucco finish, using a color and texture that is appropriate for the overall historic restoration project.



This is an example of an area of the stucco that has been previously repaired. The color and texture of these patches are not consistent with the rest of the building. With the installation of the new three-coat stucco system, the new finish coats will provide a uniform color and texture to the entire building, matching the color and texture of the historic stucco as closely as possible.

On the front of the building, including some areas wrapping around the sides, Permastone was installed over the original stucco. Permastone was a brand name for a stucco-like simulated stone that was popular in the 1950's, and was probably added to the building about that time. In order to properly restore the original historic façade, we will remove all the remaining Permastone. We will install new stucco using galvanized metal lath, a two-coat stucco base, and a stucco finish.





On the building's front façade, there are areas where the existing stucco appears loose, and is bulging. We will remove any and all loose existing stucco on the building before installing the new galvanized metal lath, in order to ensure that the new stucco is properly fastened to a sound and sturdy surface.



Many of the window sills are cracked and deteriorated. We will install galvanized metal lath and new stucco on the sills in order to repair and restore them. We will apply a smooth stucco finish to the sills to match the historic appearance of the building.

On the horizontal bands and window sills, we will repair all of the loose and missing stucco. When the stucco is finished, we will apply an acrylic finish, enabling a uniform color match combined with the smoother finish.





On the front porch, we will remove all of the existing permastone. We will also remove the metal railing from the top of the existing wall. We will ensure that the existing wall is sturdy, and will support the new concrete cap. We will build a form in order to replicate the concrete cap that appears in the historic photo. We will install all necessary rebar and metal ties in order to strengthen the new cap and ensure it will tie into the existing wall. We will pour the new concrete cap, and float it to match the historic photos. We will install a new 42" high metal railing (for a total finished height of 48"), using a metal finish and design chosen by the Students' Co-op and approved by the necessary parties. The allotment for the railing will be \$125.00 per lineal foot.



The stucco project for the Student Co-op Building at 1721 University Avenue SE will restore the stucco on this landmark building to its' original beauty. We will install new galvanized metal lath to all of the areas with existing stucco, followed by a two-coat base. We will apply an acrylic stucco finish to the smooth areas of the buildings, and a two-coat traditional stucco finish to all of the base coats, matching the historic colors and textures as closely as possible. We will work with the Heritage Preservation Commission and the Student Co-op to ensure the new stucco matches the original historic stucco as closely as possible. This stucco restoration will enhance the building's current appearance, while providing a lasting solution that will allow the building to be enjoyed by future generations.



**Foley Exteriors**  
451 Wilson Street NE  
Minneapolis, MN 55413

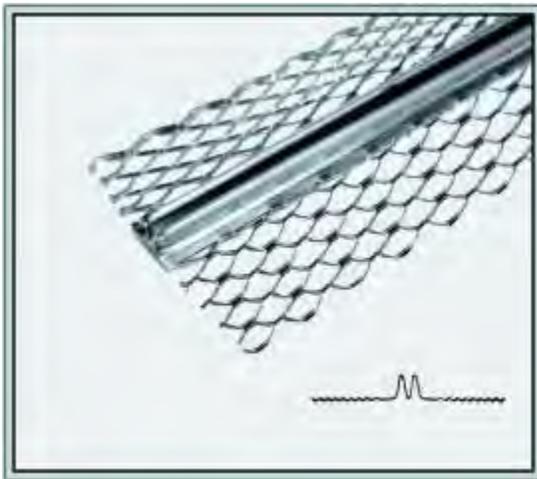
Phone: 612-331-6510  
Fax: 612-331-6207

Date: April 30, 2016

To whom it may concern:

The stucco project at 1721 University Avenue SE will restore the original appearance of the stucco on this historic building. The addition of stucco control joints on the east and west elevations will increase the longevity of the final product by providing the stucco locations to expand and contract, while allowing uniform installation of the three-coat stucco system. The locations for the expansion joints were chosen to blend in aesthetically with the elevations, while providing appropriate breaks in the area of stucco.

There are no expansion joints necessary on the front elevation of the building, or around the side elevations to the natural break in the wall. The architectural details will provide sufficient natural breaks in the stucco. The changes in depth because of the vertical and horizontal elements will provide natural breaks in the stucco areas. The changes in depths will be accomplished with corner beads, making physical expansion joints unnecessary.



This is the expansion joint material that will be used. It is made of galvanized metal.



This is a view of vertical expansion joints after the stucco has been applied.

The manufacturers of the physical expansion joint do not state any requirements for spacing, nor are there any specifications. They are designed to allow for movement to accommodate expansion and contraction of the stucco caused by initial shrinkage and minor thermal movements. The Portland Cement Association recommends the following regarding expansion joints in stucco:

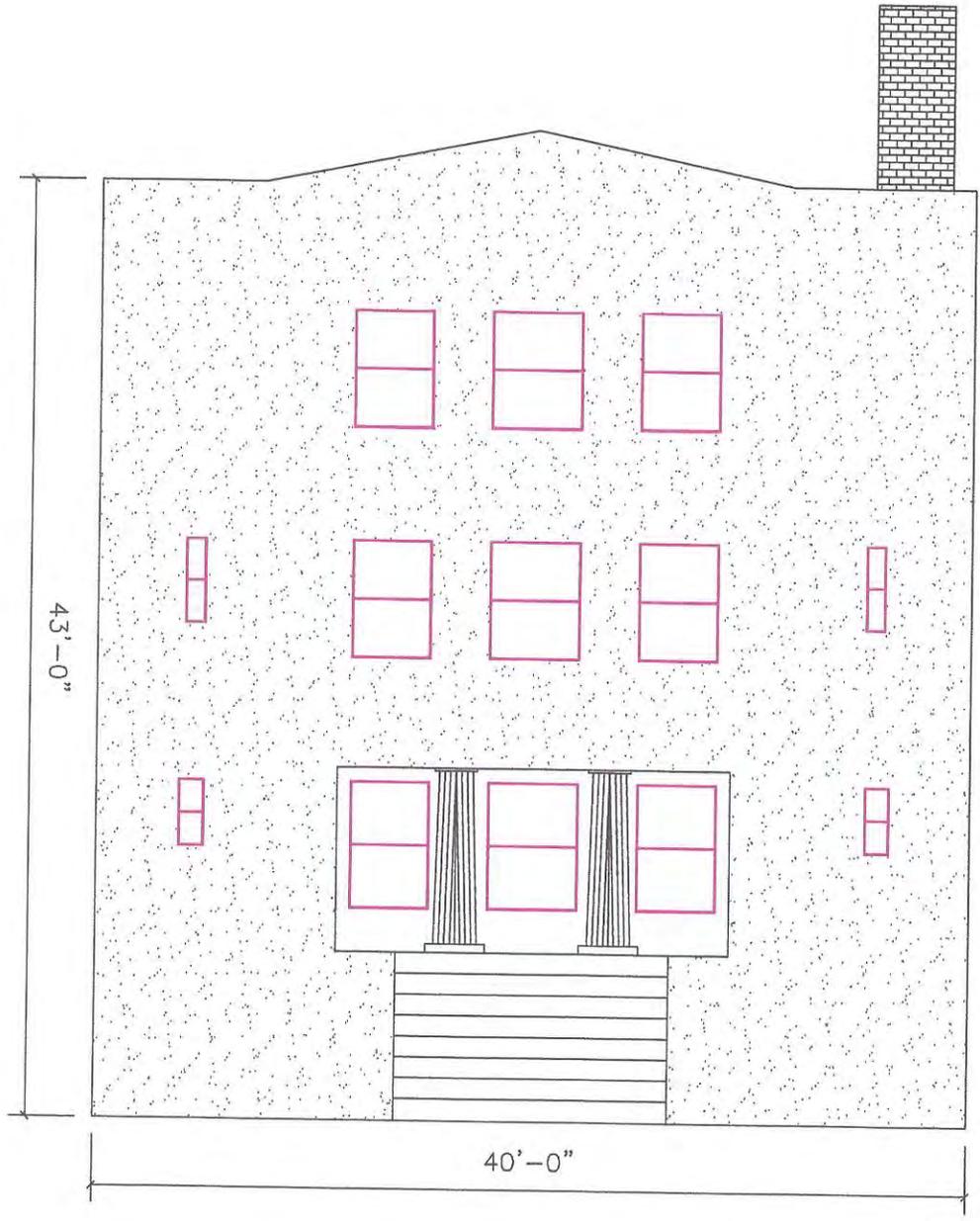
- No length should be greater than 18 feet in either direction.
- No panel should exceed 144 square feet for vertical applications.
- No panel should exceed 100 square feet for horizontal, curved, or angular sections.
- No length-to-width ratio should exceed 2 ½ to 1 in any given panel.

It is important to recognize that these are not specifications, but recommendations. We prefer to only use vertical expansion joints, as horizontal joints could be a point of entry for water running down the wall. We believe that the locations shown on the attached drawings will provide sufficient expansion and contraction possibilities, while essentially blending in with the surrounding architectural details.

Sincerely,

Patrick Schacherer  
Foley Exteriors

No EXPANSION JOINTS NECESSARY



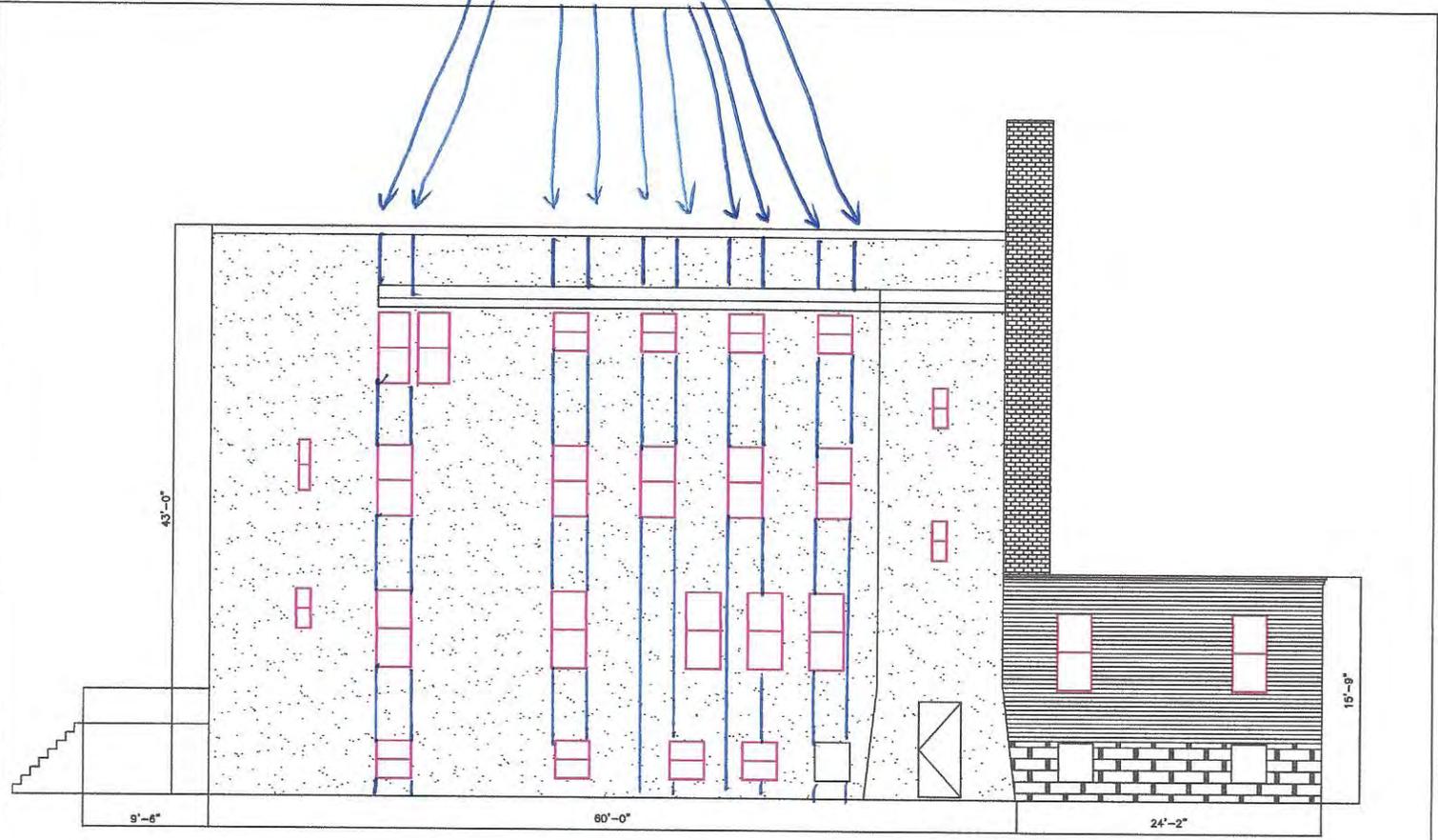
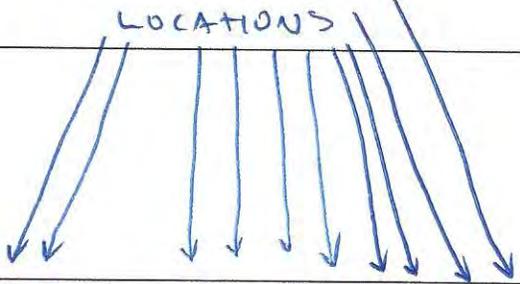
SOUTH ELEV (FRONT)

SCALE  $\frac{1}{8}$ " = 12"

AUGUST 15, 2001 by Beckerwoods

STUDENTS CO-OPERATIVE INC,  
1721 UNIVERSITY AVE. S.E.  
MINNEAPOLIS, MN 55414

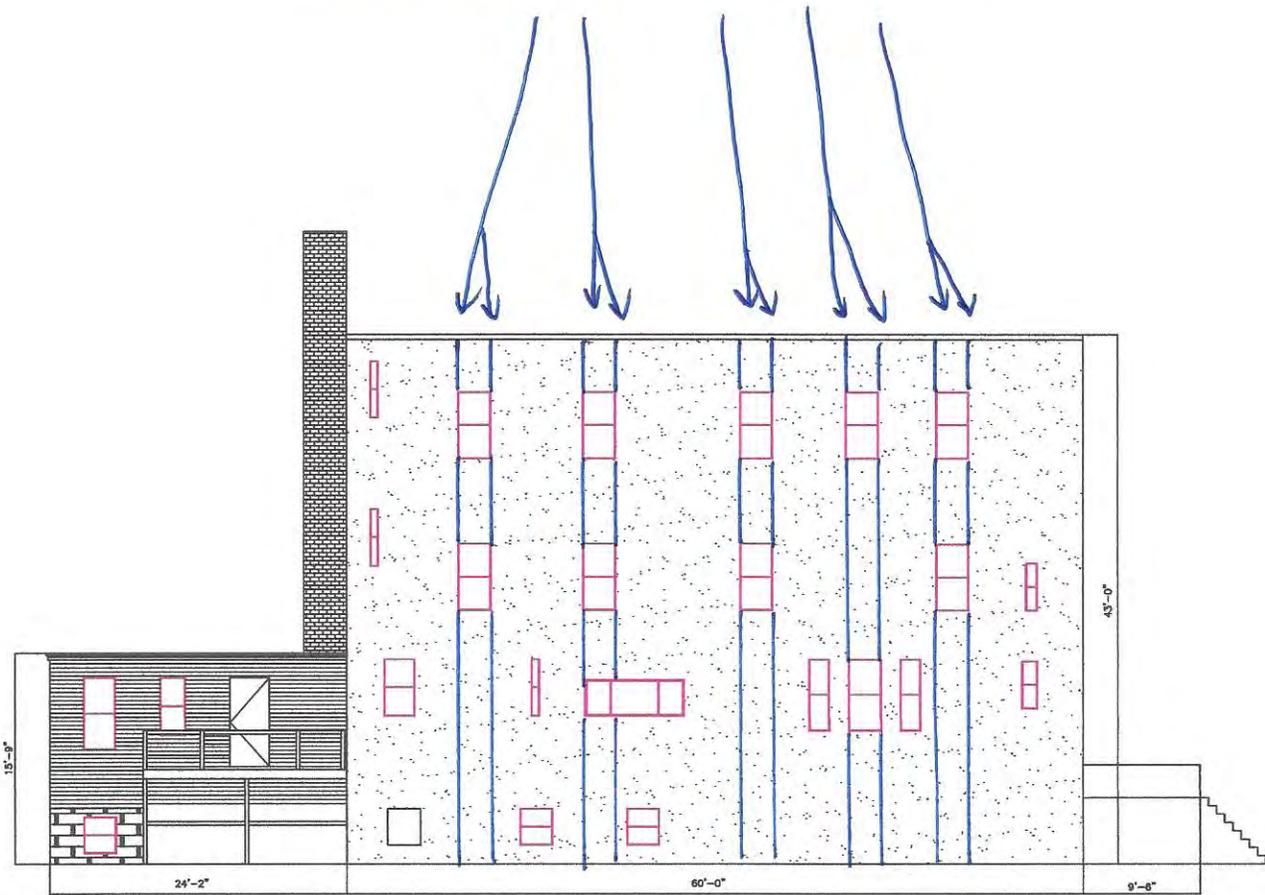
STULLO  
EXPANSION JOINT  
LOCATIONS



EAST ELEV  
SCALE 3/32" = 12"  
AUGUST 15, 2001 by Beckerwoods

STUDENTS CO-OPERATIVE INC,  
1721 UNIVERSITY AVE. S.E.  
MINNEAPOLIS, MN 55414

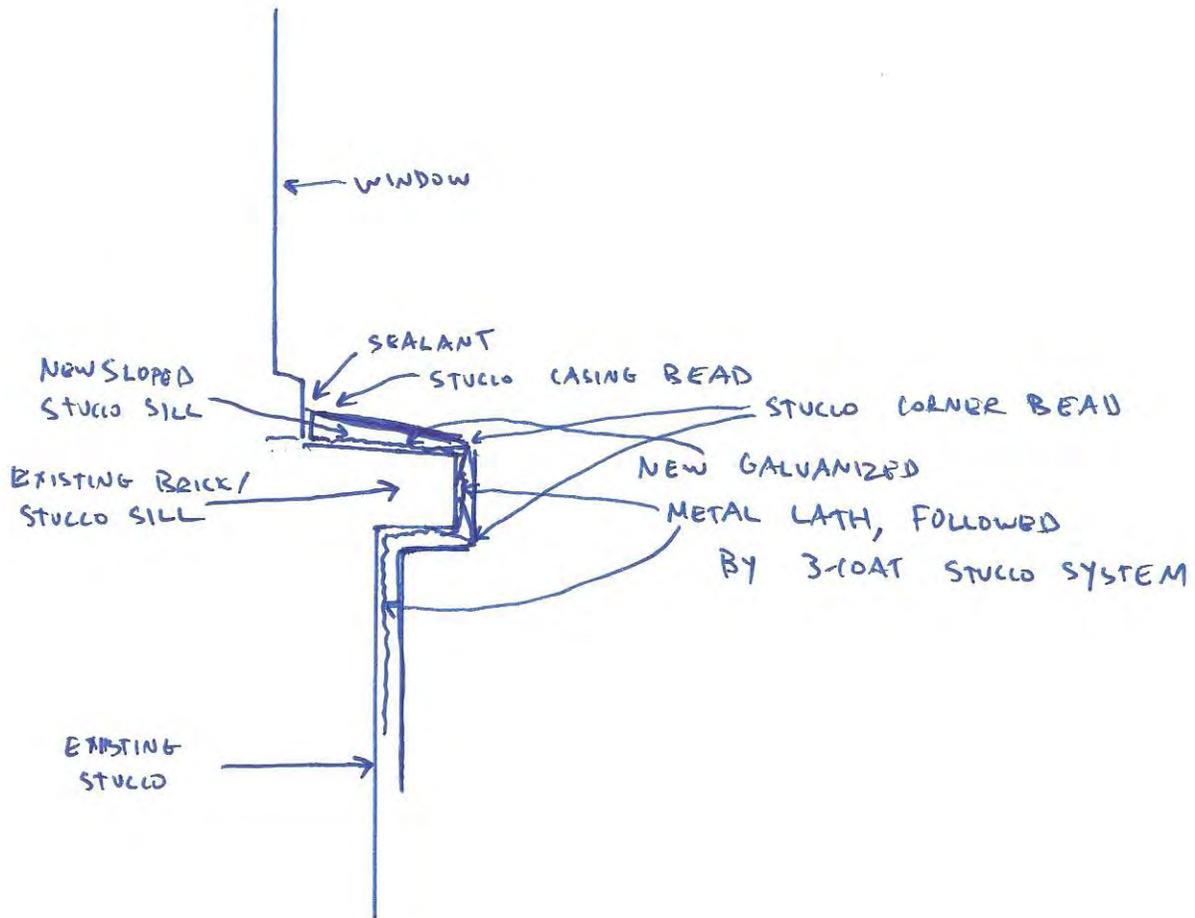
# STUCCO EXPANSION JOINT LOCATIONS



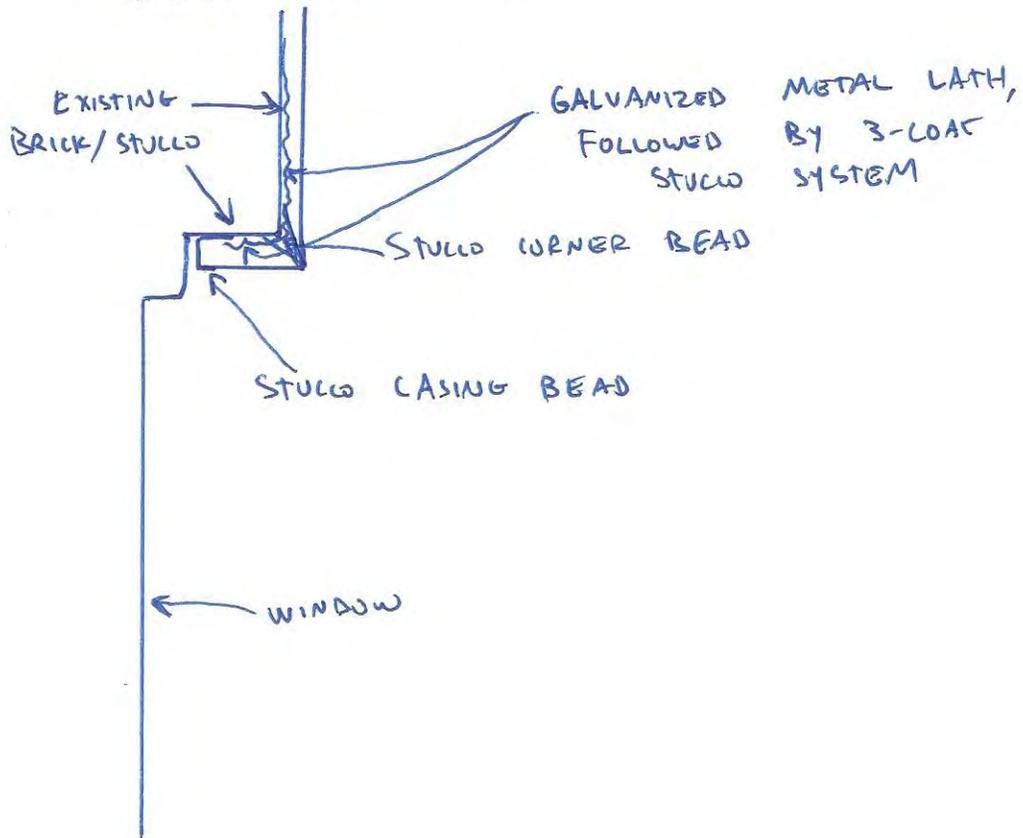
WEST ELEV  
SCALE 3/32" = 12"  
AUGUST 15, 2001 by Beckerwoods

STUDENTS CO-OPERATIVE INC,  
1721 UNIVERSITY AVE. S.E.  
MINNEAPOLIS, MN 55414

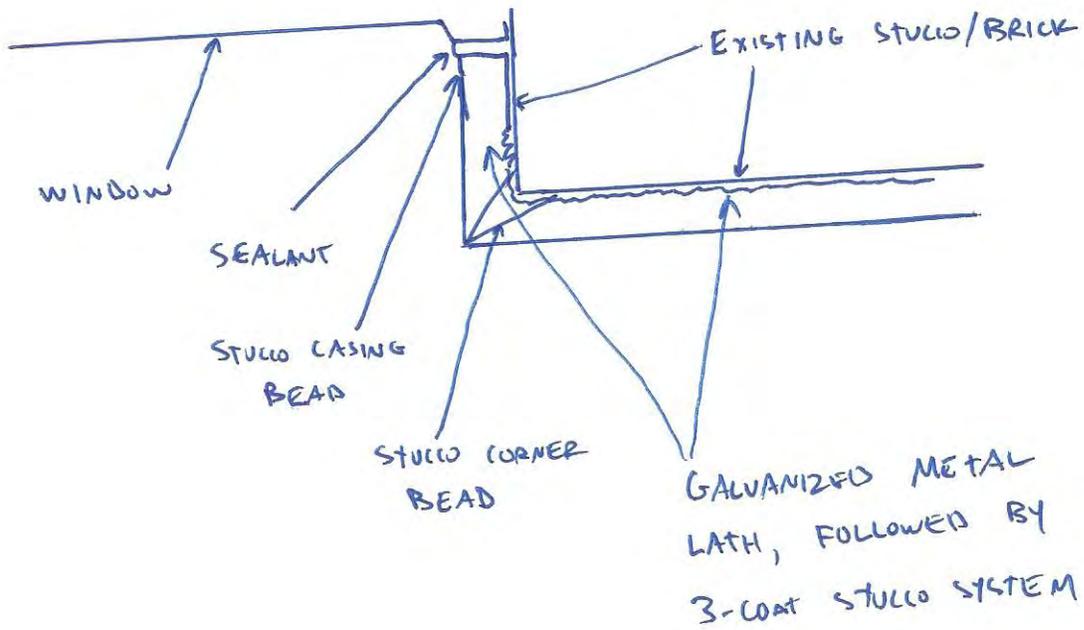
# WINDOW SILL DETAIL:



# WINDOW HEAD DETAIL:



# WINDOW SIDE DETAIL:

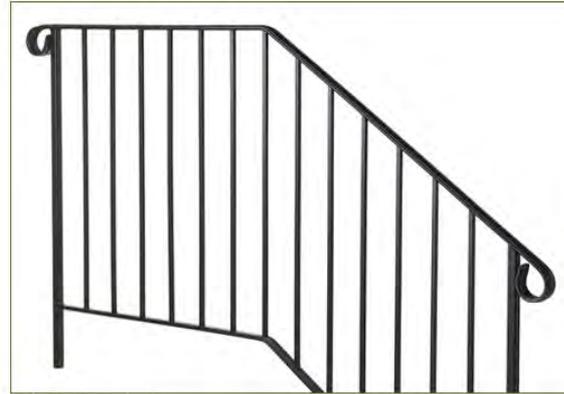


## CONTEMPORARY WROUGHT IRON RAIL DESIGN

"Classic wrought iron rail" features a molded cap rail and industrial enamel, finished in black semi-gloss. A square hole is punched into the rail channel, then the pickets are welded from the underside of the channel. Pickets are welded from under the cap rail.

### FEATURES

- Enamel black semi-gloss
- Picket welds under the cap rail and lower channel



## SEWARD FRIENDSHIP STORE AT 38TH AND 3RD

Tubular steel guardrail with weld mesh infill panels.

### FEATURES

- Duplex Coated
- 50 yr Service Life



## ALUMINUM GUARD RAILS, 50th AND FRANCE, EDINA

These powder coated aluminum rails replaced rusting steel rails. As the original steel rails were not galvanized they required annual painting to remain attractive at this shopping center. The aluminum rails were designed to look like classic steel rails but will never rust. The rails were built in large sections and powder coated a custom green at Twin City Metal Seal. Summer 2014

### FEATURES

- Aluminum does not rust
- Classic wrought iron look
- Custom powder coat



## DINKY TOWN RENTALS, 15th AVENUE SE AND 7th STREET SE

Executed 2014 for Dinky Town Rentals, this property features cantilevered balconies, steel stairways, single strand pipe rails with decorative iron, and other misc metals. The stairs are poured pan steel with checker plate risers and wall mount hand rails.

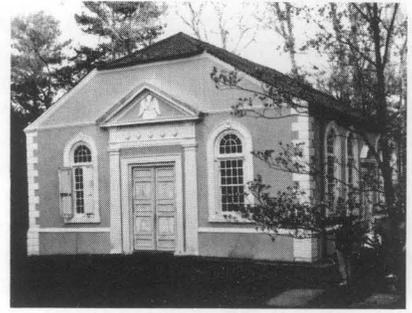
The cantilevered balconies have 6 inch square tube supports that extend 12 ft into the building. The balcony frame deck and rail are one piece, set and bolted to the exterior portion of support tubes. All components are hot dip galvanized, sand blasted, epoxy primed and two part polyurethane top coated.

### FEATURES

- Cantilevered balconies
- Steel stairways
- Single strand pipe rails
- One piece frame deck and rails
- Poured pan steel stairs with checker plate risers
- Hot dip galvanized, sand blasted, epoxy primed and two part polyurathane topcoat
- Decorative iron monument at Gopher Lodge.



# 22 PRESERVATION BRIEFS



## The Preservation and Repair of Historic Stucco

Anne Grimmer

U.S. Department of the Interior  
National Park Service  
Preservation Assistance Division

The term "stucco" is used here to describe a type of exterior plaster applied as a two-or-three part coating directly onto masonry, or applied over wood or metal lath to a log or wood frame structure. Stucco is found in many forms on historic structures throughout the United States. It is so common, in fact, that it frequently goes unnoticed, and is often disguised or used to imitate another material. Historic stucco is also sometimes incorrectly viewed as a sacrificial coating, and consequently removed to reveal stone, brick or logs that historically were never intended to be exposed. Age and lack of maintenance hasten the deterioration of many historic stucco buildings. Like most historic building materials, stucco is at the mercy of the elements, and even though it is a protective coating, it is particularly susceptible to water damage.

Stucco is a material of deceptive simplicity: in most cases its repair should not be undertaken by a property

owner unfamiliar with the art of plastering. Successful stucco repair requires the skill and experience of a professional plasterer. Therefore, this Brief has been prepared to provide background information on the nature and components of traditional stucco, as well as offer guidance on proper maintenance and repairs. The Brief will outline the requirements for stucco repair, and, when necessary, replacement. Although several stucco mixes representative of different periods are provided here for reference, this Brief does not include specifications for carrying out repair projects. Each project is unique, with its own set of problems that require individual solutions.

### Historical Background

Stucco has been used since ancient times. Still widely used throughout the world, it is one of the most common of traditional building materials (Fig. 1). Up until

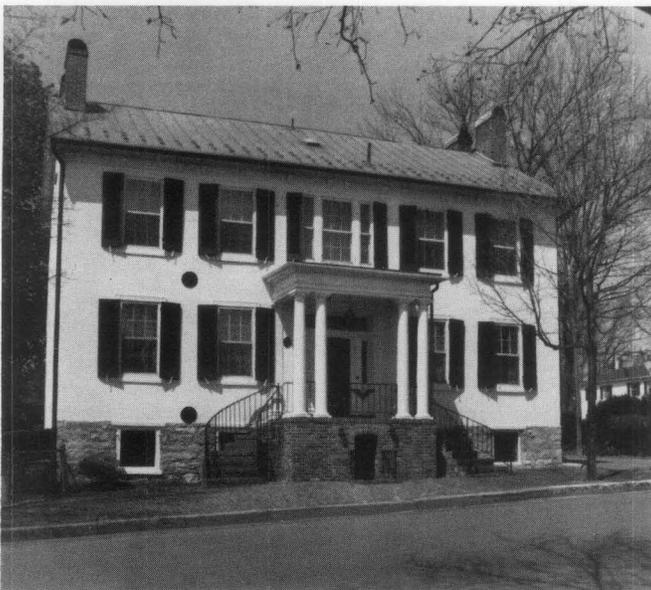


Fig. 1. These two houses in a residential section of Winchester, Virginia, illustrate the continuing popularity of stucco (a) from this early 19th century, Federal style house on the left, (b) to the English Cotswold style cottage that was built across the street in the 1930's. Photos: Anne Grimmer.

the late 1800's, stucco, like mortar, was primarily lime-based, but the popularization of portland cement changed the composition of stucco, as well as mortar, to a harder material. Historically, the term "plaster" has often been interchangeable with "stucco"; the term is still favored by many, particularly when referring to the traditional lime-based coating. By the nineteenth century "stucco," although originally denoting fine interior ornamental plasterwork, had gained wide acceptance in the United States to describe exterior plastering. "Render" and "rendering" are also terms used to describe stucco, especially in Great Britain. Other historic treatments and coatings related to stucco in that they consist at least in part of a similarly plastic or malleable material include: parging and pargeting, wattle and daub, "cob" or chalk mud, pisé de terre, rammed earth, briqueté entre poteaux or bousillage, half-timbering, and adobe. All of these are regional variations on traditional mixtures of mud, clay, lime, chalk, cement, gravel or straw. Many are still used today.

### The Stucco Tradition in the United States

Stucco is primarily used on residential buildings and relatively small-scale commercial structures. Some of the earliest stucco buildings in the United States include examples of the Federal, Greek and Gothic Revival styles of the eighteenth and the nineteenth centuries that emulated European architectural fashions. Benjamin Henry Latrobe, appointed by Thomas Jefferson as Surveyor of Public Buildings of the United States in 1803, was responsible for the design of a number of important stucco buildings, including St. John's Church (1816), in Washington, D.C. (Fig. 2). Nearly half a century later Andrew Jackson Downing also advocated the use of stucco in his influential book *The Architecture of Country Houses*, published in 1850. In Downing's opinion, stucco was superior in many respects to plain brick or stone because it was cheaper, warmer and dryer, and could be "agreeably" tinted. As a result of his advice, stuccoed Italianate style urban and suburban villas proliferated in many parts of the country during the third quarter of the nineteenth century.

### Revival Styles Promote Use of Stucco

The introduction of the many revival styles of architecture around the turn of the twentieth century, combined with the improvement and increased availability of portland cement resulted in a "craze" for stucco as a building material in the United States. Beginning about 1890 and gaining momentum into the 1930's and 1940's, stucco was associated with certain historic architectural styles, including: Prairie; Art Deco, and Art Moderne; Spanish Colonial, Mission, Pueblo, Mediterranean, English Cotswold Cottage, and Tudor Revival styles; as well as the ubiquitous bungalow and "four-square" house (Fig. 3). The fad for Spanish Colonial Revival, and other variations on this theme, was especially important in furthering stucco as a building material in the United States during this period, since stucco clearly looked like adobe (Fig. 4).

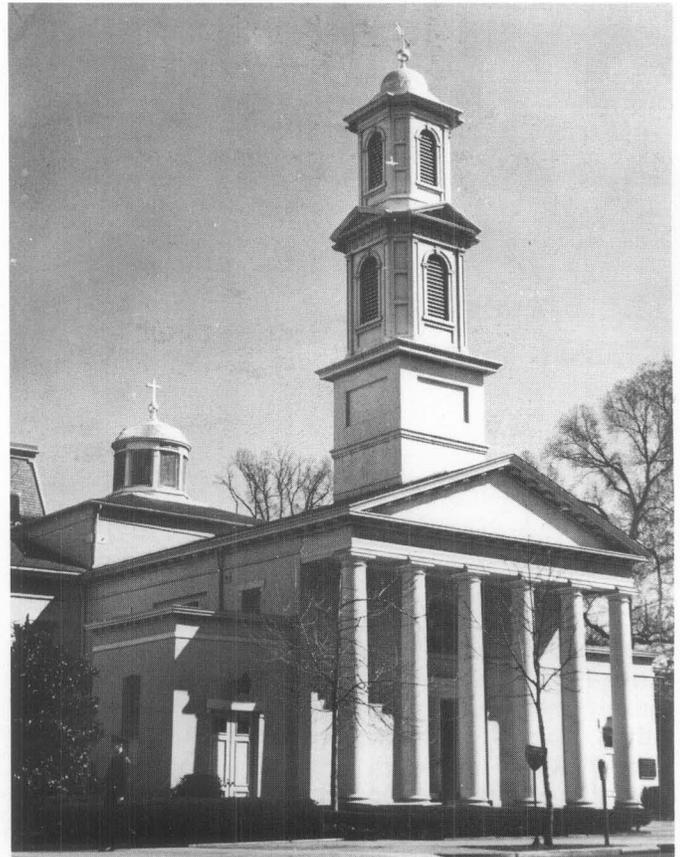


Fig. 2. St. John's Church, Washington, D.C., constructed of brick and stuccoed immediately upon completion in 1816, reflects the influence of European, and specifically English, architectural styles. Photo: Russell Jones, HABS Collection.

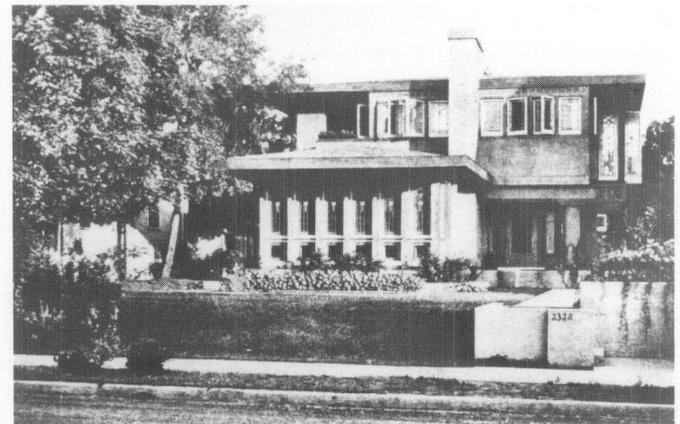


Fig. 3. The William Gray and Edna S. Purcell House, Minneapolis, Minnesota, was designed in 1913 by the architects Purcell and Elmslie in the Prairie style. Stuccoed in a salmon-pink, sand (float) finish, it is unusual in that it featured a 3-color geometric frieze stencilled below the eaves of the 2nd story. The Minneapolis Institute of Art has removed the cream-colored paint added at a later date, and restored the original color and texture of the stucco. Photo: Courtesy MacDonald and Mack Partnership.

Although stucco buildings were especially prevalent in California, the Southwest and Florida, ostensibly because of their Spanish heritage, this period also spawned stucco-coated, revival-style buildings all over the United States and Canada. The popularity of stucco as a cheap, and readily available material meant that by the 1920's, it was used for an increasing variety of building types. Resort hotels, apartment buildings, private mansions and movie theaters, railroad stations, and even gas stations and tourist courts took advantage

of the "romance" of period styles, and adopted the stucco construction that had become synonymous with these styles (Fig. 5).

### A Practical Building Material

Stucco has traditionally been popular for a variety of reasons. It was an inexpensive material that could simulate finely dressed stonework, especially when "scored" or "lined" in the European tradition. A stucco coating over a less finished and less costly substrate such as rubblestone, fieldstone, brick, log or wood frame, gave the building the appearance of being a more expensive and important structure. As a weather-repellent coating, stucco protected the building from wind and rain penetration, and also offered a certain amount of fire protection. While stucco was usually applied during construction as part of the building design, particularly over rubblestone or fieldstone, in some instances it was added later to protect the structure, or when a rise in the owner's social status demanded a comparable rise in his standard of living.

### Composition of Historic Stucco

Before the mid-to-late nineteenth century, stucco consisted primarily of hydrated or slaked lime, water and sand, with straw or animal hair included as a binder. Natural cements were frequently used in stucco mixes after their discovery in the United States during the 1820's. Portland cement was first manufactured in the United States in 1871, and it gradually replaced natural cement. After about 1900, most stucco was composed primarily of portland cement, mixed with some lime. With the addition of portland cement, stucco became even more versatile and durable. No longer used just as a coating for a substantial material like masonry or log, stucco could now be applied over wood or metal lath attached to a light wood frame. With this increased strength, stucco ceased to be just a veneer and became a more integral part of the building structure.



Fig. 4. The elaborate Spanish Colonial Revival style of this building designed by Bertram Goodhue for the 1915 Panama California Exposition held in San Diego's Balboa Park emphasizes the sculptural possibilities of stucco. Photo: C. W. Snell, National Historic Landmark Files.



Fig. 5. During the 19th and 20th centuries stucco has been a popular material not only for residential, but also for commercial buildings in the Spanish style. Two such examples are (a) the 1851 Ernest Hemingway House, Key West, Florida, built of stuccoed limestone in a Spanish Caribbean style; and (b) the Santa Fe Depot (Union Station), San Diego, California, designed by the architects Bakewell and Brown in 1914 in a Spanish Colonial Revival style, and constructed of stucco over brick and hollow tile. Photos: (a) J.E. Brooks, HABS Collection, (b) Marvin Rand, HABS Collection.

Today, gypsum, which is hydrated calcium sulfate or sulfate of lime, has to a great extent replaced lime. Gypsum is preferred because it hardens faster and has less shrinkage than lime. Lime is generally used only in the finish coat in contemporary stucco work.

The composition of stucco depended on local custom and available materials. Stucco often contained substantial amounts of mud or clay, marble or brick dust, or even sawdust, and an array of additives ranging from animal blood or urine, to eggs, keratin or gluesize (animal hooves and horns), varnish, wheat paste, sugar, salt, sodium silicate, alum, tallow, linseed oil, beeswax, and wine, beer, or rye whiskey. Waxes, fats and oils were included to introduce water-repellent properties, sugary materials reduced the amount of water needed and slowed down the setting time, and alcohol acted as an air entrainer. All of these additives contributed to the strength and durability of the stucco.

The appearance of much stucco was determined by the color of the sand—or sometimes burnt clay, used in the mix, but often stucco was also tinted with natural pigments, or the surface whitewashed or colorwashed after stuccoing was completed. Brick dust could provide color, and other coloring materials that were not affected by lime, mostly mineral pigments, could be added to the mix for the final finish coat. Stucco was

also marbled or marbleized—stained to look like stone by diluting oil of vitriol (sulfuric acid) with water, and mixing this with a yellow ochre, or another color (Fig. 6). As the twentieth century progressed, manufactured or synthetic pigments were added at the factory to some prepared stucco mixes.

### Methods of Application

Stucco is applied directly, without lath, to masonry substrates such as brick, stone, concrete or hollow tile (Fig. 7). But on wood structures, stucco, like its interior counterpart plaster, must be applied over lath in order to obtain an adequate key to hold the stucco. Thus, when applied over a log structure, stucco is laid on horizontal wood lath that has been nailed on vertical wood furring strips attached to the logs (Fig. 8). If it is applied over a wood frame structure, stucco may be applied to wood or metal lath nailed directly to the wood frame; it may also be placed on lath that has been attached to furring strips. The furring strips are themselves laid over building paper covering the wood sheathing (Fig. 9). Wood lath was gradually superseded by expanded metal lath introduced in the late-nineteenth and early-twentieth century. When stuccoing over a stone or brick substrate, it was customary to cut back or rake out the mortar joints if they were not already recessed by natural weathering or



Fig. 6. Arlington House, Arlington, Virginia, was built between 1802–1818 of brick covered with stucco. It was designed by George Hadfield for George Washington Parke Custis, grandson of Martha Washington, and was later the home of Robert E. Lee. This photograph taken on June 28, 1864, by Captain Andrew J. Russell, a U.S. Signal Corps photographer, shows the stucco after it had been marbled during the 1850's. Yellow ochre and burnt umber pigments were combined to imitate Sienna marble, and the stucco, with the exception of the roughcast foundation, was scored to heighten the illusion of stone. Photo: National Archives, Arlington House Collection, National Park Service.



Fig. 7. Patches of stucco have fallen off this derelict 19th century structure exposing the rough-cut local stone substrate. The missing wood entablature on the side and the rough wood lintel now exposed above a second-floor window, offer clues that the building was stuccoed originally. Photo: National Park Service Files.



Fig. 8. Removal of deteriorated stucco in preparation for stucco repair on this late-18th century log house in Middleway, West Virginia, reveals that the stucco was applied to hand-riven wood lath nailed over vertical wood strips attached to the logs. Photo: Anne Grimmer.

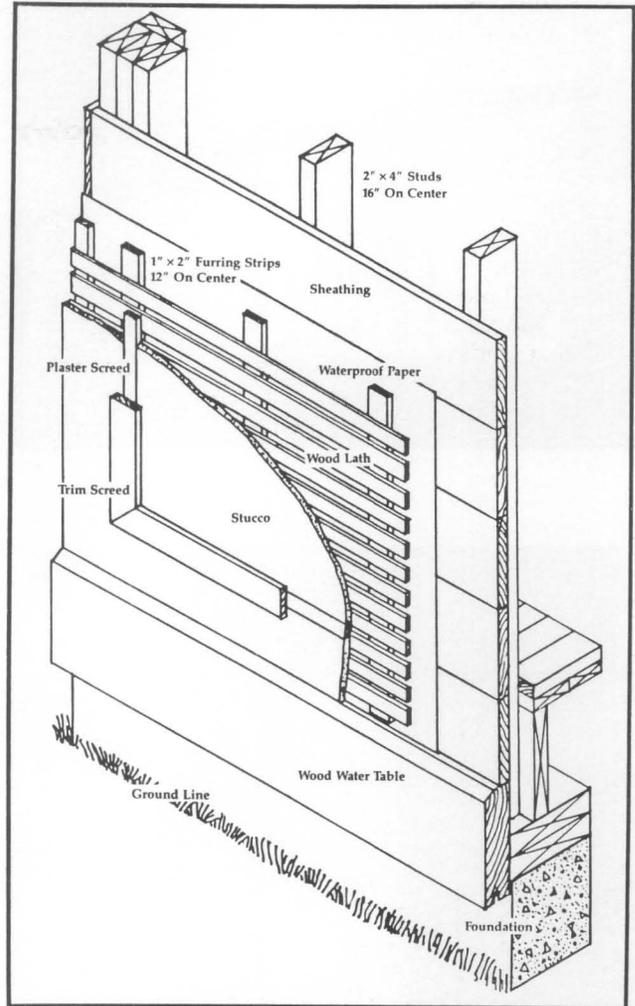


Fig. 9. This cutaway drawing shows the method of attachment for stucco commonly used on wood frame or balloon frame structures from the late-19th to the 20th century. Drawing: Brian Conway, "Illinois Preservation Series Number 2: Stucco."

erosion, and sometimes the bricks themselves were gouged to provide a key for the stucco. This helped provide the necessary bond for the stucco to remain attached to the masonry, much like the key provided by wood or metal lath on frame buildings.

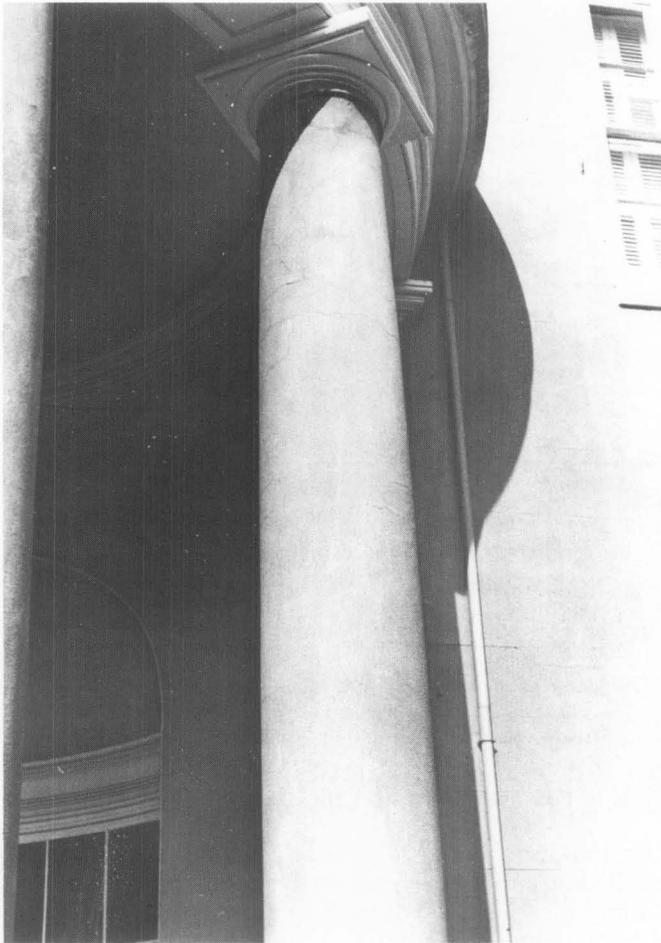
Like interior wall plaster, stucco has traditionally been applied as a multiple-layer process, sometimes consisting of two coats, but more commonly as three. Whether applied directly to a masonry substrate or onto wood or metal lath, this consists of a first "scratch" or "pricking-up" coat, followed by a second scratch coat, sometimes referred to as a "floating" or "brown" coat, followed finally by the "finishing" coat. Up until the late-nineteenth century, the first and the second coats were of much the same composition, generally consisting of lime, or natural cement, sand, perhaps clay, and one or more of the additives previously mentioned. Straw or animal hair was usually added to the first coat as a binder. The third, or finishing coat, consisted primarily of a very fine mesh grade of lime and sand, and sometimes pigment. As already noted, after the 1820's, natural cement was also a common ingredient in stucco until it was replaced by portland cement.



A



B



C



D

Fig. 10. (a) Tudor Place, Washington, D.C. (1805–1816), was designed by Dr. William Thornton. Like its contemporary, Arlington House, it is stuccoed and scored, with a roughcast base, but here the stucco is a monochromatic sandstone color tinted by sand and mineral pigments (b). Although the original stucco was replaced in the early-20th century with a portland cement-based stucco, the family, who retained ownership until 1984 when the house was opened to the public, left explicit instructions for future stucco repairs. The mix recommended for repairing hairline cracks (c), consists of sharp sand, cement and lime, burnt umber, burnt sienna, and a small amount of raw sienna. Preparation of numerous test samples, the size of “a thick griddle cake,” will be necessary to match the stucco color, and when the exact color has been achieved, the mixture is to be diluted to the “consistency of cream,” brushed on the wall and rubbed into the cracks with a rubber sponge or float. Note the dark color visible under the eaves intended to replicate the stronger color of the original limewashed stucco (d). Photos: Anne Grimmer.

Both masonry and wood lath must be kept wet or damp to ensure a good bond with the stucco. Wetting these materials helps to prevent them from pulling moisture out of the stucco too rapidly, which results in cracking, loss of bond, and generally poor quality stuccowork.

### Traditional Stucco Finishes

Until the early-twentieth century when a variety of novelty finishes or textures were introduced, the last coat of stucco was commonly given a smooth, troweled finish, and then scored or lined in imitation of ashlar. The illusion of masonry joints was sometimes enhanced by a thin line of white lime putty, graphite, or some other pigment. Some nineteenth century buildings feature a water table or raised foundation of rough-cast stucco that differentiates it from the stucco surface above, which is smooth and scored (Fig. 10). Other novelty or textured finishes associated with the "period" or revival styles of the early-twentieth century include: the English cottage finish, adobe and Spanish, pebble-dashed or dry-dash surface, fan and sponge texture, reticulated and vermiculated, roughcast (or wet dash), and sgraffito (Fig. 11).

### Repairing Deteriorated Stucco

#### Regular Maintenance

Although A. J. Downing alluded to stuccoed houses in Pennsylvania that had survived for over a century in relatively good condition, historic stucco is inherently not a particularly permanent or long-lasting building material. Regular maintenance is required to keep it in good condition. Unfortunately, many older or historic buildings are not always accorded this kind of care.

Because building owners knew stucco to be a protective, but also somewhat fragile coating, they employed a variety of means to prolong its usefulness. The most common treatment was to whitewash stucco, often annually. The lime in the whitewash offered protection and stability and helped to harden the stucco. Most importantly, it filled hairline cracks before they could develop into larger cracks and let in moisture. To improve water repellency, stucco buildings were also sometimes coated with paraffin, another type of wax, or other stucco-like coatings, such as oil mastics.

#### Assessing Damage

Most stucco deterioration is the result of water infiltration into the building structure, either through the roof, around chimneys, window and door openings, or excessive ground water or moisture penetrating through, or splashing up from the foundation. Potential causes of deterioration include: ground settlement, lintel and door frame settlement, inadequate or leaking gutters and downspouts, intrusive vegetation, moisture migration within walls due to interior condensation and humidity, vapor drive problems caused by furnace, bathroom and kitchen vents, and rising damp resulting from excessive ground water and poor drainage around the foundation. Water infiltration will cause wood lath to rot, and metal lath and nails to rust, which eventu-



Fig. 11. The Hotel Washington, Washington, D.C. (1916–1917), is notable for its decorative *sgraffito* surfaces. Stucco panels under the cornice and around the windows feature classical designs created by artists who incised the patterns in the outer layer of red-colored stucco while still soft, thereby exposing a stucco undercoat of a contrasting color. Photo: Kaye Ellen Simonson.

ally will cause stucco to lose its bond and pull away from its substrate.

After the cause of deterioration has been identified, any necessary repairs to the building should be made first before repairing the stucco. Such work is likely to include repairs designed to keep excessive water away from the stucco, such as roof, gutter, downspout and flashing repairs, improving drainage, and redirecting rainwater runoff and splash-back away from the building. Horizontal areas such as the tops of parapet walls or chimneys are particularly vulnerable to water infiltration, and may require modifications to their original design, such as the addition of flashing to correct the problem.

Previous repairs inexpertly carried out may have caused additional deterioration, particularly if executed in portland cement, which tends to be very rigid, and therefore incompatible with early, mostly soft lime-based stucco that is more "flexible." Incompatible

repairs, external vibration caused by traffic or construction, or building settlement can also result in cracks which permit the entrance of water and cause the stucco to fail (Fig. 12).

Before beginning any stucco repair, an assessment of the stucco should be undertaken to determine the extent of the damage, and how much must be replaced or repaired. Testing should be carried out systematically on all elevations of the building to determine the overall condition of the stucco. Some areas in need of repair will be clearly evidenced by missing sections of stucco or stucco layers. Bulging or cracked areas are obvious places to begin. Unsound, punky or soft areas that have lost their key will echo with a hollow sound when tapped gently with a wooden or acrylic hammer or mallet.

### Identifying the Stucco Type

Analysis of the historic stucco will provide useful information on its primary ingredients and their proportions, and will help to ensure that the new replacement stucco will duplicate the old in strength, composition, color and texture as closely as possible. However, unless authentic, period restoration is required, it may not be worthwhile, nor in many instances possible, to attempt to duplicate *all* of the ingredients (particularly some of the additives), in creating the new stucco mor-

tar. Some items are no longer available, and others, notably sand and lime—the major components of traditional stucco—have changed radically over time. For example, most sand used in contemporary masonry work is manufactured sand, because river sand, which was used historically, is difficult to obtain today in many parts of the country. The physical and visual qualities of manufactured sand versus river sand, are quite different, and this affects the way stucco works, as well as the way it looks. The same is true of lime, which is frequently replaced by gypsum in modern stucco mixes. And even if identification of all the items in the historic stucco mix were possible, the analysis would still not reveal how the original stucco was mixed and applied.

There are, however, simple tests that can be carried out on a small piece of stucco to determine its basic make-up. A dilute solution of hydrochloric (muriatic) acid will dissolve lime-based stucco, but not portland cement. Although the use of portland cement became common after 1900, there are no precise cut-off dates, as stuccoing practices varied among individual plasterers, and from region to region. Some plasterers began using portland cement in the 1880's, but others may have continued to favor lime stucco well into the early-twentieth century. While it is safe to assume that a late-eighteenth or early-nineteenth century stucco is lime-based, late-nineteenth or early-twentieth century

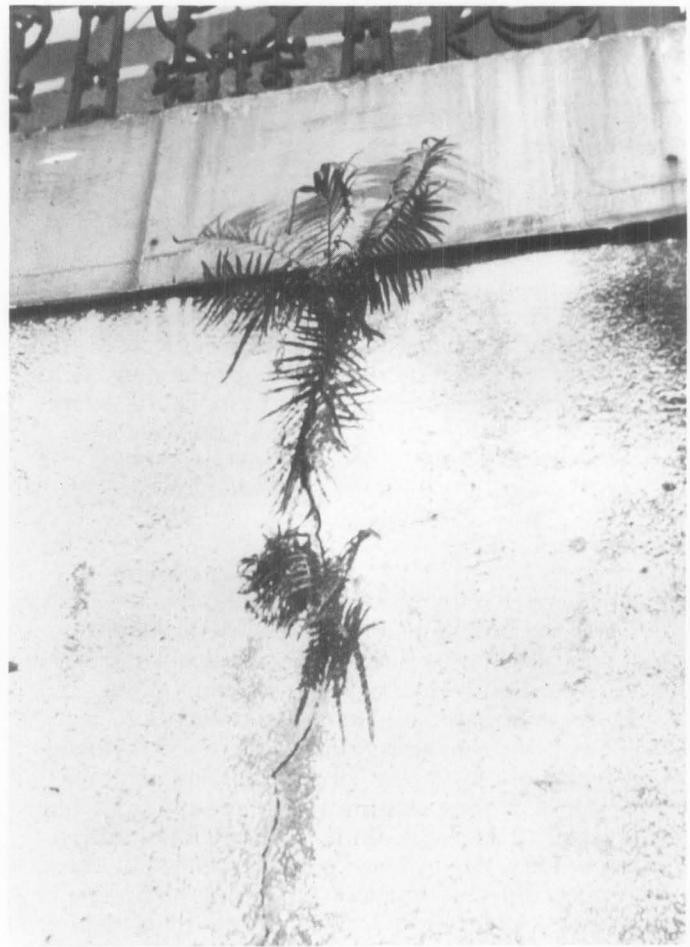
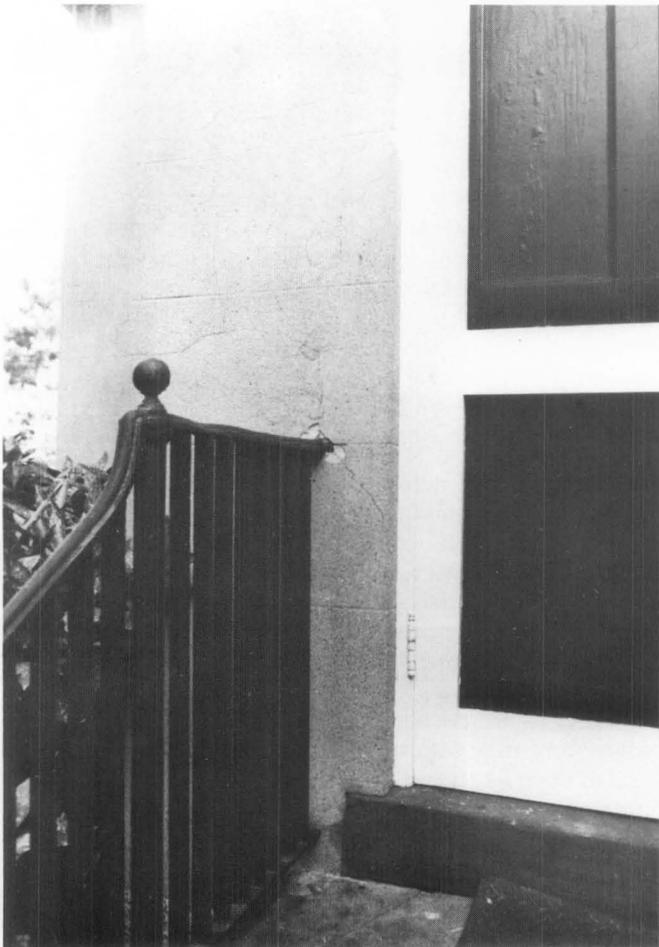


Fig. 12. (a) Water intrusion caused by rusting metal, or (b) plant growth left unattended will gradually enlarge these cracks, resulting in spalling, and eventually requiring extensive repair of the stucco. Photos: National Park Service Files.



Fig. 13. (a) In preparation for repainting, hairline cracks on this Mediterranean style stucco apartment building were filled with a commercial caulking compound; (b) dirt is attracted and adheres to the texture of the caulked areas, and a year after painting, these inappropriate repairs are highly obvious. Photos: Anne Grimmer.

stucco may be based on either lime or portland cement. Another important factor to take into consideration is that an early lime-stucco building is likely to have been repaired many times over the ensuing years, and it is probable that at least some of these patches consist of portland cement.

### Planning the Repair

Once the extent of damage has been determined, a number of repair options may be considered. Small hairline cracks usually are not serious and may be sealed with a thin slurry coat consisting of the finish coat ingredients, or even with a coat of paint or white-wash. Commercially available caulking compounds are not suitable materials for patching hairline cracks. Because their consistency and texture is unlike that of stucco, they tend to weather differently, and attract more dirt; as a result, repairs made with caulking compounds may be highly visible, and unsightly (Fig. 13). Larger cracks will have to be cut out in preparation for more extensive repair. Most stucco repairs will require the skill and expertise of a professional plasterer (Fig. 14).

In the interest of saving or preserving as much as possible of the historic stucco, patching rather than wholesale replacement is preferable. When repairing heavily textured surfaces, it is not usually necessary to replace an entire wall section, as the textured finish, if well-executed, tends to conceal patches, and helps them to blend in with the existing stucco. However, because of the nature of smooth-finished stucco, patching a number of small areas scattered over one elevation may not be a successful repair approach unless the stucco has been previously painted, or is to be painted following the repair work. On unpainted stucco such patches are hard to conceal, because they may not match exactly or blend in with the rest of the historic stucco surface. For



Fig. 14. This poorly executed patch is not the work of a professional plasterer. While it may serve to keep out water, it does not match the original surface, and is not an appropriate repair for historic stucco. Photo: Betsy Chittenden.

this reason it is recommended, if possible, that stucco repair be carried out in a contained or well-defined area, or if the stucco is scored, the repair patch should be "squared-off" in such a way as to follow existing scoring. In some cases, especially in a highly visible location, it may be preferable to restucco an entire wall section or feature. In this way, any differences between the patched area and the historic surface will not be so readily apparent.

Repair of historic stucco generally follows most of the same principles used in plaster repair. First, all deteriorated, severely cracked and loose stucco should be removed down to the lath (assuming that the lath is securely attached to the substrate), or down to the masonry if the stucco is directly applied to a masonry substrate. A clean surface is necessary to obtain a good

bond between the stucco and substrate. The areas to be patched should be cleaned of all debris with a bristle brush, and all plant growth, dirt, loose paint, oil or grease should be removed (Fig. 15). If necessary, brick or stone mortar joints should then be raked out to a depth of approximately 5/8" to ensure a good bond between the substrate and the new stucco.

To obtain a neat repair, the area to be patched should be squared-off with a butt joint, using a cold chisel, a hatchet, a diamond blade saw, or a masonry bit. Sometimes it may be preferable to leave the area to be patched in an irregular shape which may result in a less conspicuous patch. Proper preparation of the area to be patched requires very sharp tools, and extreme caution on the part of the plasterer not to break keys of surrounding good stucco by "over-sounding" when removing deteriorated stucco. To ensure a firm bond, the new patch must not overlap the old stucco. If the stucco has lost its bond or key from wood lath, or the lath has deteriorated or come loose from the substrate, a decision must be made whether to try to reattach the old lath, to replace deteriorated lath with new wood lath, or to leave the historic wood lath in place and supplement it with modern expanded metal lath. Unless authenticity is important, it is generally preferable (and easier) to nail new metal lath over the old wood lath to support the patch. Metal lath that is no longer

securely fastened to the substrate may be removed and replaced in kind, or left in place, and supplemented with new wire lath.

When repairing lime-based stucco applied directly to masonry, the new stucco should be applied in the same manner, directly onto the stone or brick. The stucco will bond onto the masonry itself without the addition of lath because of the irregularities in the masonry or those of its mortar joints, or because its surface has been scratched, scored or otherwise roughened to provide an additional key. Cutting out the old stucco at a diagonal angle may also help secure the bond between the new and the old stucco. For the most part it is not advisable to insert metal lath when restuccoing historic masonry in sound condition, as it can hasten deterioration of the repair work. Not only will attaching the lath damage the masonry, but the slightest moisture penetration can cause metal lath to rust. This will cause metal to expand, eventually resulting in spalling of the stucco, and possibly the masonry substrate too.

If the area to be patched is properly cleaned and prepared, a bonding agent is usually not necessary. However, a bonding agent may be useful when repairing hairline cracks, or when dealing with substrates that do not offer a good bonding surface. These may include dense stone or brick, previously painted or stuccoed

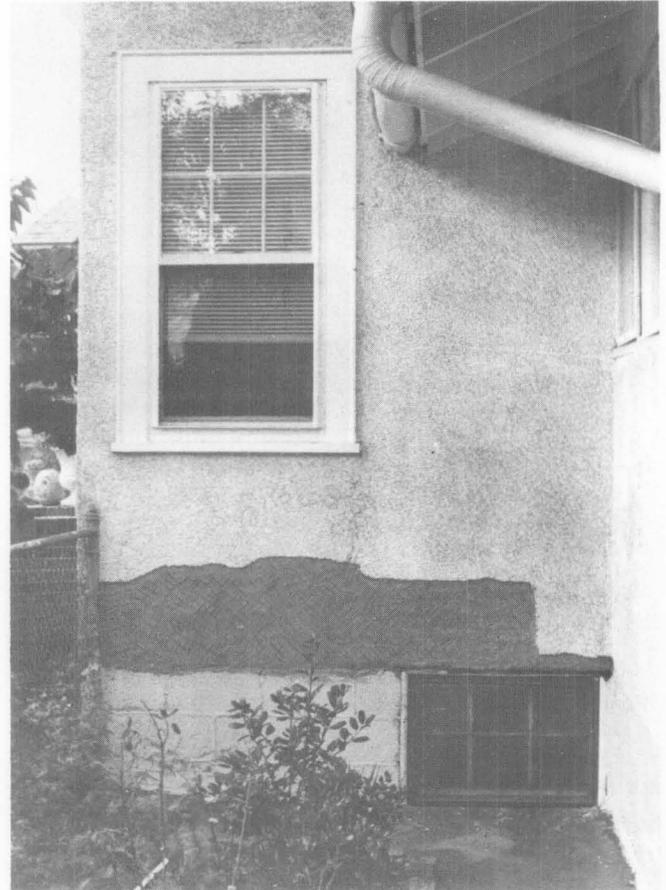
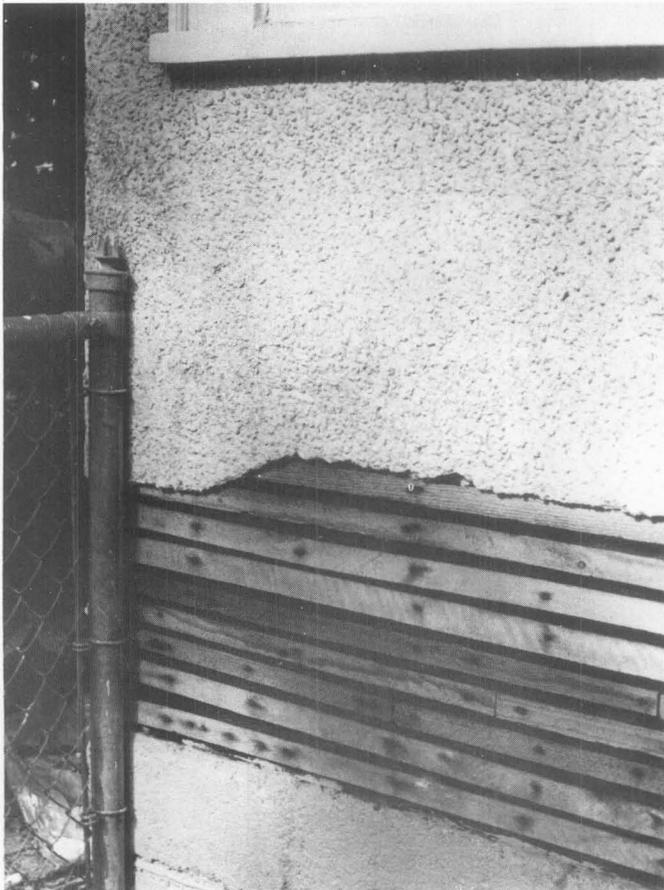


Fig. 15. (a) After reattaching any loose wood lath to the furring strips underneath, the area to be patched has been cleaned, the lath thoroughly wetted, and (b) the first coat of stucco has been applied and scratched to provide a key to hold the second layer of stucco. Photos: Betsy Chittenden.

masonry, or spalling brick substrates. A good mechanical bond is always preferable to reliance on bonding agents. Bonding agents should not be used on a wall that is likely to remain damp or where large amounts of salts are present. Many bonding agents do not survive well under such conditions, and their use could jeopardize the longevity of the stucco repair.

A stucco mix compatible with the historic stucco should be selected after analyzing the existing stucco. It can be adapted from a standard traditional mix of the period, or based on one of the mixes included here. Stucco consisting mostly of portland cement generally will not be physically compatible with the softer, more flexible lime-rich historic stuccos used throughout the eighteenth and much of the nineteenth centuries. The differing expansion and contraction rates of lime stucco and portland cement stucco will normally cause the stucco to crack. Choosing a stucco mix that is durable and compatible with the historic stucco on the building is likely to involve considerable trial and error, and probably will require a number of test samples, and even more if it is necessary to match the color. It is best to let the stucco test samples weather as long as possible—ideally one year, or at least through a change of seasons, in order to study the durability of the mix and its compatibility with the existing stucco, as well as the weathering of the tint if the building will not be painted and color match is an important factor. If the test samples are not executed on the building, they should be placed next to the stucco remaining on the building to compare the color, texture and composition of the samples with the original. The number and thickness of stucco coats used in the repair should also match the original.

After thoroughly dampening the masonry or wood lath, the first, scratch coat should be applied to the masonry substrate, or wood or metal lath, in a thickness that corresponds to the original if extant, or generally about 1/4" to 3/8". The scratch coat should be scratched or cross-hatched with a comb to provide a key to hold the second coat. It usually takes 24–72 hours, and longer in cold weather, for each coat to dry before the next coat can be applied. The second coat should be about the same thickness as the first, and the total thickness of the first two coats should generally not exceed about 5/8". This second or leveling coat should be roughened using a wood float with a nail protruding to provide a key for the final or finish coat. The finish coat, about 1/4" thick, is applied after the previous coat has initially set. If this is not feasible, the base coat should be thoroughly dampened when the finish coat is applied later. The finish coat should be worked to match the texture of the original stucco (Fig. 16).

### Colors and Tints for Historic Stucco Repair

The color of most early stucco was supplied by the aggregate included in the mix—usually the sand. Sometimes natural pigments were added to the mix, and eighteenth and nineteenth-century scored stucco was often marbled or painted in imitation of marble or granite. Stucco was also frequently coated with whitewash or a colorwash. This tradition later evolved

into the use of paint, its popularity depending on the vagaries of fashion as much as a means of concealing repairs. Because most of the early colors were derived from nature, the resultant stucco tints tended to be mostly earth-toned. This was true until the advent of brightly colored stucco in the early decades of the twentieth century. This was the so-called "Jazz Plaster" developed by O.A. Malone, the "man who put color into California," and who founded the California Stucco Products Corporation in 1927. California Stucco was revolutionary for its time as the first stucco/plaster to contain colored pigment in its pre-packaged factory mix.

When patching or repairing a historic stucco surface known to have been tinted, it may be possible to determine through visual or microscopic analysis whether the source of the coloring is sand, cement or pigment. Although some pigments or aggregates used traditionally may no longer be available, a sufficiently close color-match can generally be approximated using sand, natural or mineral pigments, or a combination of these. Obtaining such a match will require testing and comparing the color of dried test samples with the original. Successfully combining pigments in the dry stucco mix prepared for the finish coat requires considerable skill. The amount of pigment must be carefully measured for each batch of stucco. Overworking the mix can make the pigment separate from the lime. Changing the amount of water added to the mix, or using water to apply the tinted finish coat, will also affect the color of the stucco when it dries.

Generally, the color obtained by hand-mixing these ingredients will provide a sufficiently close match to cover an entire wall or an area distinct enough from the rest of the structure that the color differences will not be obvious. However, it may not work for small patches conspicuously located on a primary elevation, where color differences will be especially noticeable. In these instances, it may be necessary to conceal the repairs by painting the entire patched elevation, or even the whole building.

Many stucco buildings have been painted over the years and will require repainting after the stucco repairs have been made. Limewash or cement-based paint, latex paint, or oil-based paint are appropriate coatings for stucco buildings. The most important factor to consider when repainting a previously painted or coated surface is that the new paint be compatible with any coating already on the surface. In preparation for repainting, all loose or peeling paint or other coating material not firmly adhered to the stucco must be removed by hand-scraping or natural bristle brushes. The surface should then be cleaned.

Cement-based paints, most of which today contain some portland cement and are really a type of limewash, have traditionally been used on stucco buildings. The ingredients were easily obtainable. Furthermore, the lime in such paints actually bonded or joined with the stucco and provided a very durable coating. In many regions, whitewash was applied annually during spring cleaning. Modern, commercially available pre-mixed masonry and mineral-based paints may also be used on historic stucco buildings.



Fig. A

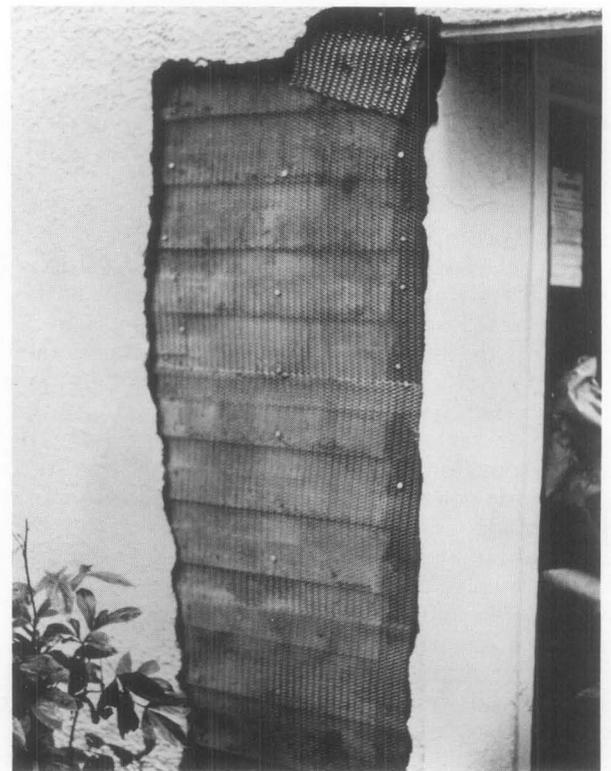


Fig. B

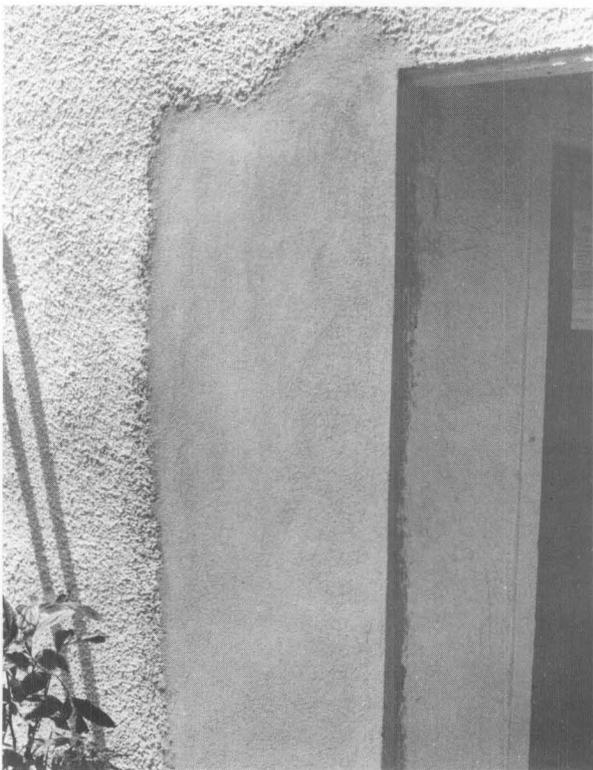


Fig. C

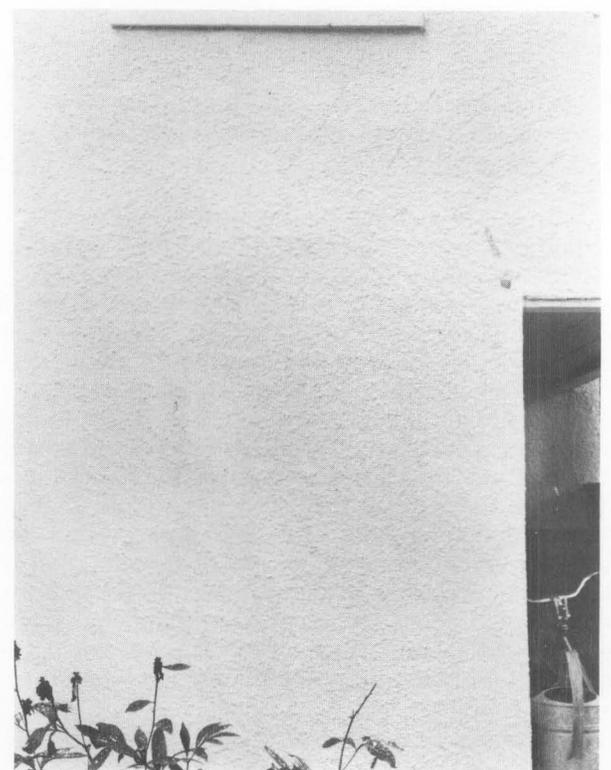


Fig. D

Fig. 16. (a) In preparation for stucco repair, this plasterer is mixing the dry materials in a mortar box with a mortar hoe (note the 2 holes in the blade), pulling it through the box using short choppy strokes. After the dry materials are thoroughly combined, water is added and mixed with them using the same choppy, but gradually lengthening stokes, making sure that the hoe cuts completely through the mix to the bottom of the box. (b) The deteriorated stucco has been cut away, and new metal lath has been nailed to the clapboarding in the area to be patched. (Although originally clapboarded when built in the 19th century, the house was stuccoed around the turn-of-the-century on metal lath nailed over the clapboard.) (c) The first, scratch coat and the second coat have been applied here, and await the spatterdash or rough-cast finish of the final coat (d) which was accomplished by the plasterer using a whisk broom to throw the stucco mortar against the wall surface. This well-executed patch is barely discernable, and lacks only a coat of paint to make it blend completely with the rest of the painted wall surface. Photos: Anne Grimmer.

If the structure must be painted for the first time to conceal repairs, almost any of these coatings may be acceptable depending on the situation. Latex paint, for example, may be applied to slightly damp walls or where there is an excess of moisture, but latex paint will not stick to chalky or powdery areas. Oil-based, or alkyd paints must be applied only to dry walls; new stucco must cure up to a year before it can be painted with oil-based paint.

### Contemporary Stucco Products

There are many contemporary stucco products on the market today. Many of them are not compatible, either physically or visually, with historic stucco buildings. Such products should be considered for use only after consulting with a historic masonry specialist. However, some of these prepackaged tinted stucco coatings may be suitable for use on stucco buildings dating from the late-nineteenth or early-twentieth century, as long as the color and texture are appropriate for the period and style of the building. While some masonry contractors may, as a matter of course, suggest that a water-repellent coating be applied after repairing old stucco, in most cases this should not be necessary, since color-washes and paints serve the same purpose, and stucco itself is a protective coating.

### Cleaning Historic Stucco Surfaces

Historic stucco buildings often exhibit multiple layers of paint or limewash. Although some stucco surfaces may be cleaned by water washing, the relative success of this procedure depends on two factors: the surface texture of the stucco, and the type of dirt to be removed. If simply removing airborne dirt, **smooth unpainted stucco**, and **heavily-textured painted stucco** may sometimes be cleaned using a low-pressure water wash, supplemented by scrubbing with soft natural bristle brushes, and possibly non-ionic detergents. Organic plant material, such as algae and mold, and metallic stains may be removed from stucco using poultices and appropriate solvents. Although these same methods may be employed to clean **unpainted rough-cast, pebble-dash, or any stucco surface featuring exposed aggregate**, due to the surface irregularities, it may be difficult to remove dirt, without also removing portions of the decorative textured surface. Difficulty in cleaning these surfaces may explain why so many of these textured surfaces have been painted.

### When Total Replacement is Necessary

Complete replacement of the historic stucco with new stucco of either a traditional or modern mix will probably be necessary only in cases of extreme deterioration—that is, a loss of bond on over 40–50 per cent of the stucco surface. Another reason for total removal might be that the physical and visual integrity of the historic stucco has been so compromised by prior incompatible and ill-conceived repairs that patching would not be successful.

When stucco no longer exists on a building there is more flexibility in choosing a suitable mix for the replacement. Since compatibility of old and new stucco will not be an issue, the most important factors to con-

sider are durability, color, texture and finish. Depending on the construction and substrate of the building, in some instances it may be acceptable to use a relatively strong cement-based stucco mortar. This is certainly true for many late-nineteenth and early-twentieth century buildings, and may even be appropriate to use on some stone substrates even if the original mortar would have been weaker, as long as the historic visual qualities noted above have been replicated. Generally, the best principle to follow for a masonry building is that the stucco mix, whether for repair or replacement of historic stucco, should be somewhat weaker than the masonry to which it is to be applied in order not to damage the substrate.

### General Guidance for Historic Stucco Repair

A skilled professional plasterer will be familiar with the properties of materials involved in stucco repair and will be able to avoid some of the pitfalls that would hinder someone less experienced. General suggestions for successful stucco repair parallel those involving restoration and repair of historic mortar or plaster. In addition, the following principles are important to remember:

- Mix only as much stucco as can be used in one and one-half to two hours. This will depend on the weather (mortar will harden faster under hot and dry, or sunny conditions); and experience is likely to be the best guidance. Any remaining mortar should be discarded; it should not be retempered.
- Stucco mortar should not be over-mixed. (Hand mix for 10–15 minutes after adding water, or machine mix for 3–4 minutes after all ingredients are in mixer.) Over-mixing can cause crazing and discoloration, especially in tinted mortars. Over-mixing will also tend to make the mortar set too fast, which will result in cracking and poor bonding or keying to the lath or masonry substrate.
- Wood lath or a masonry substrate, but not metal lath, must be thoroughly wetted before applying stucco patches so that it does not draw moisture out of the stucco too rapidly. To a certain extent, bonding agents also serve this same purpose. Wetting the substrate helps retard drying.
- To prevent cracking, it is imperative that stucco not dry too fast. Therefore, the area to be stuccoed should be shaded, or even covered if possible, particularly in hot weather. It is also a good idea in hot weather to keep the newly stuccoed area damp, at approximately 90 per cent humidity, for a period of 48 to 72 hours.
- Stucco repairs, like most other exterior masonry work, should not be undertaken in cold weather (below 40 degrees fahrenheit, and preferably warmer), or if there is danger of frost.

## Historic Stucco Textures

Most of the oldest stucco in the U.S. dating prior to the late-nineteenth century, will generally have a **smooth, troweled finish** (sometimes called a **sand or float finish**), possibly scored to resemble ashlar masonry units. Scoring may be incised to simulate masonry joints, the scored lines may be emphasized by black or white penciling, or the lines may simply be drawn or painted on the surface of the stucco. In some regions, at least as early as the first decades of the nineteenth century, it was not uncommon to use a **roughcast finish** on the foundation or base of an otherwise **smooth-surfaced** building (Fig. a). **Roughcast** was also used as an overall stucco finish for some outbuildings, and other less important types of structures.

A wide variety of decorative surface textures may be found on revival style stucco buildings, particularly residential architecture. These styles evolved in the late-nineteenth century and peaked in popularity in the early decades of the twentieth century. Frank Lloyd Wright favored a **smooth finish** stucco, which was imitated on much of the Prairie style architecture inspired by his work. Some of the more picturesque surface textures include: **English Cottage** or **English Cotswold finish**; **sponge finish** (Fig. b); **fan texture**; **adobe finish** (Fig. c), and **Spanish or Italian**

**finish**. Many of these finishes and countless other regional and personalized variations on them are still in use.

The most common early-twentieth century stucco finishes are often found on bungalow-style houses, and include: **spatter** or **spatterdash** (sometimes called **roughcast**, **harling**, or **wetdash**), and **pebbledash** or **drydash**. The **spatterdash** finish is applied by throwing the stucco mortar against the wall using a whisk broom or a stiff fiber brush, and it requires considerable skill on the part of the plasterer to achieve a consistently rough wall surface. The mortar used to obtain this texture is usually composed simply of a regular sand, lime, and cement mortar, although it may sometimes contain small pebbles or crushed stone aggregate, which replaces one-half the normal sand content. The **pebbledash** or **drydash finish** is accomplished manually by the plasterer throwing or "dashing" dry pebbles (about 1/8" to 1/4" in size), onto a coat of stucco freshly applied by another plasterer. The pebbles must be thrown at the wall with a scoop with sufficient force and skill that they will stick to the stuccoed wall. A more even or uniform surface can be achieved by patting the stones down with a wooden float. This finish may also be created using a texturing machine (Figs. d-f illustrate 3 versions of this finish. Photos: National Park Service Files).

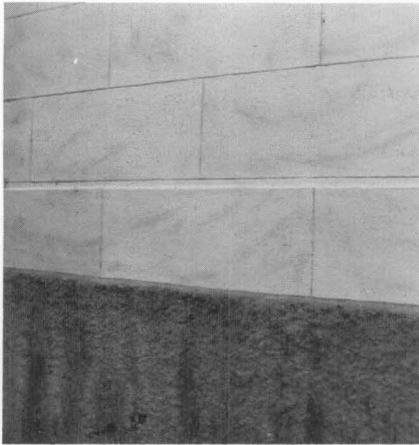


Fig. A



Fig. B



Fig. C

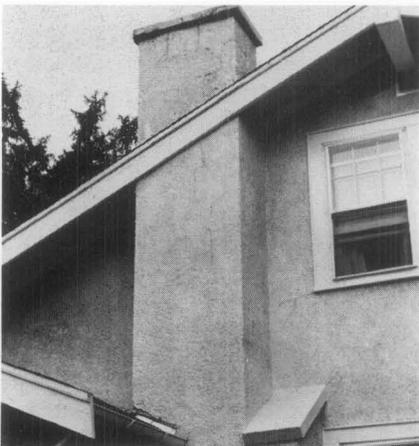


Fig. D

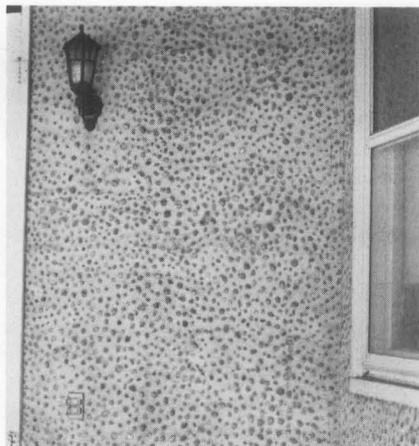


Fig. E



Fig. F

## Summary

Stucco on historic buildings is especially vulnerable not only to the wear of time and exposure to the elements, but also at the hands of well-intentioned "restorers," who may want to remove stucco from eighteenth and nineteenth century structures, to expose what they believe to be the original or more "historic" brick, stone or log underneath. Historic stucco is a character-defining feature and should be considered an important historic building material, significant in its own right. While many eighteenth and nineteenth century buildings were stuccoed at the time of construction, others were stuccoed later for reasons of fashion or practicality. As such, it is likely that this stucco has acquired significance over time, as part of the history and evolution of a building. Thus, even later, non-historic stucco should be retained in most instances; and similar logic dictates that new stucco should not be applied to a historic building that was not stuccoed previously. When repairing historic stucco, the new stucco should duplicate the old as closely as possible in strength, composition, color and texture.

### Mixes for Repair of Historic Stucco

Historic stucco mixes varied a great deal regionally, depending as they did on the availability of local materials. There are probably almost as many mixes that can be used for repair of historic stucco as there are historic stucco buildings. For this reason it is recommended that at least a rudimentary analysis of the existing historic stucco be carried out in order to determine its general proportions and primary ingredients. However, if this is not possible, or if test results are inconclusive, the following mixes are provided as reference. Many of the publications listed under "Selected Reading" include a variety of stucco mixes and should also be consulted for additional guidance.

**Materials Specifications** should conform to those contained in *Preservation Briefs 2: Repointing Mortar Joints in Historic Brick Buildings*, and are as follows:

- Lime should conform to ASTM C-207, Type S, Hydrated Lime for Masonry Purposes.
- Sand should conform to ASTM C-144 to assure proper gradation and freedom from impurities. Sand, or other type of aggregate, should match the original as closely as possible.
- Cement should conform to ASTM C-150, Type II (white, non-staining), portland cement.
- Water should be fresh, clean and potable.
- If hair or fiber is used, it should be goat or cattle hair, or pure manilla fiber of good quality, 1/2" to 2" in length, clean, and free of dust, dirt, oil, grease or other impurities.
- Rules to remember: More lime will make the mixture more plastic, but stucco mortar with a very large proportion of lime to sand is more likely to crack because of greater shrinkage; it is also weaker and slower to set. More sand or aggregate, will minimize shrinkage, but make the mixture harder to trowel smooth, and will weaken the mortar.

### Soft Lime Stucco (suitable for application to buildings dating from 1700-1850)

*A.J. Downing's Recipe for Soft Lime Stucco*

- 1 part lime
- 2 parts sand

(A.J. Downing, "The Architecture of Country Houses," 1850)

### *Vieux Carre Masonry Maintenance Guidelines*

Base Coats (2):

- 1 part by volume hydrated lime
- 3 parts by volume aggregate [sand]—size to match original
- 6 pounds/cubic yards hair or fiber

Water to form a workable mix.

Finish Coat:

- 1 part by volume hydrated lime
- 3 parts aggregate [sand]—size to match original

Water to form a workable mix.

Note: No portland cement is recommended in this mix, but if it is needed to increase the workability of the mix and to decrease the setting time, the amount of portland cement added should never exceed 1 part to 12 parts lime and sand.

("Vieux Carre Masonry Maintenance Guidelines," June, 1980.)

### *"Materials for Soft Brick Mortar and for Soft Stucco"*

- 5 gallons hydrated lime
- 10 gallons sand

- 1 quart white, non-staining portland cement (1 cup only for pointing)

Water to form a workable mix.

(Koch and Wilson, Architects, New Orleans, Louisiana, February, 1980)

### *Mix for Repair of Traditional Natural Cement or Hydraulic Lime Stucco*

- 1 part by volume hydrated lime
- 2 parts by volume white portland cement
- 3 parts by volume fine mason's sand

If hydraulic lime is available, it may be used instead of lime-cement blends.

("Conservation Techniques for the Repair of Historical Ornamental Exterior Stucco, January, 1990)



### Early-twentieth century Portland Cement Stucco

- 1 part portland cement
- 2 1/2 parts sand

Hydrated lime = to not more than 15% of the cement's volume

Water to form a workable mix.

The same basic mix was used for all coats, but the finish coat generally contained more lime than the undercoats. ("Illinois Preservation Series No. 2: Stucco," January, 1980)

### American Portland Cement Stucco Specifications (c. 1929)

Base Coats:

- 5 pounds, dry, hydrated lime
- 1 bag portland cement (94 lbs.)

Not less than 3 cubic feet (3 bags) sand (passed through a #8 screen)

Water to make a workable mix.

Finish Coat:

Use WHITE portland cement in the mix in the same proportions as above.

To color the stucco add not more than 10 pounds pigment for each bag of cement contained in the mix.

## Selected Reading

- Ashurst, John, and Nicola Ashurst. *Practical Building Conservation, English Heritage Technical Handbook, Volume 3. Mortars, Plasters and Renders*. New York: Halsted Press, 1988.
- Conway, Brian D. *Illinois Preservation Series Number 2: Stucco*. Springfield, IL: Illinois Department of Conservation, Division of Historic Sites, 1980.
- Grimmer, Anne E. *Keeping it Clean: Removing Exterior Dirt, Paint, Stains and Graffiti from Historic Masonry Buildings*. Washington, D.C.: National Park Service, U.S. Department of the Interior, 1988.
- Hodgson, Frederick T. *Plaster and Plastering. Mortars and Cements, How to Make, and How to Use . . . with An Illustrated Glossary of Terms*. New York: The Industrial Publication Company, 1901.
- Johnson, LeRoy, Jr. (editor). *Handbook of Maintenance Techniques for Building Conservation in the Strand Historic District, Galveston, Texas*. (Revised edition originally published in 1980 as *Preservation Maintenance Handbook*, prepared by Michael Emrick, AIA, for the Galveston Historical Foundation.) Austin, TX: Texas Historical Commission, 1984.
- Jowers, Walter. "Bungalow Building Materials: How to Repair Stucco." *The Old-House Journal*. Vol. XIII, No. 4 (May 1985), pp. 80-83.
- MacDonald, Marylee. *Preservation Briefs 21: Repairing Historic Flat Plaster-Walls and Ceilings*. Washington, D.C.: National Park Service, U.S. Department of the Interior, 1989.
- Mack, Robert C., AIA, de Teel Patterson Tiller, and James S. Askins. *Preservation Briefs 2: Repointing Mortar Joints in Historic Brick Buildings*. Washington, D.C.: National Park Service, U.S. Department of the Interior, 1980.
- McKee, Harley J., FAIA. *Introduction to Early American Masonry—Stone, Brick, Mortar and Plaster*. Washington, D.C.: National Trust for Historic Preservation and Columbia University, 1973.
- Matero, Frank G., Mary Hardy, Antonio Rava and Joel Snodgrass. *Conservation Techniques for the Repair of Historical Ornamental Exterior Stucco*. (With a Case Study for the Repair of the Cabildo Pedimental Sculpture). Report prepared for the Division of Historic Preservation, Office of Cultural Development, Louisiana Department of Culture, Recreation and Development by The Center for Preservation Research, Columbia University, New York. January 1990.

*Portland Cement Plaster (Stucco) Manual*. Skokie, IL: Portland Cement Association, 1980.

Van Den Branden, F., and Thomas L. Hartsell. *Plastering Skills*. Second edition. Homewood, IL: American Technical Publishers, Inc., 1984.

*Vieux Carre Masonry Maintenance Guidelines*. Revised from the initial report prepared by Mary L. Oehrlein in 1977. New Orleans, LA: Vieux Carre Commission, 1980.

*Whitewash & Coldwater Paints*. Bulletin No. 304-G. Washington, D.C.: National Lime Association, 1955.

Worsham, Gibson. "Exterior Plaster Restoration at the Lord Morton House, Lexington, Kentucky." *Association for Preservation Technology Bulletin*. Vol. XIII, No. 4 (1981), pp. 27-33.

## Acknowledgements

The author gratefully acknowledges the technical expertise contributed to the preparation of this publication by Gilbert Wolf, National Plastering Industries; Walter Jowers; Brian Conway, Michigan Bureau of History; and master plasterer, Lawrence Ring, Sr. In addition, invaluable comments were provided by Michael Auer, Charles Fisher, Lauren Meier, Sharon Park, and Kay Weeks, professional staff of the Technical Preservation Services Branch, National Park Service; professional staff of the Cultural Resources program, Mid-Atlantic Regional Office, National Park Service; and S. Elizabeth Sasser of the Williamsport Preservation Training Center, National Park Service.

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

October 1990

*Cover Photograph: St. James Church, Goose Creek, Berkeley County, South Carolina (1713-1719), is constructed of brick covered with stucco. Although much restored, it is notable for its ornamental stucco detailing, including rusticated quoins, cherub head "keystones" above the windows, flaming hearts, and a pelican in piety—symbol of the sacrament, in the pediment over the front door. Photo: Gary Hume.*

LOCATION 1721 University Ave. S.E.

LOT Part of 9 BLOCK .G ADD Tuttle's.

0112 0689 0096 1298

PERMIT NO	CONSTRUCTION	DATE	CONTRACTOR	COST	O K
B 76164	41x83 Br.Frat. Hse.	5-11-08	M. Schumacher	20000.	
F 25584	Elec.	7-6-08	Mpls. Elec. Const. Co.	400.	
D 39255	Plbg.	7-14-08	W. Walkins & Co.	1800.	7-30-08
F 27411	Elec.	11-20-08	North Eng. Co.	400.	
D 41473	Plbg.	12-14-08	C.A. Simmons	50.	12-23-08
D 139715	Plbg.	12-14-21	M. Mattson	130.	
F 268191	Elec.	8-23-34	Kralstery Elec. Co.	250.	9-14-34
D 289918	Plbg.	1-31-39	Jack Rork	50.	7-25-39
D-326962	Gas range	10-24-41	M. Mattson	40.	
D-335589	con.coffee urn	10-6-42	do	10.	
D-335825	Refrig.	10-15-42	do	10.	
B-284626	Reroof dwlg.	9-26-45	U.S.Rfg.&SidingCo.	285.	
D-367086	Washtray&fl.drain	10-31-46	R.Brown	75.	
D-382067	Plbg.-replacement of all fixts. & R. In.	9-15-47	% . Brown	800.	
F-399053	Wiring and alts.	10-9-47	J.J. Hollick Elec.Co.	100.	
F401589	Fixtures	12-10-47	Hollick Elec. Co.	50.	
O 7860	Repair Stoker	11-15-48	N.W. Hanna Fuel Co.	50.	

(over)


 CARD #1 (OVER)

## INSPECTOR OF BUILDINGS

LOCATION 1721 University Ave.S.E.

 LOT Part of 9 BLOCK G ADD Tuttle's  
 0112 0689 0096 1299

PERMIT NO	CONSTRUCTION	DATE	CONTRACTOR	COST	O K
0-8206	Repr. stoker	5-2-49	N.W. Hanna Fuel Co.	75.	
F-439874	Alts.	3-6-50	Sheldon Green Elec. Inc.	100.	
O 9946	Repr. stoker	3-3-52	N.W. Htg. Eng.	80.	
K 69947	Ext. Plas. Redash	5-2-52	National Coating Co.	1460.	
K 70021	Ext. Plast.	5-7-52	Perma Stone	1930.20	
	" Lathing	5-7-52	do	104.80	
F 491612	Trans. Gas Burner	2-18-53	H.J. Mester	40.	
D 517126	Sink; g w htr	3-22-55	London Plbg.	150.	
B 359575	Encl front stwy;htg rm alts	9-27-57	Student Coop Inc	400.	
D 572863	Rpl g w htr	11-14-58	Ideal Plbg Co.	400.	
F 570718	Wir fixt	4-13-60	Tieso Elec.	300.	
G 61632	Repr. 1 H. " Htg.	12-7-60	Bros Inc.	1,800.	
B 377204	Remodel bsmt.kitch.in frat hse.hang ceiling with mtl.wire	12-18-61	Students Coop.	400.	
P 45442	Vent. Sys.	12-26-61	Northern Air Cond.	750.	
D 673259	2 dryers	5-23-66	Farr Plbg.	50.	
F643459	Altrs;	3-28-69	Libby Elec.	100.	
B 413595	Fire Damage Repairs	3-31-69	Metro Bldrs.	750.	

LOCATION 1721 University Avenue S. E.

LOT Part of 9

BLOCK G

ADD. Tuttle's

~~0112 0000 0000 1700~~

PERMIT NO	CONSTRUCTION	DATE	CONTRACTOR	COST
F643609	wir; fix;	4-7-69	Libby Elec.	200.
F650325	wir; fix; Altrs;	1-16-70	James Elec.	900.
F650795	Altrs;	2-10-70	James Elec.	700.
D 745265	wtr pipe ext	11-16-71	Ideal P & H	300.
F668334	Wiring;	3-3-72	Kehne Electric	150.
D-761523	gas water htr.	6-1-73	Boedeker-Ventco	10.

RUN DATE: 05/05/90  
 RUN TIME: 00:44

CITY OF MINNEAPOLIS  
 DEPARTMENT OF INSPECTIONS  
 MICROFICED PERMITS REPORT

PAGE 26866  
 REPORT 440-BIXM40

ADDRESS PERMIT NUMBER	ISSUE DATE	COMPL DATE	LOT PLAN FILE	BLOCK USE CODE	ADDITION NAME ESTIMATED COST	FEE AMOUNT	CONTRACTOR NAME	CONSTRUCTION TYP COMMENTS
1717	UNIVERSITY SE	000	000	TUTTLES ADDN ST ANTHONY				
B489966	06/18/79	01/08/80	0000		4,149	.00		REROOF MAIN ROOF ONLY #885
F741750	09/07/79	10/29/79	0000		1,200	.00		1-100AMP SER-COLLINS
D837210	03/05/81	03/10/81	0000		500	.00		REPL GWH EWH HOVDE PLBG
F772290	09/22/82	12/17/82	0000		2,500	.00		10-30A CKT COLLINS ELEC
0021106	12/20/82	07/31/85	0000		8,000	165.00	HOVDE P&H	INSTL STEAM & HW, 1 < 2 IN GP, 1 GAS BRX
D850065	12/29/82	12/29/82	0000		300	30.50	HOVDE PLBG & HTG CO IN	INSTL 2 FD, COMRCL
F774708	12/29/82	11/05/84	0000		200	40.50	EDINA ELECTRIC	WIRE BOILER IN COMM'L.
F790141	10/01/84	12/12/84	0000		500	31.00	COLLINS ELEC. CONSTR.	INSTL 3 30A CKT, COMRCL
F795059	05/02/85	06/04/85	0000		2,500	30.50		INSTL 20 OPENINGS FIRE ALARM SYST COMRCL
F795152	05/07/85	05/09/85	0000		2,500	30.50		INSTL 1 30A CKT, 19 OPENING, COMRCL
F800281	12/02/85	12/05/85	0000		0	30.50	COLLINS ELECTRIC	INSTL 1 200A SER, CABLE SYST 1717 UNIV.
F823678	08/29/88	09/06/88	0000		500	35.50	COLLINS ELEC. CONSTR.	INSTL 1-30A CKT LITE & SWITCH COMRCL
D887267	08/31/88	01/20/89	0000		2,200	90.50	HOVDE PLBG & HTG CO IN	INSTL 1BN 1FD, RE-SET 3MF, COMRCL
D887310	09/01/88	01/20/89	0000		200	35.00	KRUMHOLZ CO/PETE'S W &	INSTL 1" MTR, COMRCL
F826702	12/19/88	01/31/89	0000		1,200	50.00	STAFFORD, PAUL ELECTRI	INSTL 1 200A SER, 3 30A CKT, COMRCL
17172221	UNIVERSITY SE	000	000	TUTTLES ADDN ST ANTHONY				
D777894	02/10/75	02/12/75	0000		350	.00		REPL 3 BSNS HOVDE.
1721	UNIVERSITY SE	009	000	TUTTLES ADDN ST ANTHONY				
D745265	11/16/71	00/00/00	0000		300	.00		WTR PIPE EXT
F668334	03/03/72	00/00/00	0000		150	.00		WIRING
D761523	06/01/73	00/00/00	0000		10	.00		GAS WATER HEATER
D783996	10/03/75	10/06/76	0000		25	.00		GAS DRYER METRO GAS
B476389	11/30/77	05/01/78	0000		6,000	.00		ROOFING & INSULATION #1
F728734	07/03/78	09/21/78	0000		125	.00		BOILER JEWELL
G085202	07/10/78	06/17/81	0000		4,000	.00		REPL BLR HORWITZ MECH

1717 UNIVERSITY SE TO: 1721 UNIVERSITY SE 1867

RUN DATE: 05/05/90  
 RUN TIME: 00:44

CITY OF MINNEAPOLIS  
 DEPARTMENT OF INSPECTIONS  
 MICROFICED PERMITS REPORT

PAGE 26867  
 REPORT 440-BIXM40

ADDRESS PERMIT NUMBER	ISSUE DATE	COMPL DATE	LOT PLAN FILE	BLOCK USE CODE	ADDITION N B	NAME ESTIMATED COST	FEE AMOUNT	CONTRACTOR NAME	CONSRUCTION TYP COMMENTS
1721	UNIVERSITY SE	009	000	TUTTLES ADDN	ST ANTHONY				
M172865	07/10/78	10/12/78	0000			100	.00		GAS BURNER, PIPING HORWITZ MECH
K096480	09/14/78	06/05/80	0000			3,010	.00		STUCCO RPRS CEMENT MASONRY EXT
F757720	12/15/80	03/04/81	0000			5,000	.00		1-200A SER 34-3081-100A CKT-MORNING ST Y
F794149	03/21/85	03/28/85	0000			2,500	30.50		INSTL 1 30A CKT, 24 OPENING, COMRCL
K102377	06/30/86	02/11/88	0000			3,150	30.50	DONNELLY, STUCCO CO	100 LL, 100 PS, COMRCL
D887543	09/16/88	08/22/89	0000			175	48.50	BACKDAHL & OLSON P & H	RPL 2 GP, 2 GR (ROOMING HOUSE), COMRCL
D888529	11/02/88	08/22/89	0000			1,800	29.50	BACKDAHL & OLSON P & H	RPL 1 GW RES
1725	UNIVERSITY SE	010	000	TUTTLES ADDN	ST ANTHONY				
D747212	02/02/72	00/00/00	0000			150	.00		RPL GAS WTR HTR
Q015128	10/30/81	01/29/85	0000			8,500	.00		G-STM BLR, M-GAS BRNR, PIP ** SODERLIN
F766299	11/25/81	03/17/83	0000			100	.00		WIRE BCILER WILSON ELEC
B523233	08/11/83	10/12/83	1180		N	13,500	183.30	WATSON-FORSBERG COMPAN	INSTL FRONT TERRACE ADD 16.33X20 COMRCL
B523354	08/16/83	08/23/85	1180		N	66,500	588.48	WATSON-FORSBERG COMPAN	DORMER ADD APPROX 10X14, INT REMOD, COM
F780493	08/25/83	03/02/84	0000			3,800	40.50	LANGFORD ELECTRIC	ALT 6 30A CKT, 1 100A CKT, \$200 COMRCL X
D853983	09/06/83	06/26/84	0000			2,000	45.50		INSTL 1 WC, 1 BN, 1 MF, COMRCL
D854135	09/14/83	06/26/84	0000			250	15.50		INSTL 1FD, ADD TO D853983, COMRCL
F819611	03/28/88	05/20/88	0000			0	30.50	MN CONWAY FIRE & SAFET	INSTL 1 CONTROL, 2 ADDL CONTROL, COMRCLX
1801	UNIVERSITY SE	6	JJJ	SUBD OF BLOCK H	TUTTLES ADDN				
D748134	03/07/72	00/00/00	0000			5	.00		RPL GAS RGE
F814608	08/20/87	10/18/88	0000			0	40.50		INSTL 10-30A CKTS PI KAPPA ALPHA RES
D880761	08/28/87	11/03/87	0000			2,000	107.50	LEVANN BROTHERS INC	RPL 1GW 1FD, 1WC 1BN, S-2WC, WV-1SK 99LF,
Q047977	08/28/87	11/04/87	0000			7,000	45.50	AIR CONDITIONING ASSOC	INSTL PW 2<3/4 IN GP 2 100BTU GAS BR
D890968	03/20/89	09/20/89	0000			800	40.50	LEVANN BROTHERS INC	RPL 2 GW, COMRCL

1721 UNIVERSITY SE TO: 1801 UNIVERSITY SE 1868

Original

PERMIT TO BUILD OUTSIDE OF FIRE LIMITS.

NO. B 76164

Owner *Isis Upsilon Association*

Office of the INSPECTOR OF BUILDINGS,

Architect *Keefe & Colburn*

Minneapolis, Minn. *5/11/1908*

Builders *M. Schumacher*

PROPOSED LOCATION OF BUILDING.

No.	Street	Part of Lot	Lot	Block	Town, Addition or Sub-Division
<i>1721</i>	<i>University Dr. S.E.</i>	<i>49</i>	<i>9</i>	<i>G.</i>	<i>Tubbs</i>

Ward *2* Plate *58*

Wiring Application No. F *23584, 27411*

Plumbing Application No. D *39755*

Moving Application No. E

Heating Application No. G

Sign Application No. H

Street Permit No.

Engineer's Certificate No. *33767*

DESCRIPTION OF BUILDING.

Front	Depth	Height	Stories	Built of	Manner of Construction	To be Used as	To be Completed	Estimated Cost
<i>41</i>	<i>83</i>	<i>42</i>	<i>3</i>	<i>Brick</i>	<i>Fraternity</i>	<i>House</i>	<i>10/1/08</i>	<i>20,000</i>

Permission is hereby granted to *M. Schumacher* to erect the building foundation described in the above statement. This permit is granted upon the express condition that the person to whom it is granted, and his agents, employes and workmen, in all the work done in, around and upon said building, or any part thereof, shall conform in all respects to the ordinances of the City of Minneapolis, regarding the construction, alteration, maintenance, repair and removal of buildings in the city limits; and this permit may be revoked at any time upon violation of any of the provisions of said ordinance.

*M. J. Hoover* Inspector of Buildings

AGREEMENT

In consideration of the issue and delivery to me by the Inspector of Buildings of the City of Minneapolis, of Building Permit No. B *76164* I hereby agree to do the proposed work in accordance with the description above set forth and according to the provisions of the ordinance entitled "An Ordinance to Regulate the Construction, Alteration, Maintenance, Repair and Removal of Buildings in the City of Minneapolis" and amendments thereto.

Dated Minneapolis, Minn. *5/11/1908*

*M. Schumacher*

ORIGINAL

# PERMIT TO BUILD OUTSIDE OF FIRE LIMITS

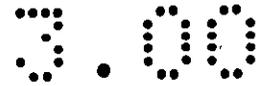
No. B

359575

Owner Student's Co-op Inc.

Architect \_\_\_\_\_

Builders Day Labor



Office of the INSPECTOR OF BUILDINGS,

Minneapolis, Minn., 9-27-57 1957

## PROPOSED LOCATION OF BUILDING

No.	Street	Part of Lot	Lot	Block	Town, Addition or Subdivision
1721	University Ave. S.E.				

Ward <u>2</u>	Plate _____
C-Elev _____	
D-P/bg _____	
E-Moving _____	
F-Elect _____	
G-Htg _____	
H-Sign _____	
K-Plast _____	
M _____	
N-O _____	
P-Q _____	
Engr's Cert. _____	

## DESCRIPTION OF BUILDING

Front	Depth	Height	Stories	Built of	Manner of Construction	To be Used as	To be Completed	Estimated Cost
				Enclose existing front stwy.	on 2nd and 3rd floors, with	1 hr. fire-resistant materials - provide self-closing doors (metal clad) and frames. Patch plaster in cellar heating room and install self-closing device on door. Install self-closing metal clad door and frame in kitchen.	12-1-57	400.00

Permission is hereby granted to Student's Co-op Inc. to alter W. R. McNaughtan the building foundation described in the above statement. This permit is granted upon the express condition that the person to whom it is granted, and his agents, employes and workmen, in all the work done in, around and upon said building, or any part thereof, shall conform in all respects to the ordinances of the City of Minneapolis, regarding the construction, alteration, maintenance, repair and removal of buildings within the city limits; and this permit may be revoked at any time upon violation of any of the provisions of said ordinance.

*Ronald A. Erickson* Inspector of Buildings.

## AGREEMENT AND SWORN STATEMENT

In consideration of the issue and delivery to me by the Inspector of Buildings of the City of Minneapolis of the above permit, I hereby agree to do the proposed work in accordance with the description above set forth and according to the provisions of the ordinances of the City of Minneapolis, and, being first duly sworn, I hereby state and say that the facts stated by me and contained in the above permit are true as therein stated.

Subscribed and sworn to before me at Minneapolis, Minnesota, this 27 day of Sept.  
Ralph J. Baum Notary Public, Hennepin County, Minnesota.  
 My commission expires Jan. 14, 1962  
 County, Minnesota. My commission expires Jan. 14, 1962

*Student Co-op Inc. by Patrick Morgan*  
1721 University Ave. S.E.

NOTE: A permit is required for all electric, plumbing, gas, oil, ventilating, refrigeration, heating or plastering work. Such permit must be secured by a licensed contractor before any such work is started.

D1-1968 134

DEPARTMENT COPY

**PERMIT TO BUILD OUTSIDE OF FIRE LIMITS**

N. L. 413595

Owner Student Co. of America (The issuance of this permit does not imply or authorize the granting of any license.)

Architect 3 University

Builders Metro Builders

DEPARTMENT OF INSPECTIONS

Minneapolis, Minn. 3-31-1969

**PROPOSED LOCATION OF BUILDING**

No.	Street	Part of Lot	Lot	Block	Town, Addition or Subdivision
1721	University Ave.	S E			

**DESCRIPTION OF BUILDING**

Front	Depth	Height	Stories	Built of	Occupancy	To be Completed	Estimated Cost
					Fire damage repairs to 2 <sup>nd</sup> floor	7-1-69	750 <sup>00</sup>
of double No structural change							

Work	3	Time	
Est. Width			
Depth			
Setback			
Survey			
Type & Class			
Approved	<i>[Signature]</i>		
Volume	413595		
App. L.			
Eng'g's Cert.			

Permission is hereby granted to Metro Builders to repair the building foundation described in the above statement. This permit is granted upon the express condition that the person to whom it is granted, and his agents, employees and workmen, in all the work done in, around and upon said building, or any part thereof, shall conform in all respects to the ordinances of the City of Minneapolis, regarding the construction, alteration, maintenance, repair and removal of buildings within the city limits; and this permit may be revoked at any time upon violation of the provisions of said ordinances.

*[Signature: Donald A. Erickson]*  
INSPECTOR OF BUILDINGS - MINNEAPOLIS

**AGREEMENT AND SWORN STATEMENT**

In consideration of the issue and delivery to me by the Inspector of Buildings of the City of Minneapolis of the above permit, I hereby agree to do the proposed work in accordance with the description above set forth and according to the provisions of the ordinances of the City of Minneapolis, and, being first duly sworn, I hereby state and say that the facts stated by me and contained in the above permit are true as therein stated.

Subscribed and sworn to before me at Minneapolis, Minnesota, this 31 day of MARCH, A. D. 19 69.  
*[Signature: John A. Balme]* Notary Public, Hennepin County, Minnesota. My commission expires 1/30 1970

Signed Metro Builders  
 By A. H. Dell Supt 827-3693  
 Address 2909 Nicollet

009660 A 000600  
 1-13-1969  
 Permit Fee Paid

BUILDING & HOUSING SURVEY

Field Survey by City Planning Commission, 339 City Hall, Geneva 5861

Ward. *2nd* District. *I* Block. *10*

2. Address *1731 UNIV. S.E.* Owner's name *PSL. LIPSCHON HAS*

Purpose, Height, Occupancy *FLUMME*

3. Height in stories: (Families-State No. *3*)

5. stories: Residential (Remarks *FRATERNITY house*)

8. stories: Commercial, state occupancy

9. stories: Industrial, state occupancy

10. stories: Public & semi-public

11. stories: Mixed occupancy (1st floor *FRATERNITY house*)

12. Construction *BRICK, STUCCO* 2nd floor

13. Type of roof *TAR & GRAVEL* 3rd floor

14. Notes (Additional floors)

Year built *1907* Elevators *NO*

16. Condition of building: Good *NO* Fair *NO* Bad *NO* Remarks

17. Condition of yards: Good *NO* Fair *NO* Bad *NO* How used *SILVER WASH*

18. Condition of outbuildings: Good *NO* Fair *NO* Bad *NO* How used *None*

19. Heat, state type of heating *STEAM* Fuel used *COAL*

20. Connections sewer, water, bath? *NO* Toilet *NO* Remarks

Electricity *light* Gas *COOKING* Tech. Refrigeration *NO*

21. Summary General: Housing: Business: Industry: Other *NO*

22. Total no. of units *1*

23. No. occupied

24. No. vacant *NONE*

25. Under construction *NO*

27. Apt. No. Down *NO* Up *NO* Side *NO* No. of rooms *19*

28. Tot. no. of persons residing *17* Size of family *NONE* extra family *NO*

29. Dependents *NONE* Roomers no. *17* Remarks *3 EMPLOYEES*

No. of children under 5 yrs. *0* No. children under 16 yrs. *0*

30. Occupied by owner *YES* By renter *NO*

31. Length of occupancy since date *1908* - Vacant since

Concessions to renter *NO* Owner under contract *NO* Mortgage *NO* Free *NO*

32. Color *WHITE* Nativity *AMER* Amt. rent pd. wk. *NO* mo. *NO* *student*

33. Basement rooms occupied by family *NO* Other *SEE REVERSE SIDE*

34. Home occupations? *NONE* Veg. garden last year *NO*

35. Passenger cars housed on lot *NO* Trucks housed on lot *NO*

36. General remarks

Time required to get to work *NO* Mode of transp. to work *STUDENTS*

37. Name of recorder *H. B. HOPPE* Date *JAN 5/34*

To be filled out by office:

38. Legal description: Lot. . . . . Block. . . . . Add. . . . . 38.

39. City Assessor: Value: Land . . . . . Building. . . . . Tot. . . . . 39.

40. Unit value: Land . . . . . Building. . . . . Tot. . . . . 40.

41. Tax delinquency, years . . . . . 41.

42. Record: Bldg. Inspection . . . . . 42.

43. Fire " " . . . . . 43.

44. Health " " . . . . . 44.

45. Other " " . . . . . 45.

46. Checked by. . . . . 46.

NOTE: Print answers - Do not write. Over 1 family use multiple forms. Form BH-1

SEE REVERSE SIDE

JUNE 1971

1st floor

1 - kitchen and breakfast room

1 - dining room

1 - living room

1 - sleeping room

1 - bath room

2nd floor

1 - sleeping room

1 - living room

1 - bath room

3rd floor

3 - sleeping room

1 - living room

1 - study room

1 - bath room

Basement

1 - pool room

1 - store room

1 - laundry room

1 - furnace room

1 - toilet & shower