



NOTICE OF APPROVAL

The Department of Community Planning & Building of the City of Carmel-by-the-Sea has approved a Project pursuant to the City's Municipal Code. Persons interested in the project may review additional materials available at the Department of Community Planning & Building located at City Hall on Monte Verde Street between Ocean and 7th Avenues, phone number 831-620-2010.

The decision to approve this project may be appealed within 10 days from the date of this by filing a written appeal with the Department of Community Planning & Building.

Planning Case #: Design Review 25001

Owner Name: GUNNER RICHARD V & MARGARET S GUNNER TRS

Case Planner: Evan Kort, Senior Planner

Date Posted: _____

Date Approved:

Project Location: NE Corner of Ocean Ave and Monte Verde St

APN #: 010213003000

BLOCK/LOT: 73/ALL LOTS 1-10 EXCLUDING PTS. OF 2 AND 3

Applicant: Erik Dyar

Project Description: This approval of Design Review (DR 25001) reauthorizes an expired Design Review approval (DR 22-303) for an in-kind re-roof for the removal of approximately 10,000 SF of existing roof shingles, and installation of new CertainTeed Landmark 30-year shingles in color black over sloped portion of roof and approximately 4,000 SF of the flat portions of roof to be reroofed using CertainTeed Flintlastic SA membrane in color moire black at the "Pine Inn". This approval also authorizes as-necessary in-kind replacement of any existing dry rotted or damaged wood roof sheathing planks at soffits, sculpted roof rafters tails and sculpted outrigger tails during the re-roofing process for the northwest building at the Pine Inn site. All work shall be completed in-kind to match the existing condition. The project is located at the northwest corner of Monte Verde Street and Ocean Avenue in the Central Commercial (CC) Zoning District and located within the Downtown Conservation as depicted on the plans and scope of work prepared by Erik Dyar dated approved by Community Planning & Building on January 23, 2025, unless modified by the conditions of approval contained herein.

Can this project be appealed to the Coastal Commission? Yes No

Upon completion of the 10 calendar-day appeal period, please return this form, along with the Affidavit of Posting, to the case planner noted above.

CITY OF CARMEL-BY-THE-SEA

DEPARTMENT OF COMMUNITY PLANNING AND BUILDING

FINDINGS FOR DESIGN REVIEW APPROVAL OF HISTORIC RESOURCES

DR 25001 (Pine Inn – Re-roof)
NWC Monte Verde and Ocean
Block/Lot: 73, 1-8
APN: 010-214-032
Date of Action: January 23, 2023

PROJECT DESCRIPTION

Design Review (DR 25001) Application for an in-kind re-roof to a historic building (“Pine Inn”) located at the northwest corner of Monte Verde Street and Ocean Avenue in the Central Commercial (CC) Zoning District and Downtown Conservation District.

FINDINGS OF FACT:

1. The project site is located at the northwest corner of Monte Verde Street and Ocean Avenue in the Central Commercial (CC) Zoning District and located within the Downtown Conservation District. The lot is currently developed with a commercial building known as the “Pine Inn”.
2. On September 27, 2022 a Design Review application was submitted (DR 22-303) for an in-kind re-roof to the building.
3. Pursuant to CMC 17.20.260 (Purpose), the purpose of the Downtown Conservation District Overlay is to protect the historic resources and the general design context that surrounds them.
4. Pursuant to CMC 17.32.150, the project qualifies as a minor alteration to a historic resource. For minor alterations to historic resources, Staff shall issue a determination of consistency for minor alterations that comply with the Secretary’s Standards.
5. Pursuant to CMC 17.32.140.A, staff retained the services of a qualified professional, Margaret Clovis, to assist in making the determination of consistency.
6. Margaret Clovis prepared a Phase II Evaluation, dated October 11, 2022, and found the proposed project consistent with the Secretary of Interiors Standards provided the recommendations outlined in the Phase II Evaluation are adhered to.
7. Staff finds the project, as conditioned below, to be consistent with the Secretary’s Standards.
8. DR 22-303 expired as the project had not been initiated within the time limits established in CMC 17.52.170. This approval of DR 25001 re-authorized the scope of work previously approved under DR 22-303. No changes or modifications have been made to the project, the General Plan, municipal code or Local Coastal Plan Program which impact the approval of this project.

FINDINGS FOR HISTORIC RESOURCES (CMC 17.20.280.A):

1. The historic character of the property will be retained and preserved. Distinctive materials, features, spaces, and spatial relationships that characterize the property will be preserved.

2. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize the property will be preserved.
3. The new work shall be subtly differentiated from the old and will be compatible with the historic materials, features, size, scale, and proportion and massing to protect the integrity of the property and its environment.
 - a. The following finding is not applicable to the scope of work. In accordance with the Secretary of the Interior’s Standards for Rehabilitation, the work shall be done in-kind to will match the existing in size, material and construction detail.
4. The proposed development is consistent with the established design context of the conservation district and will not adversely affect any historic resources on the project site or on adjacent sites.

FINDINGS FOR DESIGN REVIEW APPROVAL (CMC 17.58.060.B):

1. The project, as conditioned, conforms to the applicable policies of the General Plan and the Local Coastal Program.
2. The project, as conditioned, complies with all applicable provisions of Title 17.
3. The project, as conditioned, is consistent with applicable Commercial Design Guidelines.

CONDITIONS OF APPROVAL

1. **Authorization:** This approval of Design Review (DR 25001) reauthorizes an expired Design Review approval (DR 22-303) for an in-kind re-roof for the removal of approximately 10,000 SF of existing roof shingles, and installation of new CertainTeed Landmark 30-year shingles in color black over sloped portion of roof and approximately 4,000 SF of the flat portions of roof to be reroofed using CertainTeed Flintlastic SA membrane in color moire black at the “Pine Inn”. This approval also authorizes as-necessary in-kind replacement of any existing dry rotted or damaged wood roof sheathing planks at soffits, sculpted roof rafters tails and sculpted outrigger tails during the re-roofing process for the northwest building at the Pine Inn site. All work shall be completed in-kind to match the existing condition. The project is located at the northwest corner of Monte Verde Street and Ocean Avenue in the Central Commercial (CC) Zoning District and located within the Downtown Conservation as depicted on the plans and scope of work prepared by Erik Dyar dated approved by Community Planning & Building on January 23, 2025, unless modified by the conditions of approval contained herein.
2. **Codes and Ordinances.** The project shall be carried out in conformance with all requirements of the Central Commercial Zoning District and Downtown Conservation District. All adopted design guidelines and applicable Municipal Code regulations shall be adhered to in carrying out the project. Any changes to the approved color palette or any additional modifications to the building are subject to review and approval by the Community Planning & Building Department.
3. **Permit Validity.** This approval shall be valid for a period of 12 months from the date of action.

4. **Building Permit.** A building permit issued by the Building Division shall be obtained prior to commencing work. These Conditions of Approval shall be signed, as indicated below, prior to the issuance of a re-roof permit. A copy of these signed Conditions of Approval shall be printed on a full size plan sheet in the building permit plan set.
5. **Modifications.** The Applicant shall submit in writing, with revised plans, to the Community Planning and Building staff any proposed changes to the approved project plans prior to incorporating those changes. If the Applicant changes the project without first obtaining City approval, the Applicant will be required to submit the change in writing, with revised plans, within 2 weeks of the City being notified. A cease work order may be issued any time at the discretion of the Director of Community Planning and Building until: a) either the Planning Commission or Staff has approved the change, or b) the property owner has eliminated the change and submitted the proposed change in writing, with revised plans, for review. The project will be reviewed for its compliance to the approved plans prior to final inspection.
6. **Exterior Revisions to Planning Approval Form.** All proposed modifications that affect the exterior appearance of the building or site elements shall be submitted on the “Revisions to Planning Approval” form on file in the Community Planning and Building Department. Any modification incorporated into the construction drawings that is not listed on this form, shall not be deemed approved upon issuance of a building permit.
7. **Conflicts Between Planning Approvals and Construction Plans.** It shall be the responsibility of the Owner, Applicant, and Contractor(s) to ensure consistency between the project plans approved by Planning Staff, the Planning Commission, or the City Council on appeal, and the construction plans submitted to the Building Division as part of the Building Permit review. Where inconsistencies between the Planning approval and the construction plans exist, the Planning approval shall govern, unless otherwise approved in writing by the Community Planning & Building Director, or their designee.

When changes or modifications to the project are proposed, the Applicant shall clearly list and highlight each proposed change and bring each change to the City’s attention. Changes to the project that are incorporated into the construction drawings that were not clearly listed or identified as a proposed change shall not be considered an approved change. Should conflicts exist between the originally approved project plans and the issued construction drawings that were not explicitly identified as a proposed change, the plans approved as part of the Planning Department Review, including any Conditions of Approval, shall prevail.

8. **Repair First.** Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.

Elements that may be replaced if they are damaged beyond repair include includes:

- The sheathing planks at soffits
- Sculpted roof rafter tails
- Sculpted roof outrigger tails

If any of these elements need to be replaced, they will be replaced in kind per the details provided on Sheet A5.1 of the plans. The plans indicate that if any stucco needs to be patched as part of this project it will match the existing texture and color. For more information about patching historic stucco see *Preservation Brief 22: The Preservation and Repair of Historic Stucco*.

- 9. **Indemnification.** The applicant agrees, at his or her sole expense, to defend, indemnify, and hold harmless the City, its public officials, officers, employees, and assigns, from any liability; and shall reimburse the City for any expense incurred, resulting from, or in connection with any project approvals. This includes any appeal, claim, suit, or other legal proceeding, to attack, set aside, void, or annul any project approval. The City shall promptly notify the applicant of any legal proceeding and shall cooperate fully in the defense. The City may, at its sole discretion, participate in any such legal action, but participation shall not relieve the applicant of any obligation under this condition. Should any party bring any legal action in connection with this project, the Superior Court of the County of Monterey, California, shall be the situs and have jurisdiction for the resolution of all such actions by the parties hereto.

***Acknowledgement and acceptance of conditions of approval.**

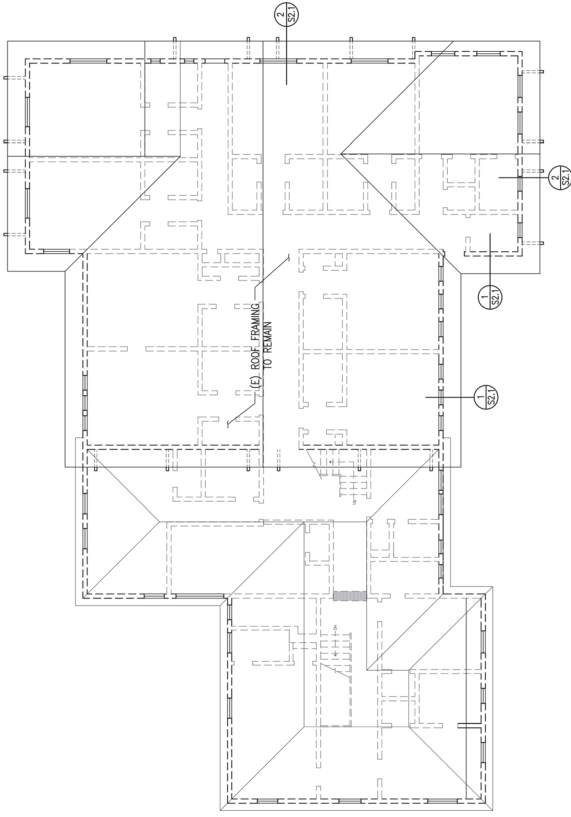
_____	_____	_____
Applicant Signature	Printed Name	Date
_____	for Richard Gunner	_____
Property Owner Signature	Printed Name	Date
_____	_____	_____
Contractor Signature	Printed Name	Date

Once signed, please return to the Community Planning and Building Department.

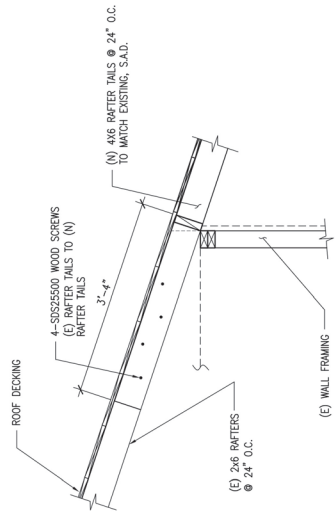
APPROVED
01/23/2025
COMMUNITY PLANNING AND BUILDING
Approved by: Evan Sosa, Senior Planner

REPLACE DRY ROT MEMBERS, TO MATCH EXISTING:

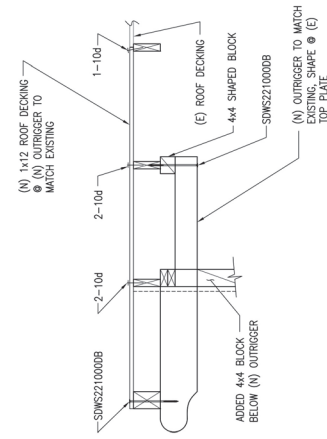
1. DRY ROT RAFTER TAILS SHALL BE REPLACED PER DETAIL 1 ON THIS SHEET
2. DRY ROT OUTRIGGERS SHALL BE REPLACED PER DETAIL 2 ON THIS SHEET



ROOF FRAMING PLAN
SC: 1/8"=1'-0"



DETAIL 1
SC: 1"=1'-0"



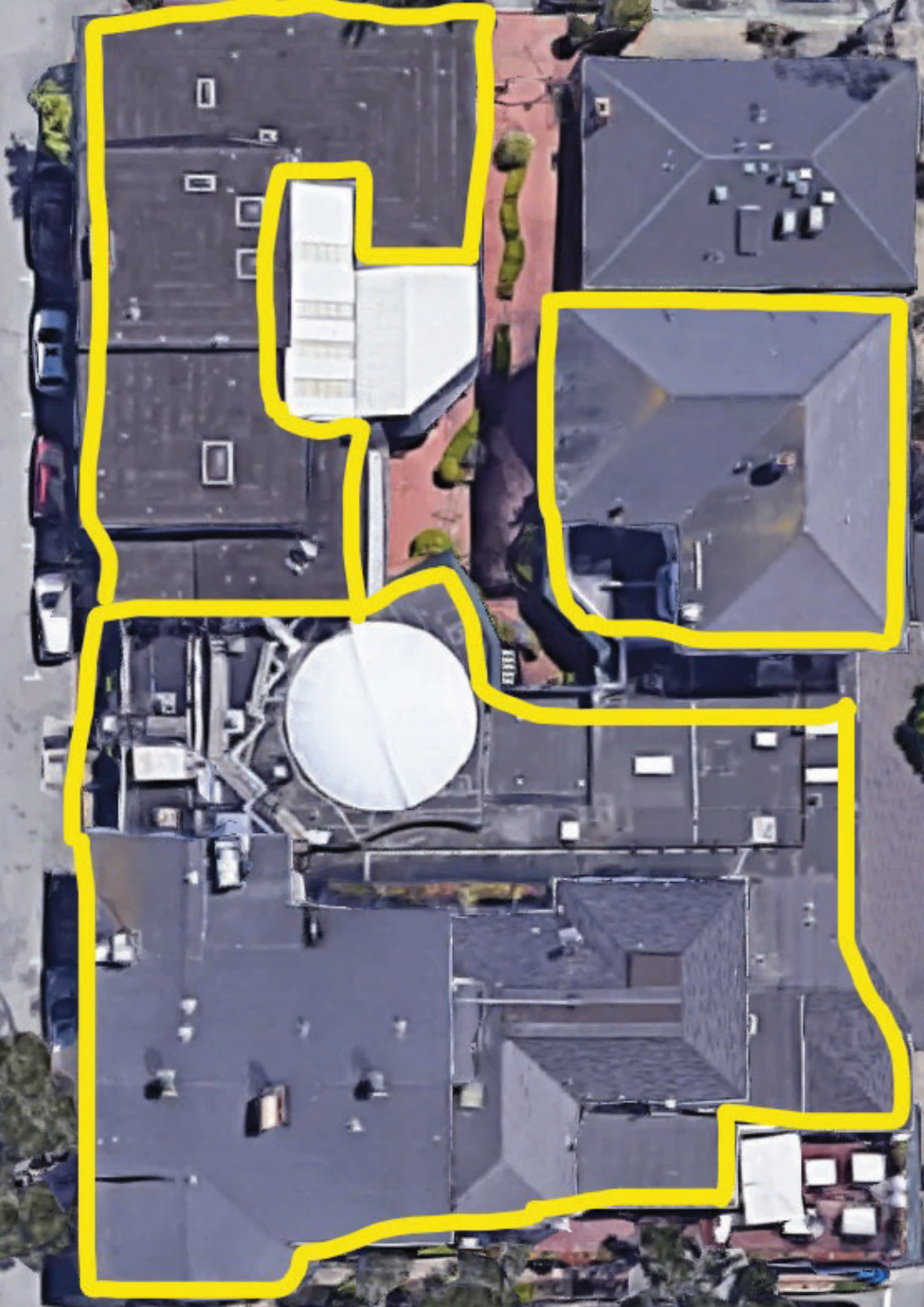
DETAIL 2
SC: 1"=1'-0"

CCE-22-058-001

CCE-22-058-002

REVISIONS	BT	
<p>CCE CENTRAL COAST ENGINEERS, INC. P.O. Box 3503 Salinas, CA 93023 F: 831.757.2226</p>		
<p>PINE INN N/S OF OCEAN AVENUE BETWEEN LINCOLN AND MONTE VERDE CARMEL-BY-THE-SEA, CA. 93921 APN # 010-213-003-000</p>		
<p>PROJECT TITLE: N/S OF OCEAN AVENUE BETWEEN LINCOLN AND MONTE VERDE</p>		
<p>SHEET TITLE: ROOF FRAMING PLAN & DETAILS</p>		
JOB No. CCE-22-058	DATE: 11/11/2024	SCALE: AS NOTED
DRAWN BY: J.L.		
SHEET No. S2.1	1 OF SHEETS	

APPROVED
01/23/2025
COMMUNITY DEVELOPMENT DIVISION
APPROVED BY: LINDA HILL, COMMUNITY DEVELOPMENT DIVISION



APPROVED
01/23/2025
COMMUNITY PLANNING AND BUILDING

Approved by: [Signature]

LANDMARK[®] SERIES

Luxury and Designer Roofing Shingles

Landmark, shown in Weathered Wood

APPROVED
01/23/2025
COURTNEY P. ARNOLD AND ASSOCIATES
APPROVED FOR THE PROJECT



NOTE: Due to limitations of printing reproduction, CertainTeed can not guarantee the identical match of the actual product color to the graphic representations throughout this publication.



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01/23/2025

COMMUNITY PLANNING AND BUILDING

Approved by Sean Kott, Senior Planner

Trust Your Home to Landmark®

Few things in this world are as precious as the place that you call home. It is much more than just a house. It's the foundation from which you build your life. That's why having a roof that gives your home long-lasting curb appeal and protection from the elements is so important. At CertainTeed, our benchmark for success is our customers' total peace of mind. And we wouldn't have it any other way.

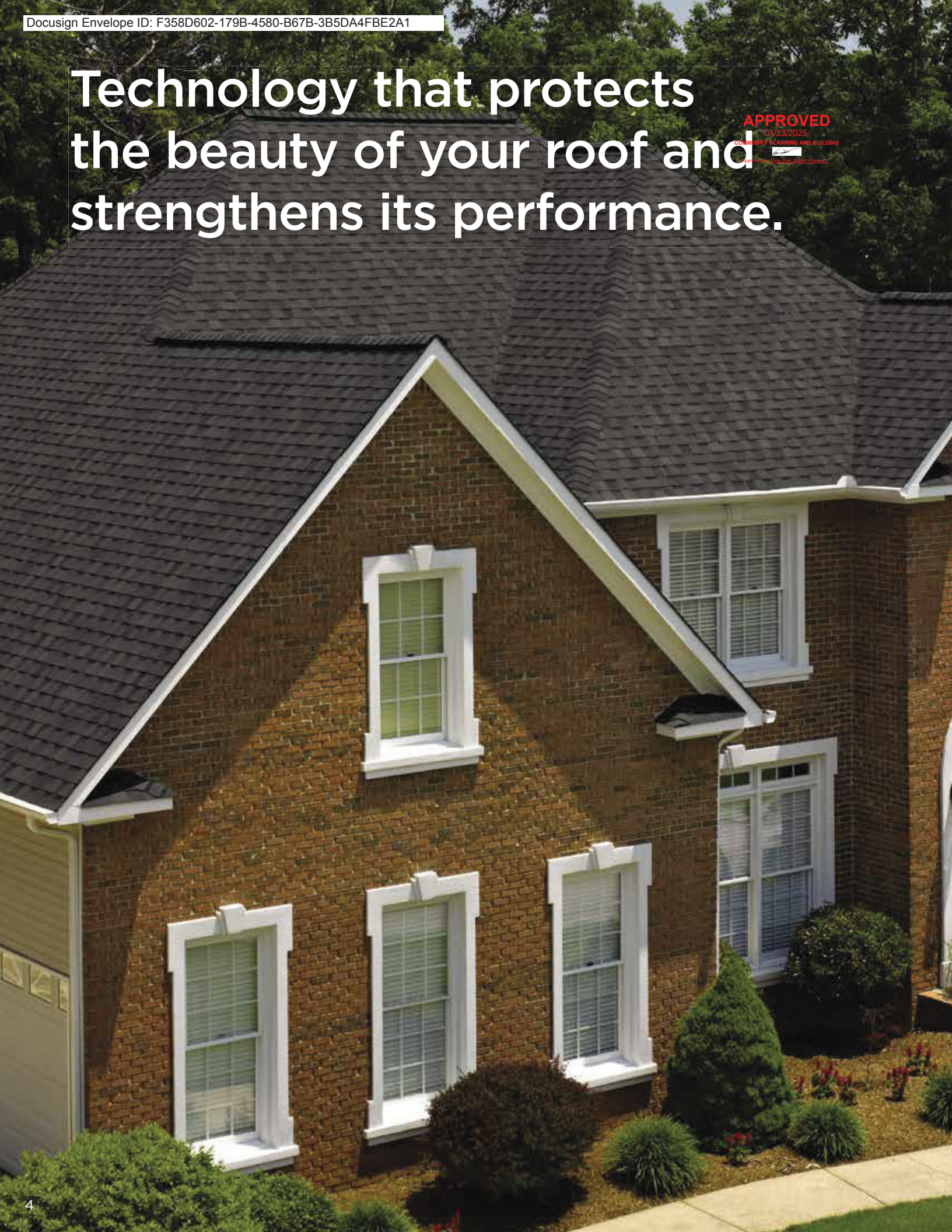
Our dedication to making the highest-quality roofing systems continues to earn the respect of top building professionals. And our product portfolio offers the widest variety of design and color options in the industry. It's no wonder that more than a million homeowners across North America choose CertainTeed each year.

And the job doesn't stop once the roof goes on. Every CertainTeed product is backed by our industry-leading manufacturer's warranty, allowing you to rest confidently and comfortably for years to come.



Technology that protects the beauty of your roof and strengthens its performance.

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Approved: Egan Kopp, Senior Planner





NailTrak[®]

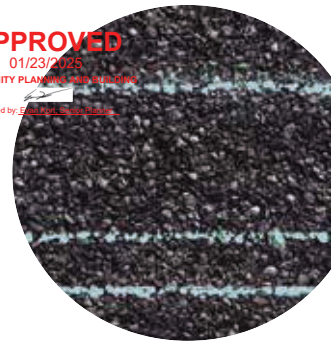
Fast, Accurate, Visible

The new and improved **NailTrak** nailing line, a feature on CertainTeed designer shingles.

Now **NailTrak** is brighter than ever before, with high-visibility lines that stand out whether it's daybreak or dusk.

NailTrak removes the guesswork with three separately defined lines, creating a large area to guide your nailing and a smaller area for extreme steep-slope applications.

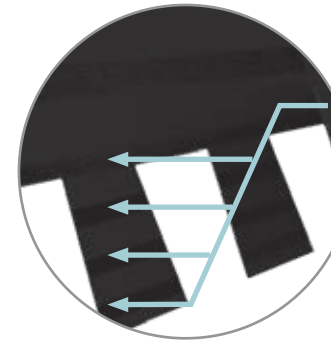
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01/23/2025
COMMUNITY PLANNING BOARD
Approved by [Southwest Georgia Council](#)



QuadraBond[™]

Advanced Layering

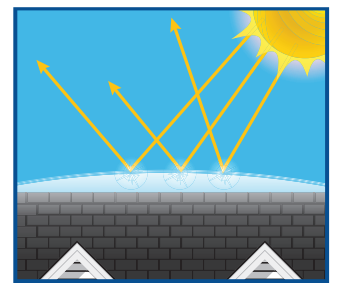
CertainTeed's specially formulated adhesive adheres shingle layers at four points, more than any other manufacturer. This superior bond provides greater protection against shingle delamination to maximize performance over the life of the shingle in any climate.



Solaris[®] CoolRoof

Solar Reflectivity

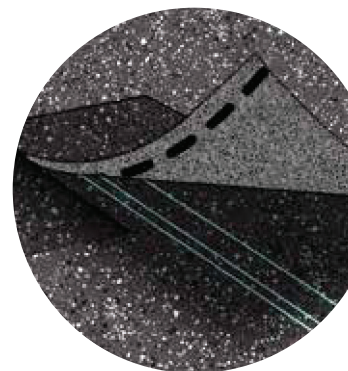
Solaris[®] Cool Roof is a sustainable shingle granule technology that applies energy-saving cool roof performance to CertainTeed's most popular shingle brands. Available in rich and authentic colors, including dark hues and tones, Solaris Cool Roof can lower roof temperatures and allow homeowners to reduce cooling costs without sacrificing beauty, quality, or color.



CertaSeal[™]

Uplift Protection


CertaSea[™] is a fast-activating modified asphalt sealant with a 20-year record of proven performance. Designed to seal shingles together upon installation, it protects roofs from wind uplift and shingle blow-off so that homes stay safe and dry. It's also engineered to remain flexible after installation, unlike harder sealants that can dry out and crack over time.



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Approved By:  _____



The Trusted Classic

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01/23/2025
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Approved by: Sean Kist, Senior Planner

LANDMARK[®]

Owning a Landmark roof brings peace of mind. Landmark's dual-layered construction and exceptional durability provide long-lasting protection for your home.

- Dual-layered for extra dimensionality and protection from the elements
- Offers the widest array of colors in the industry
- Independently certified as meeting the highest quality standards for roofing
- Select colors are rated by the Cool Roof Rating Council (CRRC) and can be used to comply with the 2019 California Title 24 Part 6 Cool Roof Requirements
- Select colors can be used to comply with Los Angeles County, California Title 31 cool roof requirements for steep-sloped residential construction



Landmark, shown in Solaris Silver Birch



Scan code for more information about Landmark



Scan code for more information about Landmark Solaris

See next page for full color palette.

LANDMARK® Solaris® CoolRoof COLOR PALETTE



Solaris Silver Birch
CRRP Product ID 0668-0072



Solaris Birchwood
CRRP Product ID 0668-0084



Solaris Mist White
CRRP Product ID 0668-0071



Solaris Graphite
CRRP Product ID 0668-0155



Solaris Burnt Sienna
CRRP Product ID 0668-0153



Solaris Heather Blend
CRRP Product ID 0668-0117

LANDMARK® COLOR PALETTE



Georgetown Gray



Weathered Wood



Thunderstorm Gray



Sunrise Cedar



Painted Desert



Terra Cotta



Solaris Georgetown Gray
CRRC Product ID 0668-0116



Solaris Weathered Wood
CRRC Product ID 0668-0119



Solaris Moire Black
CRRC Product ID 0668-0129



Solaris Resawn Shake
CRRC Product ID 0668-0118



Solaris Mojave Tan
CRRC Product ID 0668-0115



Moire Black



Burnt Sienna



Heather Blend

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01/23/2025

COMMUNITY PLANNING AND BUILDING



Approved: [Signature]





The Expert's Choice

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COMMUNITY PLANNING AND BUILDING
Approved by: Erin Kirtz, Senior Planner

LANDMARK® PRO

A refined union of vision and value, our PRO line leads its class in optimal performance and variety of color.

- Engineered to meet professional contractors' exacting specifications
- Available in a wide selection of eye-catching **Max Def** colors
- Outweighs standard laminates to provide greater protection from the elements
- Select colors are rated by the Cool Roof Rating Council (CRRC) and can be used to comply with the 2019 California Title 24 Part 6 Cool Roof Requirements
- Select colors can be used to comply Angeles County, California Title 31 cool roof requirements for steep-sloped residential construction



Max Def Moire Black



Scan code for more information about Landmark PRO



Scan code for more information about Landmark PRO Solaris

LANDMARK® PRO Solaris® CoolRoof COLOR PALETTE



Solaris Silver Birch
CRRR Product ID 0668-0072



Solaris Max Def Georgetown Gray
CRRR Product ID 0668-0122



Solaris Max Def Burnt Sienna
CRRR Product ID 0668-0154

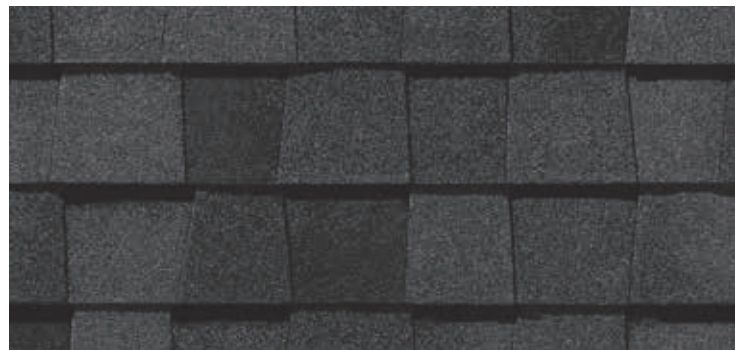


Solaris Max Def Heather Blend
CRRR Product ID 0668-0123

LANDMARK® PRO COLOR PALETTE



Max Def Georgetown Gray



Max Def Moire Black

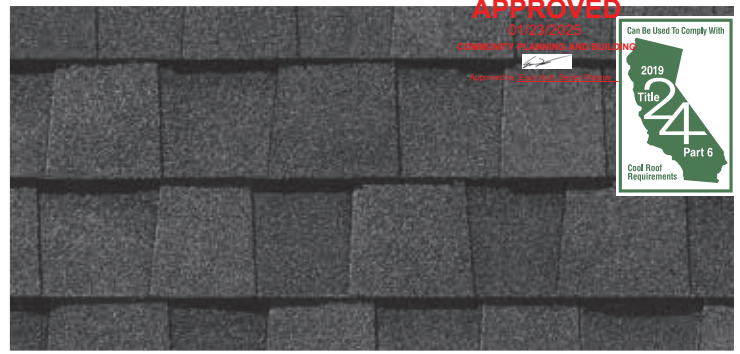


Max Def Weathered Wood

MAX DEF COLORS - Look deeper. With Max Def, a new dimension is added to shingles with a richer mixture of surface granules. You get a brighter, more vibrant, more dramatic appearance and depth of color. And the natural beauty of your roof shines through.



Solaris Max Def Weathered Wood
CRRR Product ID 0668-0125



Solaris Max Def Moire Black
CRRR Product ID 0668-0130



Solaris Max Def Resawn Shake
CRRR Product ID 0668-0124



Max Def Burnt Sienna



Max Def Heather Blend

APPROVED
07-23-2025
COMMUNITY PLANNING ASSOCIATION

www.cpaofkentucky.com





Top Shelf

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01/23/2025
COMMUNITY PLANNING AND BUILDING
Approved by Erin Kost, Senior Planner

LANDMARK® PREMIUM

A sophisticated look, brilliantly executed. Our Premium line is engineered to protect, enhance and endure.

- Outclasses ordinary roofing in both appearance and performance
- Tough two-piece laminated fiberglass-based construction
- Features **Max Def** colors for a deeper, richer mixture of surface granules



Max Def Weathered Wood



Scan code for more information

LANDMARK® PREMIUM COLOR PALETTE



Max Def Weathered Wood



Max Def Moire Black



Max Def Burnt Sienna



Max Def Heather Blend



Max Def Resawn Shake

MAX DEF COLORS

Look deeper. With Max Def, a new dimension is added to shingles with a richer mixture of surface granules. You get a brighter, more vibrant, more dramatic appearance and depth of color. And the natural beauty of your roof shines through.

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By: 2/23/2025
COMMUNITY PLANNING AND BUILDING

www.cityofspringfield.com



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01/23/2025

COMMUNITY PLANNING AND BUILDING



Approved by: Evan Kook, Senior Planner





Depth of Character

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COMMUNITY PLANNING AND BUILDING
Approved by: Evan Kost, Senior Planner

LANDMARK® TL

Dramatically thick. Classically elegant. These wood-inspired shakes offer triple lamination for rugged wear with real charisma.

- Look of hand-split cedar
- Patented 3-layer laminate
- Random tab design and unique natural shadows
- A luxury-class shingle produced at a fraction of the cost of wood shake
- Select colors are rated by the Cool Roof Rating Council (CRRC) and can be used to comply with the 2019 California Title 24 Part 6 Cool Roof Requirements



Shenandoah



Scan code for more information about Landmark TL



Scan code for more information about Landmark TL Solaris

Landmark TL, shown in Shenandoah

See next page for full color palette.

LANDMARK® TL Solaris® CoolRoof COLOR PALETTE



Solaris Country Gray
CRRC Product ID 0668-0149



Solaris Platinum
CRRC Product ID 0668-0147



Solaris Moire Black
CRRC Product ID 0668-0148

LANDMARK® TL COLOR PALETTE



Country Gray



Platinum



Moire Black



Max Def Black Walnut
(Available in StreakFighter™ only)



Shenandoah



APPROVED
BY
[Signature]
[Name]
[Title]

Landmark TL, shown in Moire Black

Strength with Style

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01/23/2025
COMMUNITY PLANNING AND BUILDING
Approved by: Evan Kost, Senior Planner

LANDMARK®

- Dual-layer durability
- Industry-best lifetime limited warranty
- Select colors can be used to comply with the 2019 California Title 24 Part 6 Cool Roof Requirements.
- Select colors can be used to comply with Los Angeles County, California Title 31 cool roof requirements for steep-sloped (roof slope > 2:12) residential construction



LANDMARK® PRO

- Dual-layer, high performance
- Max Def color palette
- Industry-best lifetime limited warranty
- Select colors can be used to comply with the 2019 California Title 24 Part 6 Cool Roof Requirements.
- Select colors can be used to comply with Los Angeles County, California Title 31 cool roof requirements for steep-sloped (roof slope > 2:12) residential construction



LANDMARK® PREMIUM

- Dual-layer, high performance
- Max Def color palette
- Industry-best lifetime limited warranty

LANDMARK® TL

- Triple-layer, high performance
- Rustic appearance of hand-split wood shakes
- Industry-best lifetime limited warranty
- Select colors can be used to comply with the 2019 California Title 24 Part 6 Cool Roof Requirements.





LANDMARK SERIES

SPECIFICATIONS

- Two-piece (Landmark, Landmark Pro and Landmark Premium) and three-piece (Landmark TL) laminated fiberglass-based construction
- Classic shades and dimensional appearance of natural wood or slate

For U.S. building code compliance, see product specification sheets.

CertainTeed products are tested to ensure the highest quality and comply with the following industry standards:

Fire Resistance:

- UL Class A
- UL certified to meet ASTM D3018 Type 1

Wind Resistance:

- UL certified to meet ASTM D3018 Type 1
- ASTM D3161 Class F

Tear Resistance:

- UL certified to meet ASTM D3462
- CSA standard A123.5

Wind Driven Rain Resistance:

- Miami-Dade Product Control Acceptance: Please reference www.certainteed.com to determine approved products by manufacturing location.

Quality Standards:

- ICC-ES-ESR-1389 & ESR-3537

WARRANTY

- Lifetime limited transferable warranty against manufacturing defects on residential applications
- 50-year limited transferable warranty against manufacturing defects on group-owned or commercial applications (Landmark PRO, Landmark Premium and Landmark TL)
- 10-year SureStart™ protection
- 15-year 110 mph wind-resistance warranty
- Wind warranty upgrade to 130 mph available. CertainTeed starter and CertainTeed hip and ridge required

See actual warranty for specific details and limitations.

Solar Reflectivity (SR), Thermal Emittance (TE) & Solar Reflectance Index (SRI) Data

PRODUCT - COLOR	CRRC Product ID Number	Aged Solar Reflectance	Aged Thermal Emittance	Aged Solar Reflective Index (SRI)	Complies with Cal Title 24 Part 6	Meets LA County Title 31
Landmark Solaris® - Birchwood	0668-0084	0.21	0.83	17	YES	NO
Landmark Solaris® - Burnt Sienna	0668-0153	0.20 [†]	0.92 **	20 [†]	YES	YES
Landmark Solaris® - Georgetown Gray	0668-0116	0.20	0.92	20	YES	YES
Landmark Solaris® - Graphite	0668-0155	0.21	0.91	21	YES	YES
Landmark Solaris® - Heather Blend	0668-0117	0.21 [†]	0.91**	21 [†]	YES	YES
Landmark Solaris® - Mist White	0668-0071	0.28	0.90	29	YES	YES
Landmark Solaris® - Moire Black	0668-0129	0.18	0.92	17	YES	NO
Landmark Solaris® - Mojave Tan	0668-0115	0.20	0.90	19	YES	NO
Landmark Solaris® - Resawn Shake	0668-0118	0.20	0.93	20	YES	YES
Landmark Solaris® - Silver Birch	0668-0072	0.27	0.89	28	YES	YES
Landmark Solaris® - Weathered Wood	0668-0119	0.21	0.91	21	YES	YES
Landmark® PRO - Solaris Max Def Burnt Sienna	0668-0154	0.21 [†]	0.92 **	21 [†]	YES	YES
Landmark® PRO - Solaris Max Def Georgetown Gray	0668-0122	0.20	0.93	20	YES	YES
Landmark® PRO - Solaris Max Def Heather Blend	0668-0123	0.19	0.94	20	YES	YES
Landmark® PRO - Solaris Max Def Moire Black	0668-0130	0.18	0.92	17	YES	NO
Landmark® PRO - Solaris Max Def Resawn Shake	0668-0124	0.18	0.93	18	YES	NO
Landmark® PRO - Solaris Max Def Weathered Wood	0668-0125	0.20	0.92	20	YES	YES
Landmark® PRO - Solaris Silver Birch	0668-0072	0.27	0.89	28	YES	YES
Presidential Shake® - Solaris Autumn Blend	0668-0127	0.20	0.93	20	YES	YES
Presidential Shake® - Solaris Charcoal Black	0668-0132	0.19	0.94	20	YES	YES
Presidential Shake® - Solaris Country Gray	0668-0128	0.21	0.92	21	YES	YES
Presidential Shake® - Solaris Shadow Gray	0668-0134	0.19	0.94	20	YES	YES
Landmark® TL - Solaris Country Gray	0668-0149	0.20*	0.90*	19*	YES	NO
Landmark® TL - Solaris Moire Black	0668-0148	0.19*	0.91*	18*	YES	NO
Landmark® TL - Solaris Platinum	0668-0147	0.20*	0.90*	19*	YES	NO
Presidential Shake® TL - Solaris Autumn Blend	0668-0127	0.20	0.93	20	YES	YES
Presidential Shake® TL - Solaris Charcoal Black	0668-0132	0.19	0.94	20	YES	YES
Presidential Shake® TL - Solaris Country Gray	0668-0128	0.21	0.92	21	YES	YES
Presidential Shake® TL - Solaris Shadow Gray	0668-0134	0.19	0.94	20	YES	YES

[†] Aged value calculated using the California Title 24 Solar Reflective Index (SRI) Calculation Worksheet

* Aged value obtained by CRRC Rapid Ratings

** Indicates Initial Thermal Emittance

Product Comparison

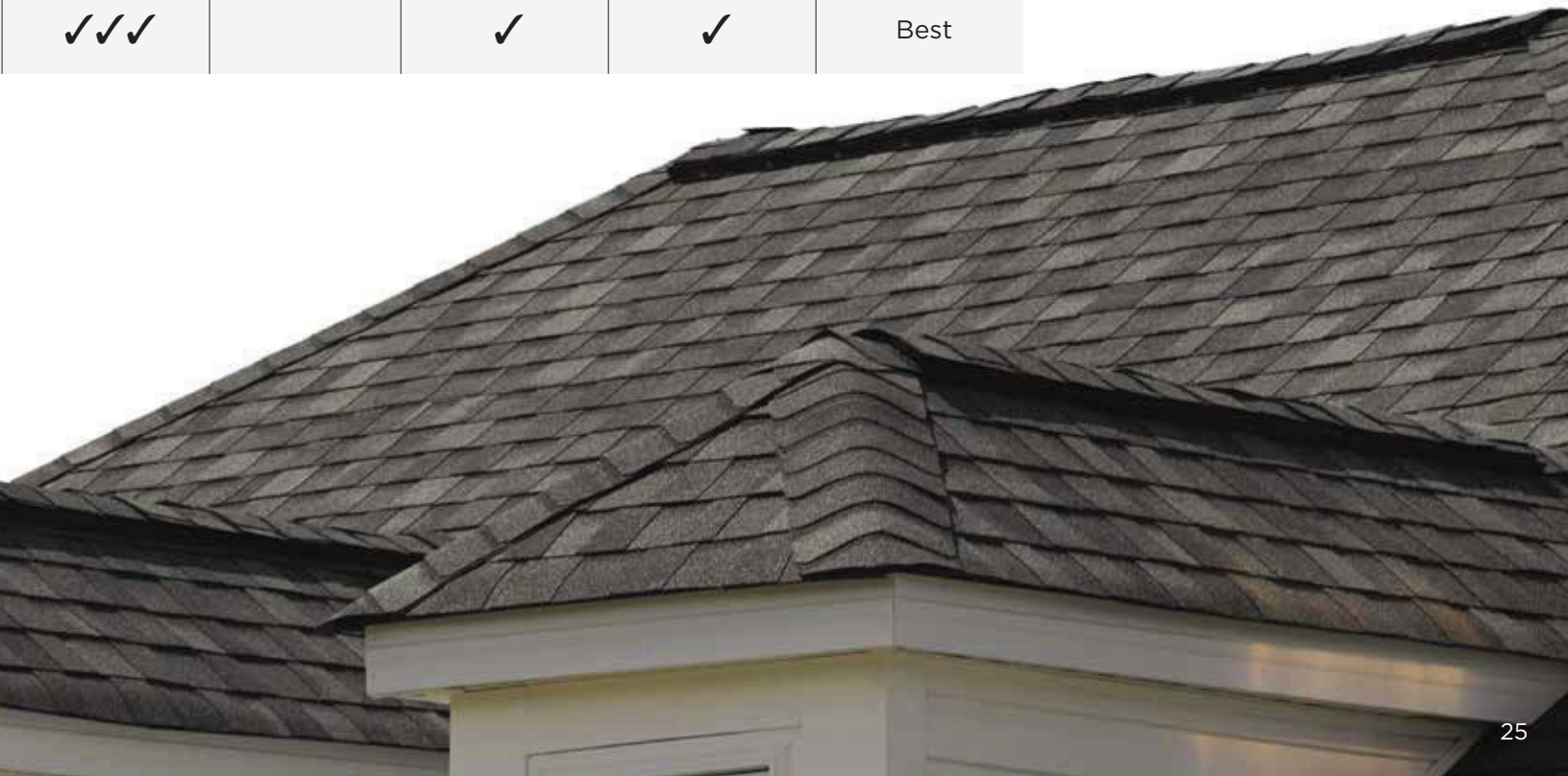
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 Approved by Evan Kost, Senior Planner

	Traditional Designer Shingle Style	Industry Leading Granule Adhesion	Warranty Duration	Algae Warranty Coverage	Product Weight
Landmark	✓	✓	Lifetime	10-Year	✓
Landmark Solaris	✓	✓	Lifetime	10-Year	✓
Landmark PRO	✓	✓	Lifetime	15-Year	✓✓
Landmark PRO Solaris	✓	✓	Lifetime	15-Year	✓✓
Landmark Premium	✓	✓	Lifetime	15-Year	✓✓✓
Landmark TL	✓	✓	Lifetime	15-Year	✓✓✓
Landmark TL Solaris	✓	✓	Lifetime	15-Year	✓✓✓



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Depth/ Dimensional Appearance	NailTrak	Max Def Colors	Cool Roof Technology (Solar Reflectivity)	Value Rating
✓	✓			Good
✓	✓		✓	Good
✓✓	✓	✓		Better
✓✓	✓	✓	✓	Better
✓✓	✓	✓		Best
✓✓✓		✓		Best
✓✓✓		✓	✓	Best



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Plus, you can print or share your ColorView photos with family and friends to get their feedback. Visit colorview.certainteed.com and get started.





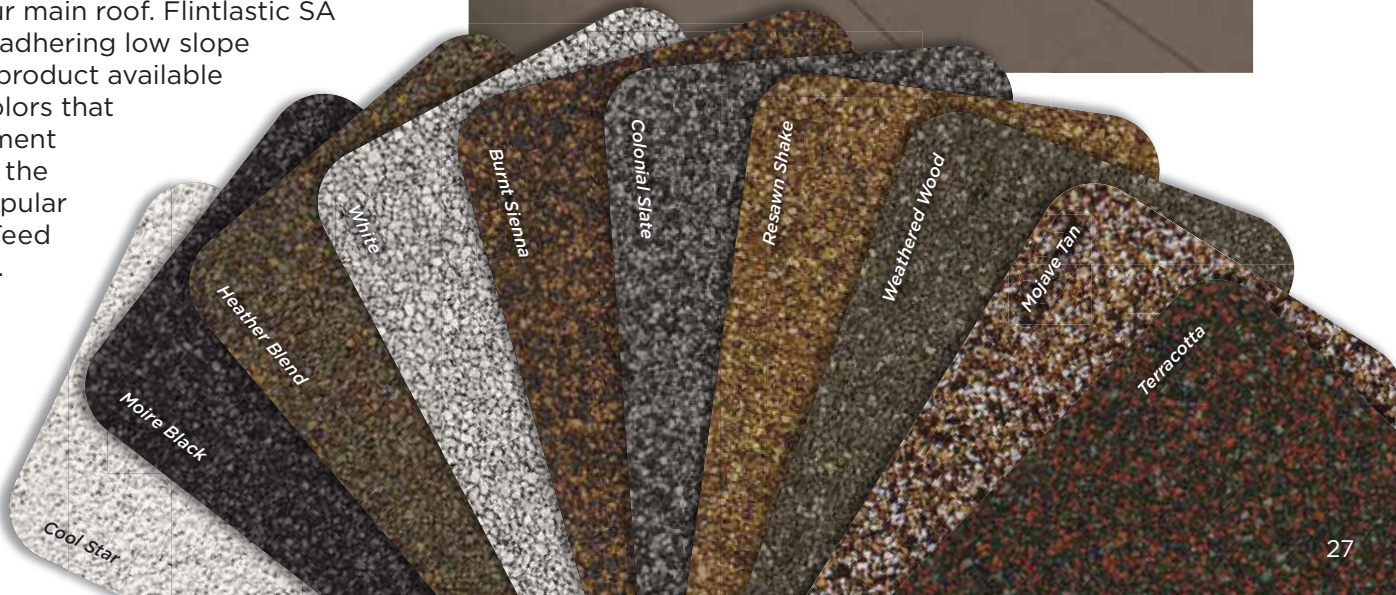
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Color Companion Products for Flat Roof Areas

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2. Water-Resistant Underlayment

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5. Hip & Ridge Caps

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October 11, 2022

Phase Two Report for the Pine Inn (APN 010-213-003), Carmel-by-the-Sea, CA.

Executive Summary

The Pine Inn is located on Block 73 on Ocean Avenue between Lincoln and Monte Verde Streets. The property was designated as a historic resource on May 25, 2005, by Carmel's Department of Community Planning and Building. Per the intensive survey completed by Richard Janick in 2003, the Pine Inn qualifies for listing under California Register Criteria One (Events) as the premier hostelry in the history of the Downtown District of Carmel-by-the-Sea. The Pine Inn has undergone multiple changes since its construction in the 1880s. Originally located on the northeast corner of Ocean and Broadway (now Junipero), the two-story building was moved to the northeast corner of Monte Verde and Ocean in 1903. A hipped roof entrance, sun room and dining room were added to the Craftsman hotel by architect Thomas Morgan. Richard Janick describes subsequent changes:

"In 1928 a major remodel was designed by Blaine and Olson in a Spanish style with major additions to the existing buildings that would eventually encompass most of Block 73. The walls were covered with stucco and the shingled roofs remained intact. Parts of the hotel expanded to three stories on the sloping lot. A rendering appeared in a promotional pamphlet of contractor builder M.J. Murphy who carried out the major remodeling. In 1940 the interiors were remodeled in a Victorian style for owner Harrison Godwin, and several one-story retail shops were added to the southeast, southwest, and eastern perimeters of Block 73 almost encircling the hotel. An open courtyard in the center of the complex had a glass gazebo dining area added in 1972."

Other changes have been made to the building since Mr. Janick's description of the building, including nine reroofing projects that are recorded in the building file, as follows:

- a) BP# 86-202 (11/3/1986): Reroof
- b) BP# 88-15 (1/20/1988): Reroof
- c) BP# 88-116 (5/20/1988): Reroof portion of Pine Inn
- d) BP# 89-51 (3/21/1989): Reroof
- e) BP# 91-65 (4/19/1991): Reroof with composition shingles
- f) BP# 97-106 (5/19/1997): Reroof – replace existing tar and gravel
- g) BP# 04-247 (12/22/2004): Reroof less than 10% of existing roof with like materials
- h) BP# 05-94 (4/18/2005): Remove shingles and replace with upgraded shingles
- i) BP# 170303 (9/19/2017): Repair 300 sq. ft. of roof

There is no doubt that the building was reroofed prior to 1986 as well. The focus of this report is a revision to Building Permit #220151 for the reroof of the northwest building of the Pine Inn.

Proposed Project Description

The project description for the original permit #220151 is:

“Remove 10,000 SF of existing roof shingles and install new CertainTeed Landmark 30-year shingles in color black over sloped portion of roof. 4000 SF flat portions of roof will be reroofed using CertainTeed Flintlastic SA membrane in color moire black.”

The proposed revision to Building Permit #220151 is:

“For the northwest building of Pine Inn Hotel, the as-necessary in-kind replacement of any existing dry rotted or damaged wood roof sheathing planks at soffits, sculpted roof rafters tails and sculpted outrigger tails during the re-roofing process per architectural and structural plans; patch and match existing stucco texture and color as required; remove existing non-historic aluminum covers in space above existing roof outriggers and install white aluminum bird repellent spikes on top of roof outrigger beams.”



The Secretary of the Interior’s Standards for Rehabilitation

Compliance Evaluation

As a historical resource, the Pine Inn is subject to review under the California Environmental Quality Act (CEQA). Generally, under CEQA, a project that follows the *Standards for Rehabilitation* contained within *The Secretary of the Interior’s Standards for the Treatment of Historic Properties* is considered to have mitigated impacts to a historical resource to a less-than-significant level (CEQA Guidelines 15064.5).

The compliance of the proposed work on the Pine Inn is reviewed below with respect to the *Rehabilitation Standards*. The Standards are indicated in italics, followed by a discussion regarding the project’s consistency or inconsistency with each Standard.

Rehabilitation is defined as “the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.” (36 CFR 67.2(b)).

Standard One

A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.

The Pine Inn has been a hotel since the turn-of-the 19th century. The reroofing project does not change the historic use of the hotel. The proposed work is consistent with Standard One.

Standard Two

The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize the property will be avoided.

The Pine Inn has been reroofed multiple times and no distinctive materials will be removed as part of this project. The aluminum covers located in the space above the existing roof outriggers will be removed but these covers are not historic features. The proposed work is consistent with Standard Two.

Standard Three

Each property will 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 elements from other historical properties, will not be undertaken.

No conjectural features or architectural elements that would create a false sense of history are planned for the project. This Standard is not applicable.

Standard Four

Changes to a property that have acquired historic significance in their own right will be retained and preserved.

The reroof will not impact any changes to the hotel that have acquired significance in their own right. The project is consistent with Standard Four.

Standard Five

Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

The roofing materials on the Pine Inn’s roof have been changed several times over the past one hundred years. The project will not affect any distinctive materials, features, finishes or construction techniques that characterize the property. The project is consistent with Standard Five.

Standard Six

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

During the reroofing project, some elements may be replaced if they are damaged beyond repair. This includes:

- The sheathing planks at soffits
- Sculpted roof rafter tails
- Sculpted roof outrigger tails

If any of these elements need to be replaced, they will be replaced in kind per the details provided on Sheet A5.1 of the plans.

The plans indicate that if any stucco needs to be patched as part of this project it will match the existing texture and color. For more information about patching historic stucco see *Preservation Brief 22: The Preservation and Repair of Historic Stucco*.¹ The proposed work is consistent with Standard Six.

Standard Seven

Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

Surface cleaning is not proposed for this project. This Standard is not applicable.

Standard Eight

Archeological resources will be protected and preserved in place.

No archeological resources have been located on the site. This Standard is not applicable.

Standard Nine

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

The existing non-historic aluminum covers in the space above the existing roof outriggers will be removed and white bird repellent spikes will be installed on top of the roof outrigger beams. The addition of the spikes will not affect any of the Pine Inn's character-defining features. The proposed work is consistent with Standard Nine.

¹ Preservation Brief #22: The Preservation and Repair of Historic Stucco. Technical Preservation Service. National Park Service. October 1990.

Standard Ten

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

New bird repellent spikes will be installed on top of the roof outrigger beams. The spikes could be easily removed in the future and will have no effect on the Pine Inn’s integrity. The proposed work is consistent with Standard Ten.

Conclusion

The proposed project meets Standards One, Two, Four, Five, Six, Nine, and Ten of the Secretary of the Interior’s Standards and Guidelines for Rehabilitation. Standards Three, Seven, and Eight are not applicable. The proposed project will not have a significant impact on the historic resource.

Respectfully Submitted,

Margaret E. Clovis

Margaret Clovis

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.

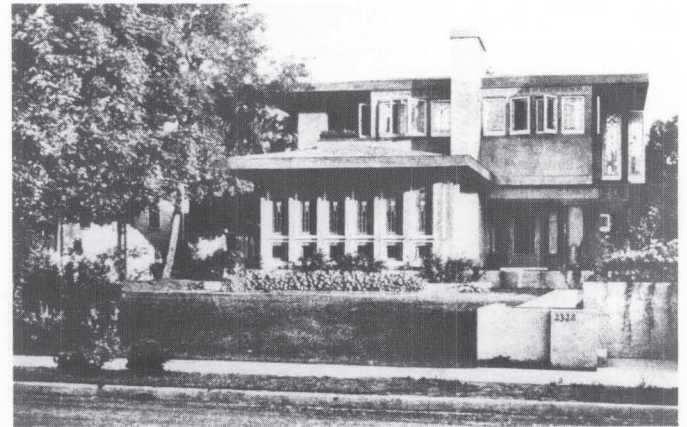


Fig. 3. The William Gray and Edna S. Purcell House, Minneapolis, Minnesota, was designed in 1913 by the architects Purcell and Elmslie in the Prairie style. Stuccoed in a salmon-pink, sand (float) finish, it is unusual in that it featured a 3-color geometric frieze stencilled below the eaves of the 2nd 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.F. 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.

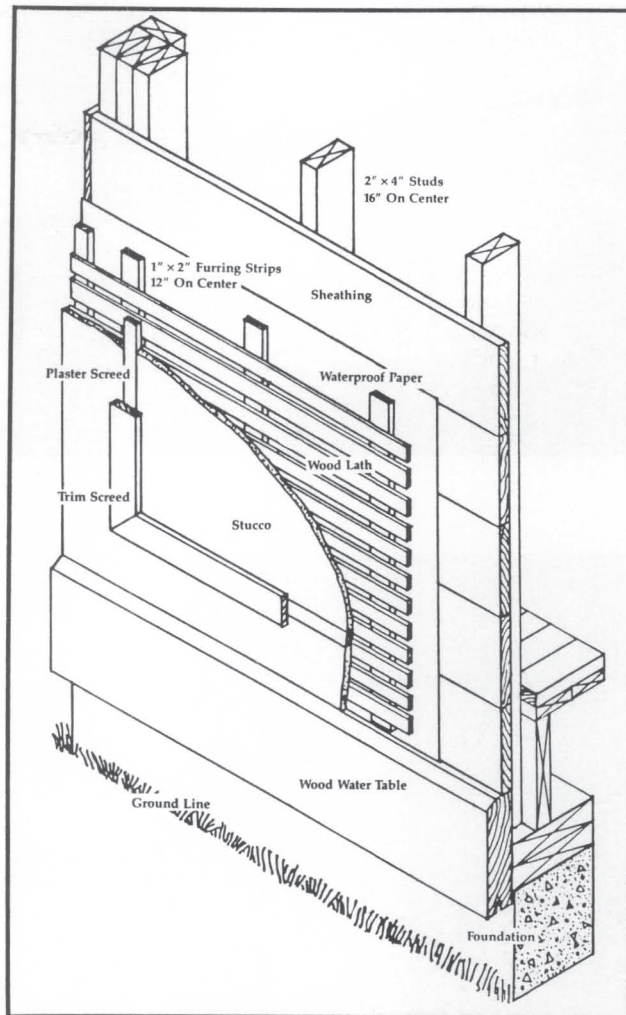


Fig. 9. This cutaway drawing shows the method of attachment for stucco commonly used on wood frame or balloon frame structures from the late-19th to the 20th century. Drawing: Brian Conway, "Illinois Preservation Series Number 2: Stucco."



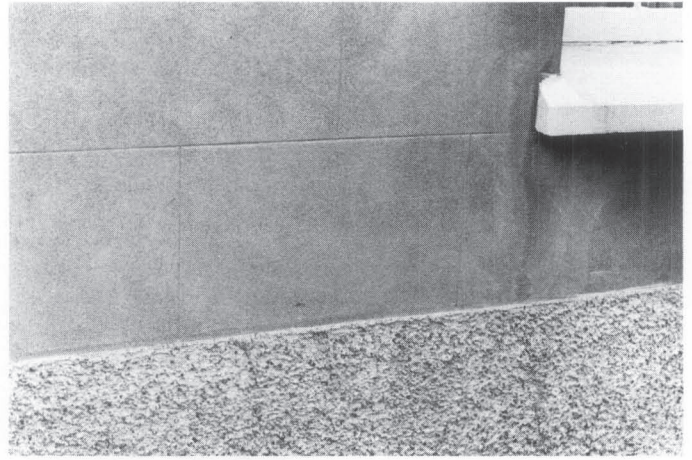
Fig. 8. Removal of deteriorated stucco in preparation for stucco repair on this late-18th century log house in Middleway, West Virginia, reveals that the stucco was applied to hand-riven wood lath nailed over vertical wood strips attached to the logs. Photo: Anne Grimmer.

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.

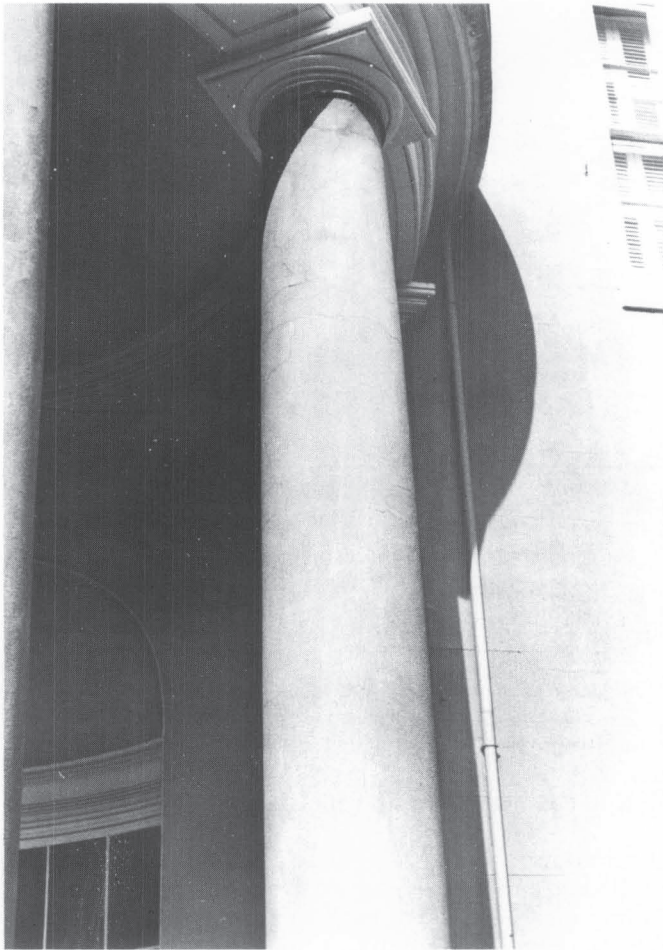
Like interior wall plaster, stucco has traditionally been applied as a multiple-layer process, sometimes consisting of two coats, but more commonly as three. Whether applied directly to a masonry substrate or onto wood or metal lath, this consists of a first "scratch" or "pricking-up" coat, followed 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.



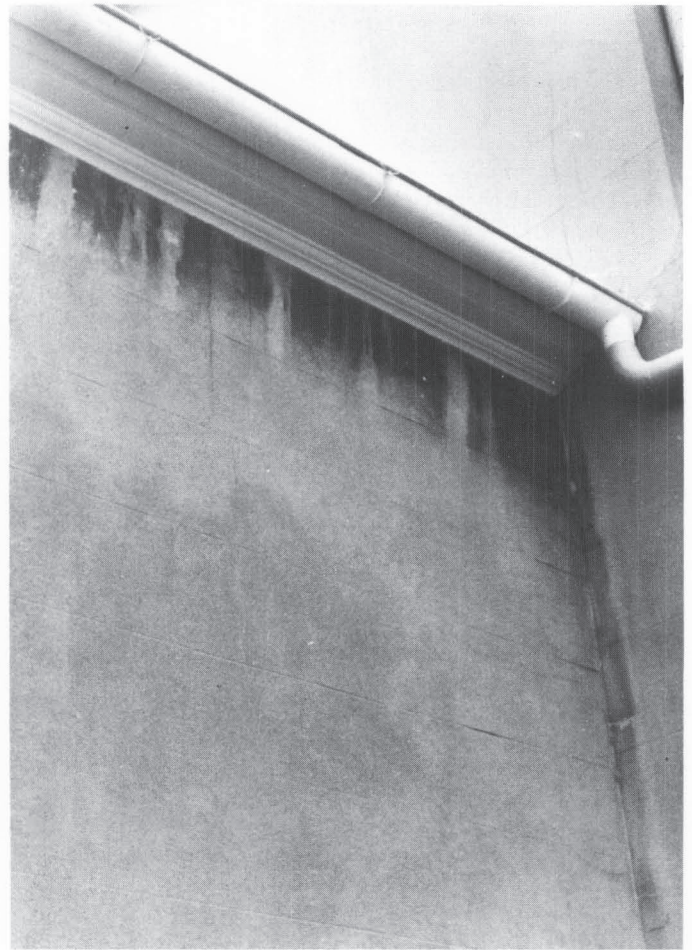
A



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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

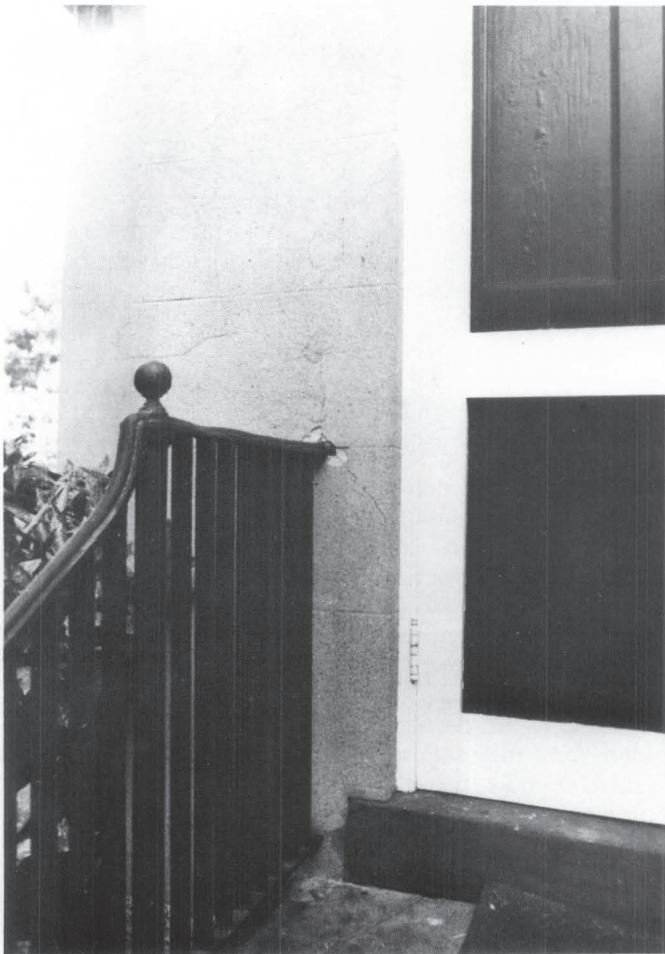


Fig. 12. (a) Water intrusion caused by rusting metal, or (b) plant growth left unattended will gradually enlarge these cracks, resulting in spalling, and eventually requiring extensive repair of the stucco. Photos: National Park Service Files.



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

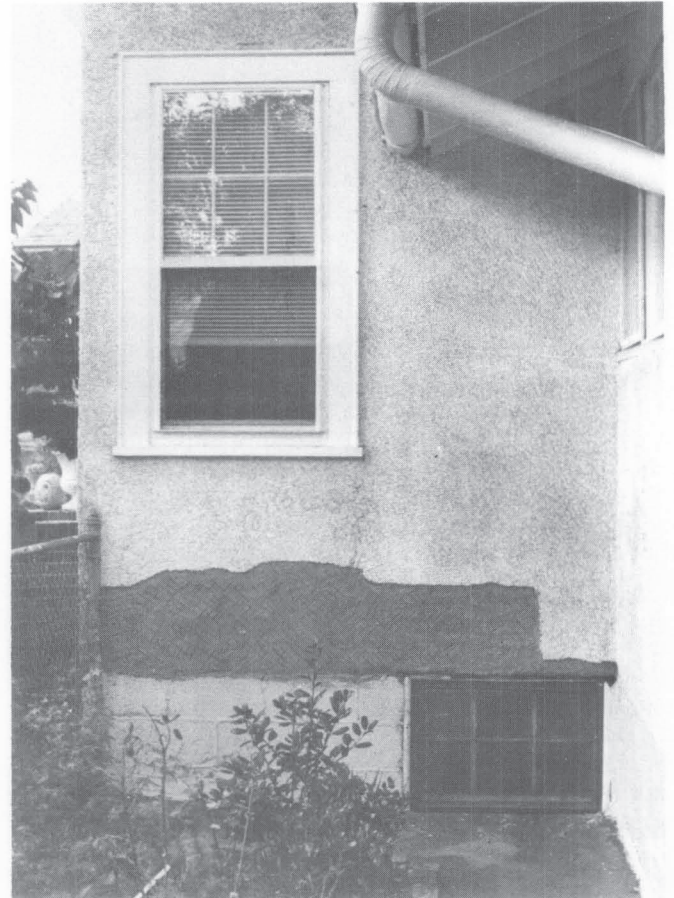
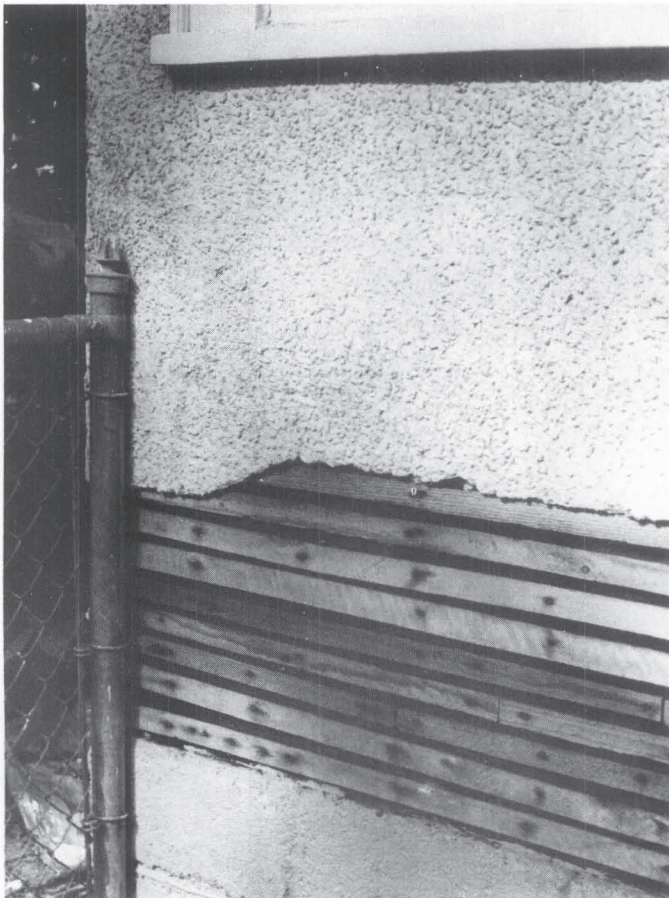


Fig. 15. (a) After reattaching any loose wood lath to the furring strips underneath, the area to be patched has been cleaned, the lath thoroughly wetted, and (b) the first coat of stucco has been applied and scratched to provide a key to hold the second layer of stucco. Photos: Betsy Chittenden.

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

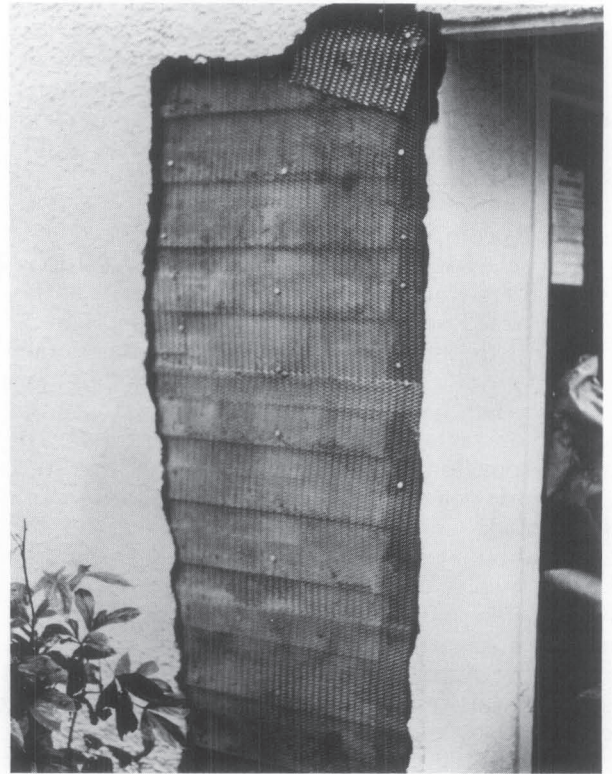


Fig. B

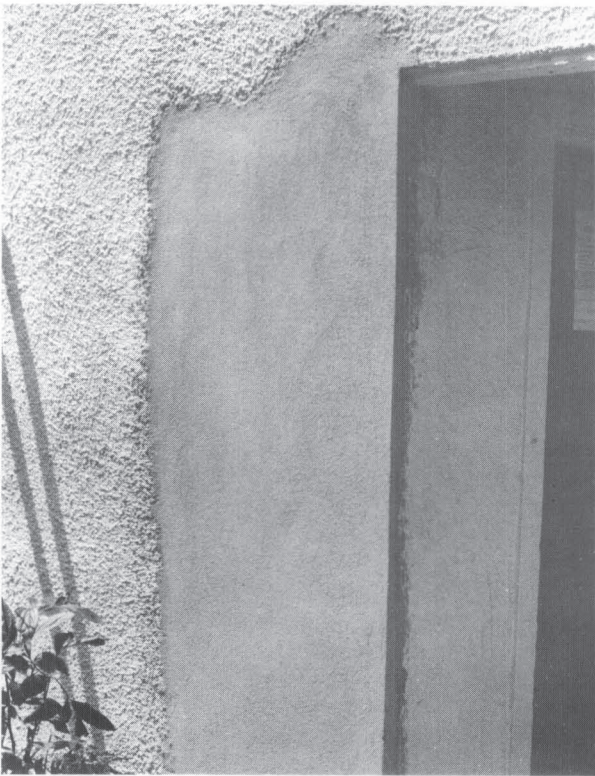


Fig. C

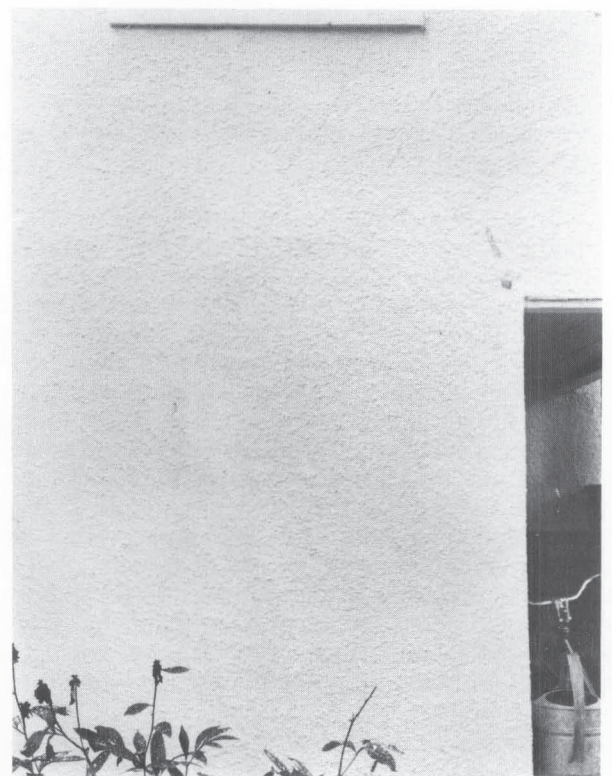


Fig. D

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).

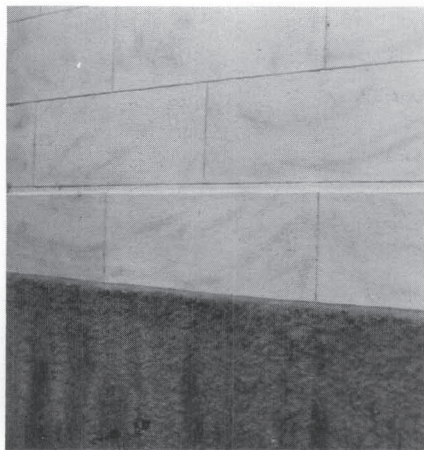


Fig. A



Fig. B

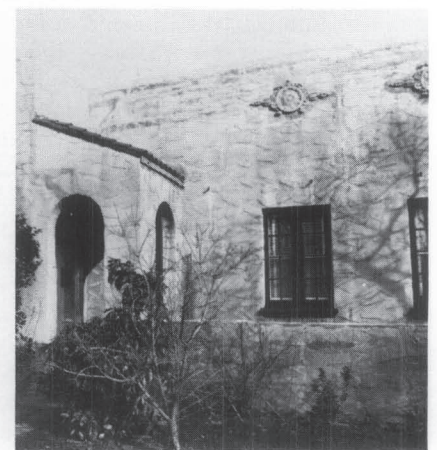


Fig. C

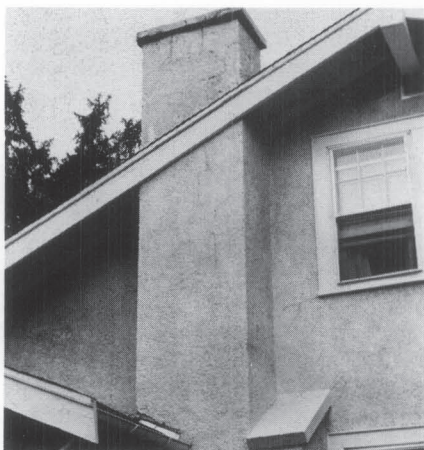


Fig. D

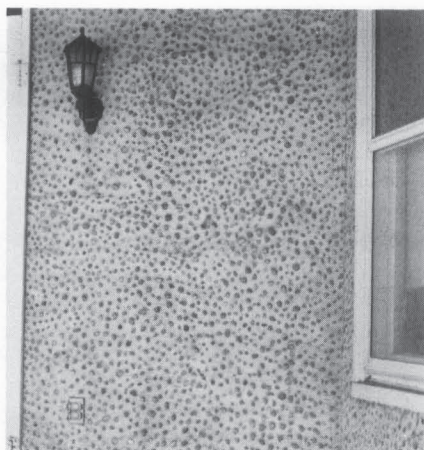


Fig. E



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.