



STUCCO INSPECTOR

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EXTERIOR DESIGN INSTITUTE
Certified EIFS Inspector

Specializing in Moisture Detection



Stucco Inspection Report

For the Property Located At:

495 Hickory Ridge Rd
Martinsville, VA 24112

Report Prepared For:

Ian Hamre



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I. INTRODUCTION

1.1 PURPOSE: Enclosed is your Stucco Moisture Inspection. The purpose of this moisture inspection is to help assess the condition of the stucco system by looking for visible installation flaws, inadequate water diversion and sealant failures and conduct random moisture readings using electronic moisture probe and or scan devices. Please note that the provision of a scope of work for remedial repairs is not the purpose of this inspection. *Further investigation may be needed to determine the extent of water damage, if any, and how best to modify your home to address any moisture problems that may be indicated by this inspection.*

1.2 SCOPE OF INSPECTION: This is a basic, stucco inspection limited to the following:

1. A visual examination of the condition of the stucco, exterior sealants, flashing, windows, doors, roof-to-stucco transitions, parapets, gutters, deck-to-building connections, stucco terminations and any penetrations through the stucco. Improper installation can not be determined unless stucco is removed, which we do not do.
2. Conducting of *random* electronic moisture scanning and or probing of the building envelope.
3. Preparing a report of our observations of potential problem areas and recording any high readings found.
4. Providing detailed information on typical moisture-related problems in stucco homes to assist you in maintaining the value of your home.

1.3 LIMITATIONS OF LIABILITY: Because this is a limited inspection, we can make no guarantee, express or implied, that our observations and random moisture readings offer conclusive evidence that no installation or moisture problems exist, or that problems found are all-inclusive. This inspection company, its employees and any divisions shall not be liable for non-visual defects, unseen defects, unspecified defects or hidden damage and conditions existing on the subject property and hereby disclaims any liability or responsibility thereof. All parties concerned agree to hold harmless and indemnify this inspection company involving any liabilities that may result.

1.4 FURTHER TESTING / INVESTIGATION: Our policy is to rely on moisture meter readings as an indicator of relative moisture values between different test spots, not as an absolute value of water content in the substrate. It is difficult to determine if the structural wood of your home has been damaged in areas of high readings without 'probing' and/or removing a core sample of the stucco to allow for visual inspection. Should we feel that further investigation is needed this will be indicated in the summary section of the report.

1.5 ANNUAL INSPECTIONS: This is extremely important. Annual inspections should also be scheduled to ensure that your stucco system remains dry. This way any sealant failures, stucco cracks, etc. can be caught and repaired promptly. Testing and maintaining your home on a regular basis is the best way to prevent costly repairs associated with moisture damage. Also, should you decide to sell your home, annual inspections and maintenance documentation will be a valuable selling tool, providing evidence to show that your home has been inspected and maintained on a regular basis by a reputable and qualified firm.

Project Information

| OWNER INFORMATION | | | |
|----------------------|------------------------|------------------------|--------------------------|
| Owners | Ian Hamre | | |
| Property Address | 495 Hickory Ridge Rd | | |
| City, State, ZIP | Martinsville, VA 24112 | | |
| Phone | 540-488-8567 | | |
| Owner's Email | ihamre@vt.edu | | |
| PROPERTY INFORMATION | | INSPECTION INFORMATION | |
| Type of Exterior | EIFS Stucco | Date of Inspection | 08-20-2020 |
| Substrate (if known) | Exterior Gyp | Inspector | David Blackburn SC #39 |
| Age of Property | 1992 | Present at Inspection | Ian Hamre |
| Square Footage | | | |
| | 7899 + or - | Weather Conditions | Partly Cloudy |
| Type of Windows | Wood | Last Rain | Within Last couple weeks |

| Inspection Test Equipment | | | | | |
|----------------------------|--------------------------------------|--------------|--------------|----------------|----------|
| Test Equipment Description | | Test Range | | | Setting |
| | | Low | Medium | High | |
| X | Delmorst Moisture Probe Meter | 10-14 | 15-19 | > 19 | 1 |

NOTE: The test equipment is used to help locate problem areas. It must be understood that the test equipment is not an exact science but rather good tools used as indicators of possible problems. At times, because of hidden construction within the wall cavity, the meters get false readings or no readings at all. Some meters will pick up on metals, wiring, unique wall finishes, etc. Positive readings do not always mean there is a problem, nor do negative readings necessarily mean there is not a problem. We do not use the equipment to obtain exact moisture content, but rather to obtain relative readings between suspected problem areas and non problem areas. This information is then used to help determine potential problem areas which may warrant more investigation.

General Observations

| Item Description | Yes | No | Improper | Comments |
|---|----------|----------|----------|---|
| Sealants at window perimeters | Partial | | | Suggest all window sills and some side frames be caulked, re-caulked. |
| Mitre joints (bottom corners) of windows | X | | | Good |
| Head flashing at top of windows | | X | | |
| Sealants around door perimeter | Partial | | | Suggest re-caulking door frames |
| Sealants at door threshold details | | X | | Suggest caulking door thresholds |
| Head flashing at top of doors | | X | | |
| Penetrations through stucco sealed | | X | | Need to caulk all breach locations |
| General appearance | X | | | Good |
| Cracking evident | X | | | Some cracks present, mostly at deck area |
| Expansion joints / Control joints | X | | | |
| Exposed mesh | | X | | |
| Impact damage | | X | | |
| Rusting aggregates | | X | | |
| Flat horizontal surfaces | | X | | |
| Terminations and Vinyl accessories | | X | | |
| Transition joints (stucco to brick, etc.) | | X | | |
| Termination below grade (ground level) | X | | | Most areas are below grade, need to correct |
| Kick-out flashing | | X | | |
| Chimney Capped | X | | | |
| | | | | |
| Gutters | X | | | |

Inspectors Summary

This house has a EIFS Stucco System installed. It appears the stucco system was installed correctly but there are a couple of issues that may need to be addressed. One issue, I suggest that kickout flashings be installed at areas noted in the report to ensure that there is no chance of moisture entry. Window and door frames are caulked but the caulk is thin and failing, I suggest that all window and door frames be caulked correctly and with a proper caulk. Dow Corning 790 or 795 and or a NP1 would be a good choice for caulking. Some utility breaches need to be caulked at the stucco. The stucco system is below the grade at some areas, this can cause moisture and termite issues. The stucco system should be above grade and sealed at the bottom (Very Important). There is some stucco damage at the roof shingles and other areas that need to be repaired. The stucco should be 2" above the roof shingles.

The back deck has moisture issues. It appears at areas checked that the area is concrete construction with a EPS (foam board) and stucco finish applied. It appears that the upper deck area has grout failure. The grout failure can let water enter between the stucco and concrete area. this can cause the stucco to delaminate and crack. I suggest all the stucco be removed at the lower deck area and re-applied (if desired). This should be done after deck tile/grout problem is solved. I suggest a deck professional be contacted to fix the problem of the tile/grout. All moisture levels taken under the window units and missing flashing areas was in the normal range.

PLEASE SEE REPORT FOR ALL OBSERVATIONS.

If all suggestions are performed and routine maintenance and inspections are performed the stucco system should function properly for many years to come.

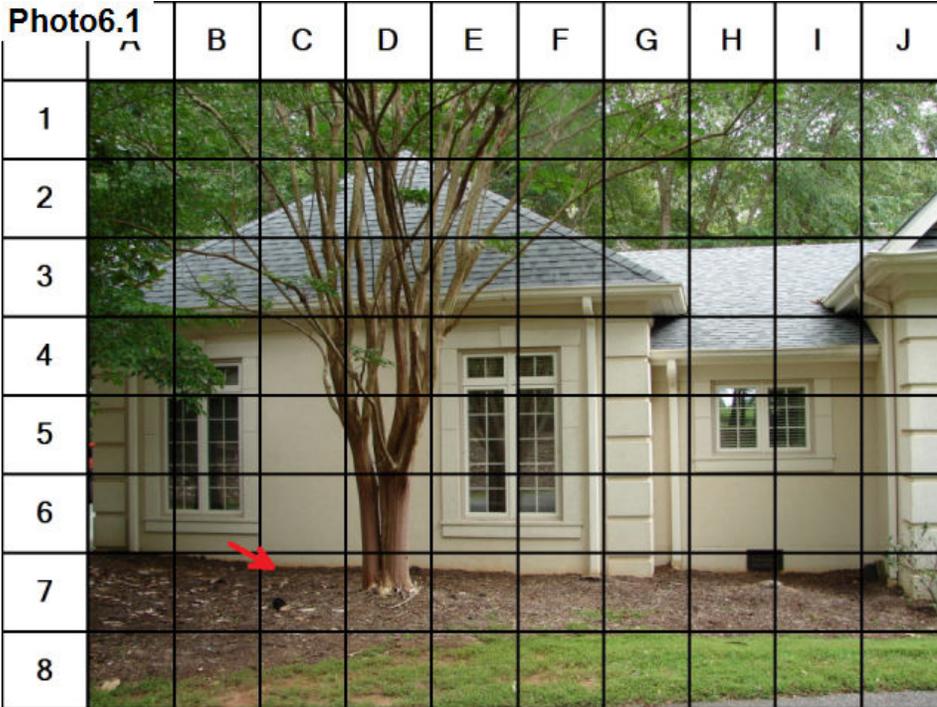
Inspectors Summary

Please note that the moisture readings included in this report are the raw data recorded by the Delmhorst probe and or a Tramex Wet Wall meter. Moisture levels are affected by the ambient weather conditions and other factors, and this can result in variations between the readings taken on one day and readings taken in the same area on another day. The readings provided in this report are accurate indicators of the presence of retained moisture at the surface of the substrate or framing wood in the area tested at that given moment in time. These readings are not represented to be the absolute moisture content of the full thickness of the substrate or framing wood.

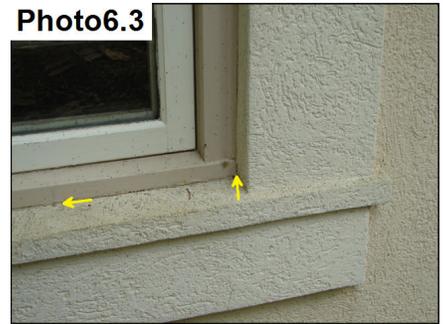
This report only reports on the condition of the structure at the specific locations indicated. Locations were determined by the inspector according to probable areas of possible moisture intrusion and in accordance with accepted industry standards. No judgment is intended or given for any areas not reported on.

David Blackburn SC #39

Stucco Inspection Report



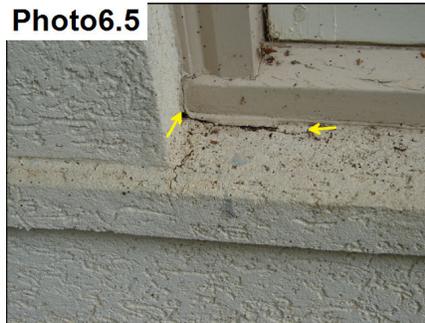
Window caulk at the frame appears to be correct and functioning properly.



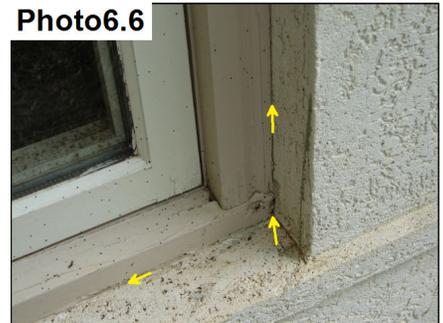
I suggest that window sill be caulked/re-caulked correctly.



The stucco is below grade, need to bring the stucco above grade.



I suggest that window sill be caulked/re-caulked correctly.



I suggest that window sill be caulked/re-caulked correctly.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|---|-------------------|
| | Windows | Normal | Firm | Some of the window frame needs to be caulked and or re-caulked correctly. | 3.2 |
| C7 | Below Grade | | | The stucco is below grade, need to bring the stucco above grade. | |
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Stucco Inspection Report

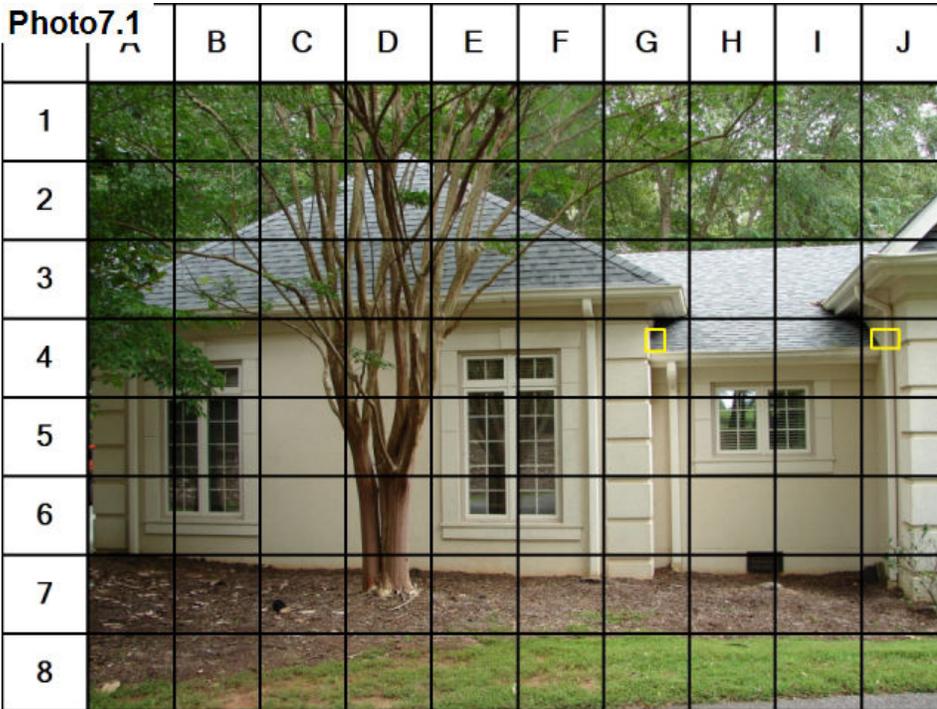


Photo7.2
Kickout flashing is missing and needs to be installed.



Photo7.3
Kickout flashing is missing and needs to be installed.

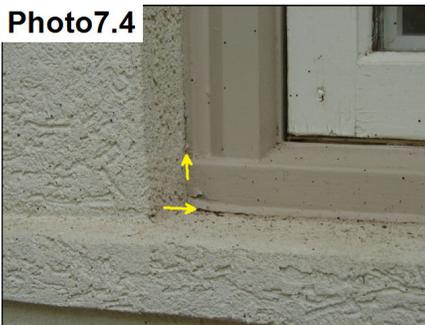


Photo7.4
I suggest that window sill be caulked/re-caulked correctly.



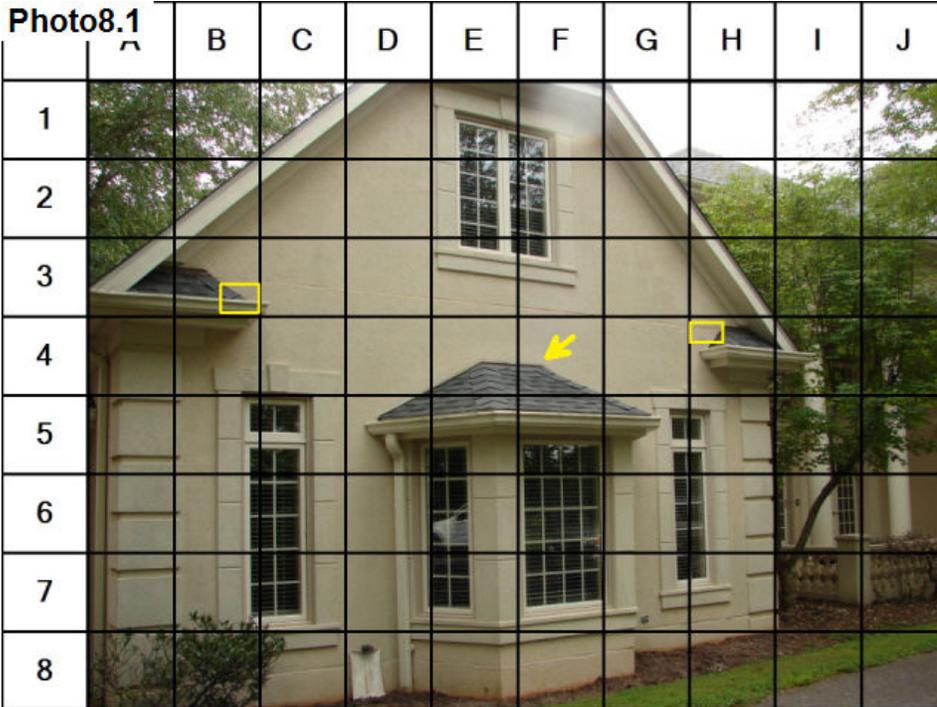
Photo7.5
I suggest that window sill be caulked/re-caulked correctly.



Photo7.6
Soffit/Eaves area needs to be caulked at the stucco.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|---|-------------------|
| G&J 4 | Kickout | Normal | Firm | Kickout is missing and needs to be installed. | 3.4 |
| | Windows | Normal | Firm | I suggest that window sill be caulked/re-caulked correctly. | 3.2 |
| | Soffit/Eave area | Normal | Firm | Soffit/Eaves area needs to be caulked at the stucco. | |
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Stucco Inspection Report



I suggest that window sill be caulked/re-caulked correctly.



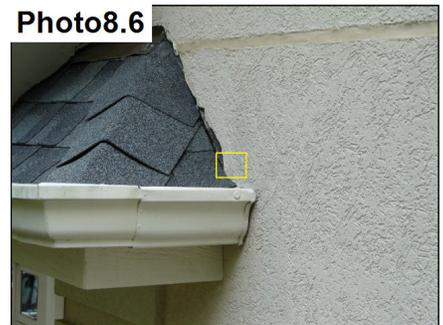
I suggest that window sill be caulked/re-caulked correctly.



Window caulk at the frame appears to be correct and functioning properly.



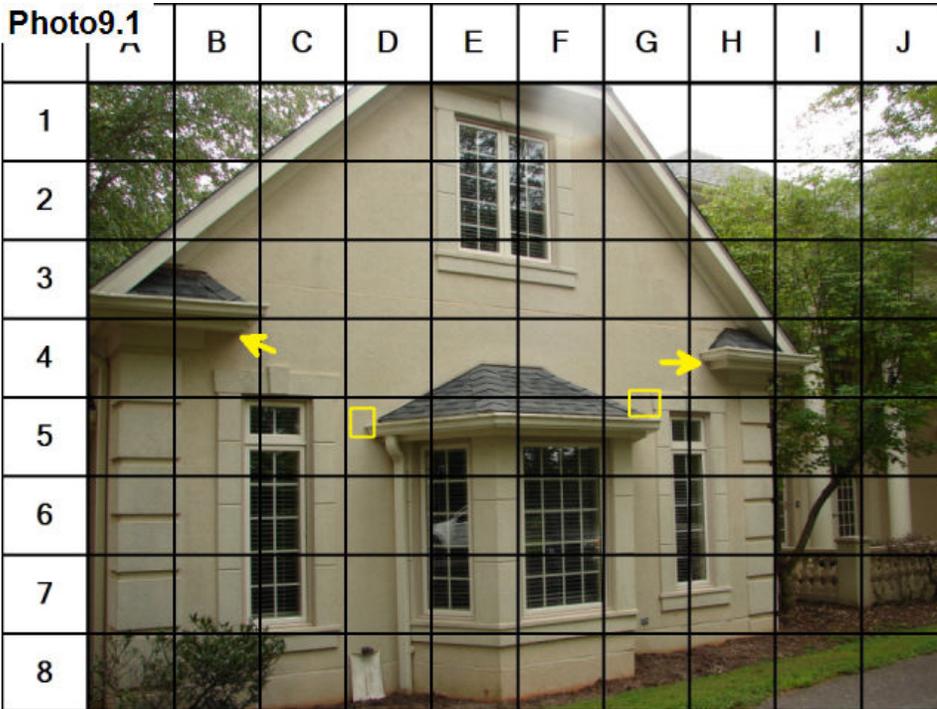
Exposed cracks need to be repaired and or sealed/caulked correctly.



Suggest diverter flashing be installed.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|-------------------|-------------------|---------------------|---|-------------------|
| F4 | Cracks | Normal | Firm | Exposed cracks need to be repaired and or sealed/caulked correctly. | 3.6 |
| B3, H4 | Diverter flashing | Normal | Firm | Suggest that diverter flashing be installed. | 3.4 |
| | Windows | Normal | Firm | I suggest that window sill be caulked/re-caulked correctly. | 3.2 |
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Stucco Inspection Report



Soffit/Eaves area needs to be caulked at the stucco.



Photo9.3

I suggest that window sill be caulked/re-caulked correctly.



Photo9.4

I suggest that window sill be caulked/re-caulked correctly.



Photo9.5

I suggest that window sill be caulked/re-caulked correctly.



Photo9.6

Soffit/Eaves area needs to be caulked at the stucco.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|---|-------------------|
| B&H 4 | Soffit/Eave area | Normal | Firm | Soffit/Eaves area needs to be caulked at the stucco. | |
| | Windows | Normal | Firm | I suggest that window sill be caulked/re-caulked correctly. | 3.2 |
| D&G 5 | Kickout | Normal | Firm | Kickouts are missing and need to be installed. | 3.4 |
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Stucco Inspection Report

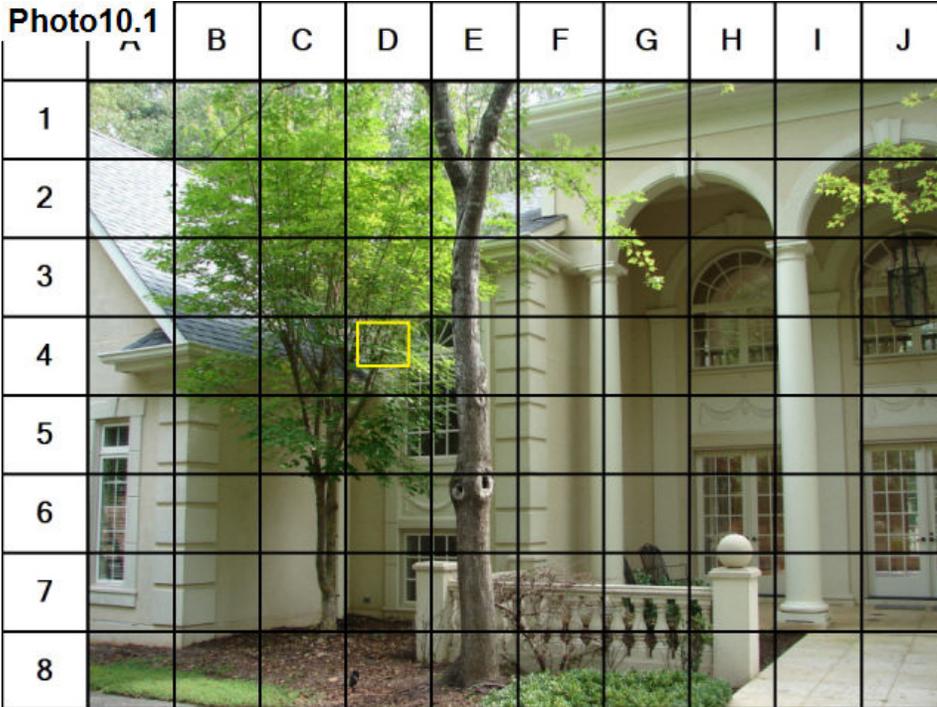


Photo10.2
Kickout flashing is missing and needs to be installed.



Photo10.3
I suggest that window sill be caulked/re-caulked correctly.



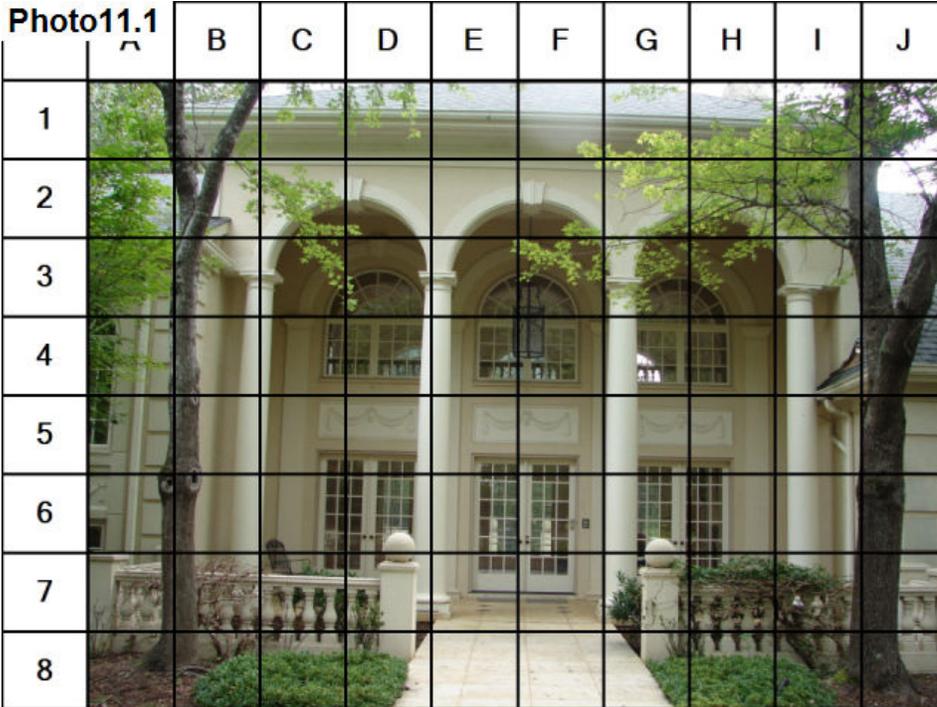
Photo10.4
I suggest that window sill be caulked/re-caulked correctly.



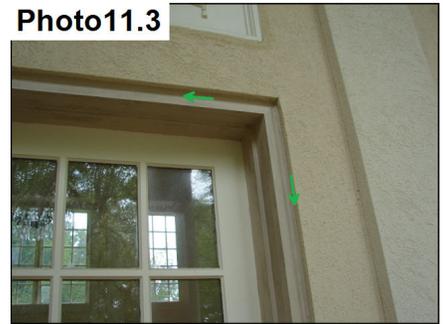
Photo10.5
Soffit/Eaves area needs to be caulked at the stucco.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|---|-------------------|
| D4 | Kickout | Normal | Firm | Kickout is missing and needs to be installed. | 3.4 |
| | Windows | Normal | Firm | I suggest that window sill be caulked/re-caulked correctly. | 3.2 |
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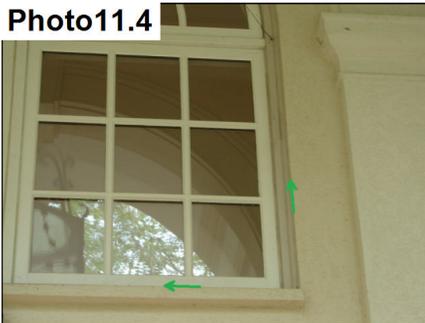
Stucco Inspection Report



Door frame caulk appears to be correct and functioning properly.



Door frame caulk appears to be correct and functioning properly.



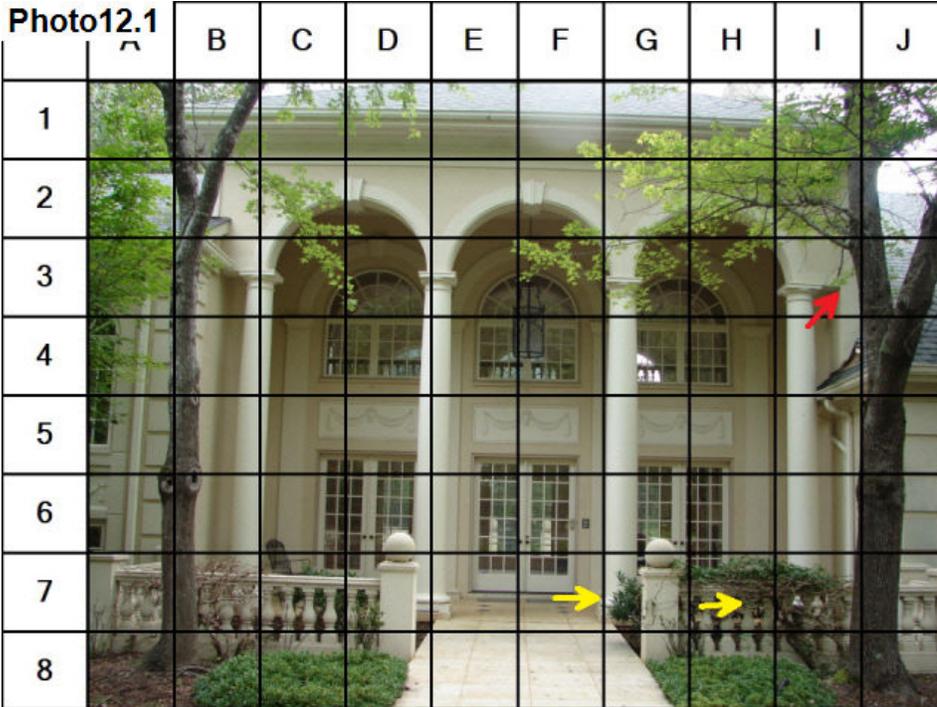
Window caulk at the frame appears to be correct and functioning properly.



Stucco termination is sealed correctly at the tile.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|---|-------------------|
| | Doors | Normal | Firm | Door frame caulk appears to be correct and functioning properly. | |
| | Windows | Normal | Firm | Window caulk at the frame appears to be correct and functioning properly. | |
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Stucco Inspection Report



Damaged stucco needs to be repaired/sealed.



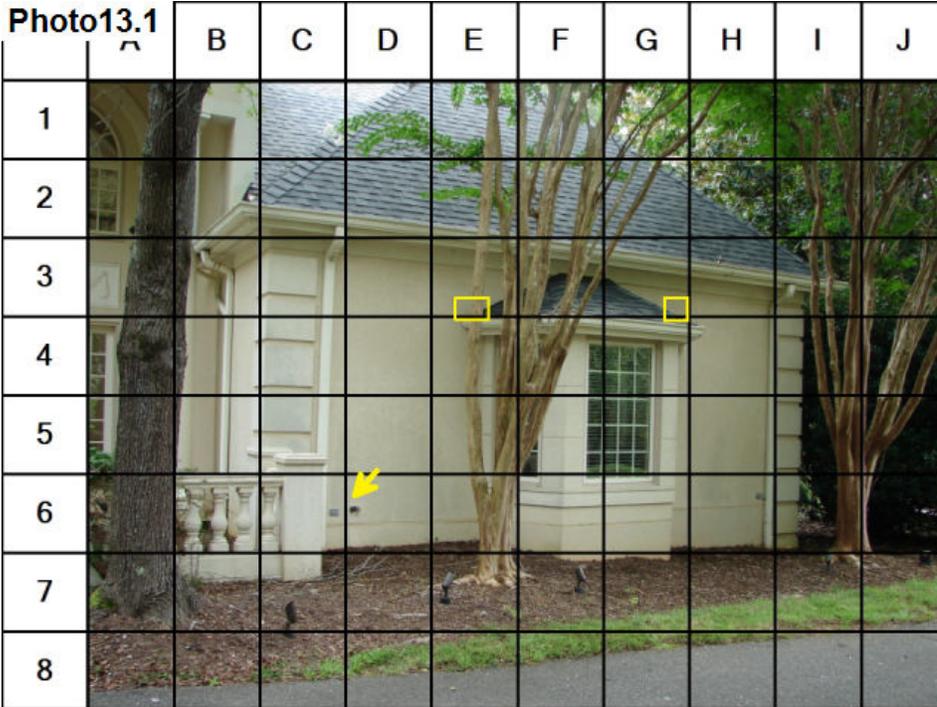
Stucco needs to be sealed at the tile.



Wood rot is present.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|---|-------------------|
| I3 | Wood rot | | | External wood rot needs to be repaired. | |
| F&H 7 | Stucco at tile | Normal | Firm | The stucco needs to be sealed at the tile area. | |
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Stucco Inspection Report



Utility breaches need to be caulked at the stucco.



Kickout flashing is missing and needs to be installed.



I suggest that window sill be caulked/re-caulked correctly.



Thin and failing caulk at the window frame, need to re-caulk.



Kickout flashing is missing and needs to be installed.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|---|-------------------|
| D6 | Utility | Normal | Firm | All utility breach locations need to be caulked. | 3.1 |
| E&G 3 | Kickout | Normal | Firm | Kickouts are missing and need to be installed. | 3.4 |
| | Windows | Normal | Firm | Thin and failing caulk at the window frame, need to re-caulk. | 3.2 |
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Stucco Inspection Report

Photo14.1



Right Elevation

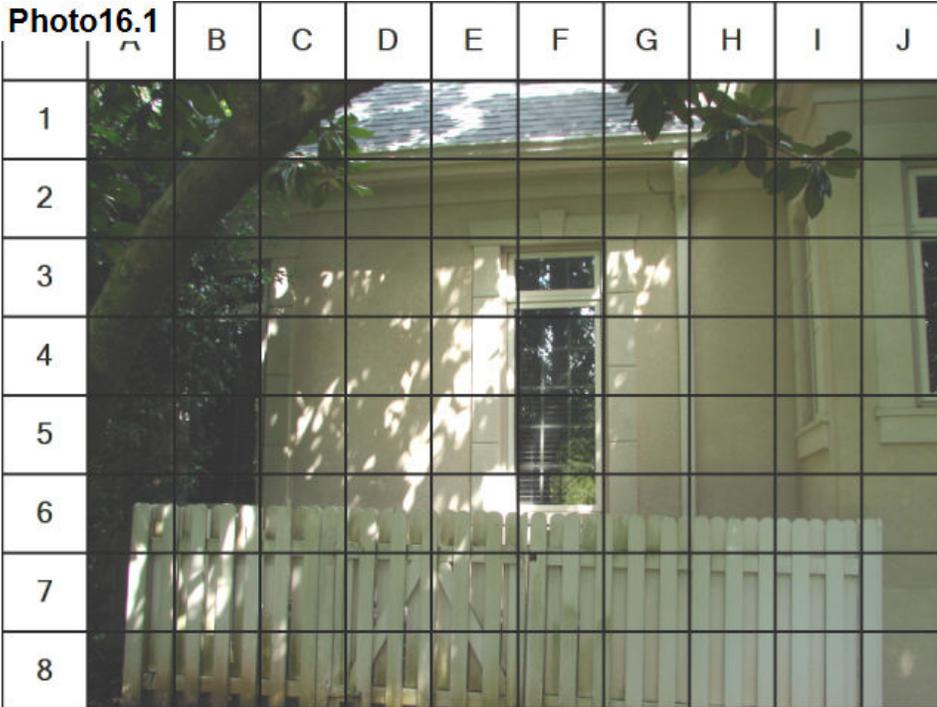
Stucco Inspection Report



Proper stucco cutback at the roof shingles.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|---|-------------------|
| | Windows | Normal | Firm | Thin and failing caulk at the window frame, need to re-caulk. | 3.2 |
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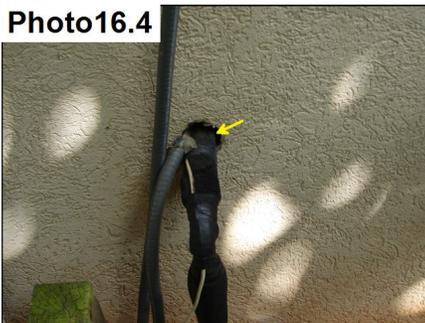
Stucco Inspection Report



I suggest that window sill be caulked/re-caulked correctly.



I suggest that window sill be caulked/re-caulked correctly.



Utility pipe needs to be caulked at the stucco.



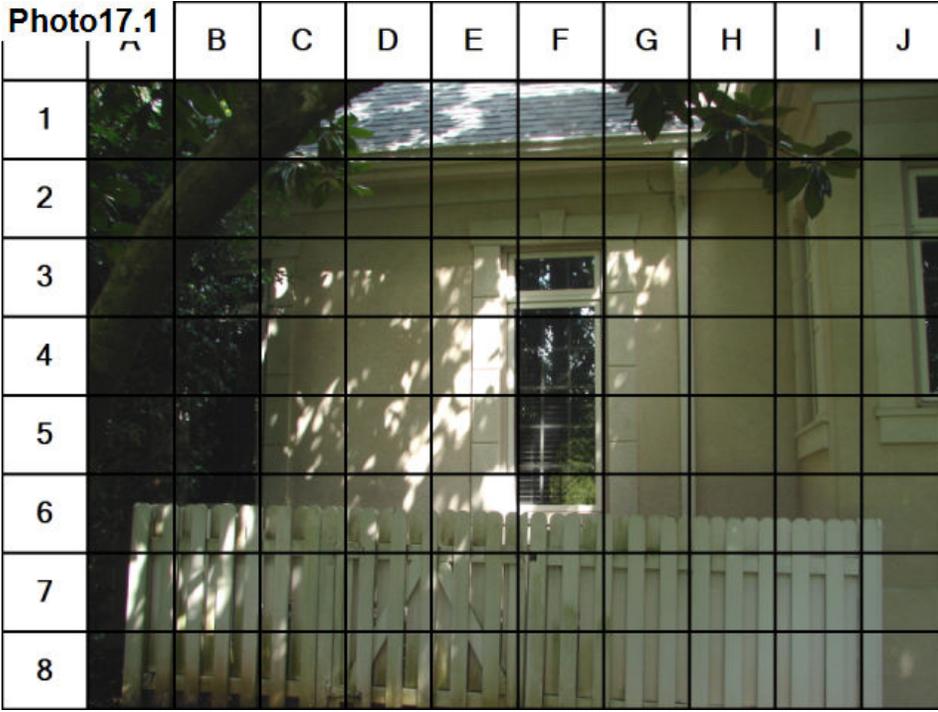
I suggest that window sill be caulked/re-caulked correctly.



Utility pipe needs to be caulked at the stucco.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|---|-------------------|
| | Utility | Normal | Firm | All utility breach locations need to be caulked. | 3.1 |
| | Windows | Normal | Firm | I suggest that window sill be caulked/re-caulked correctly. | 3.2 |
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Stucco Inspection Report



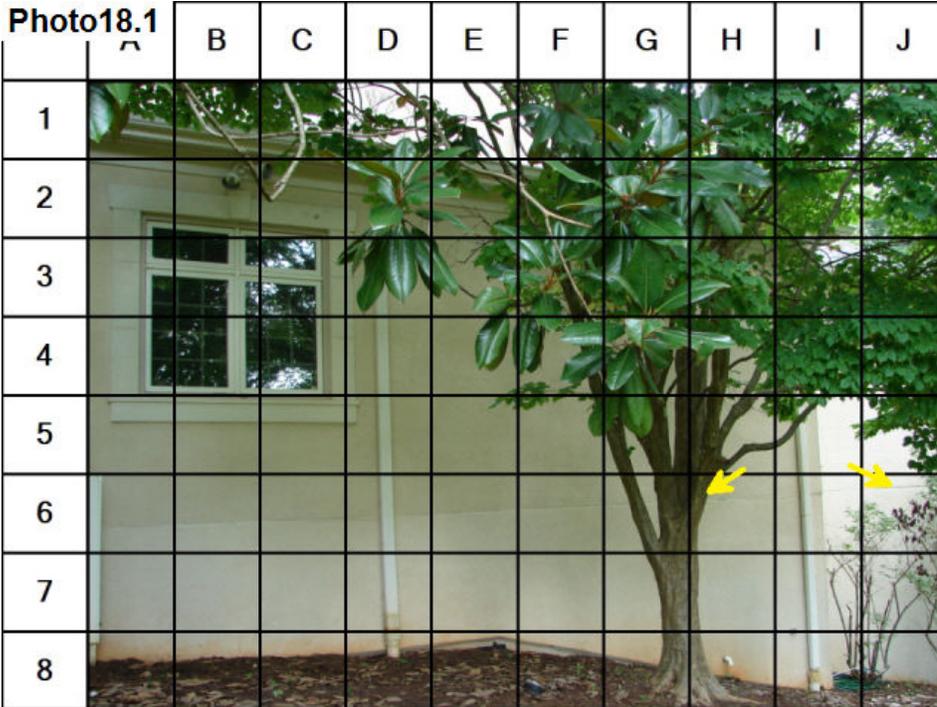
I suggest that window sill be caulked/re-caulked correctly.



Thin and failing caulk at the window frame, need to re-caulk.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|---|-------------------|
| | Windows | Normal | Firm | Thin and failing caulk at the window frame, need to re-caulk. | 3.2 |
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Stucco Inspection Report



This area has the proper cutback at the stucco.



I suggest that window sill be caulked/re-caulked correctly.



Thin and failing caulk at the window frame, need to re-caulk.



Failed caulked at the joint, need to caulk correctly.



Failed caulk at the joint, need to caulk correctly.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|---|-------------------|
| H&J 6 | Joint failure | | | Caulk failure at the joint, need to re-caulk correctly. | |
| | Windows | Normal | Firm | Thin and failing caulk at the window frame, need to re-caulk. | 3.2 |
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Stucco Inspection Report

Photo19.1

| | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | |
| 2 | | | | | | | | | | |
| 3 | | | | | | | | | | |
| 4 | | | | | | | | | | |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |



Caulk failure at the joint, need to re-caulk correctly.



Stucco is below grade, need to bring up above grade.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|--|-------------------|
| J8 | Below Grade | | | The stucco is below grade, need to bring the stucco above grade correctly. | |
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Stucco Inspection Report

Photo20.1



Back Elevation

Stucco Inspection Report

| Photo21.1 | A | B | C | D | E | F | G | H | I | J |
|-----------|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | |
| 2 | | | | | | | | | | |
| 3 | | | | | | | | | | |
| 4 | | | | | | | | | | |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |



Photo21.2
Thin and failing caulk at the window frame, need to re-caulk.



Photo21.3
Thin and failing caulk at the window frame, need to re-caulk.



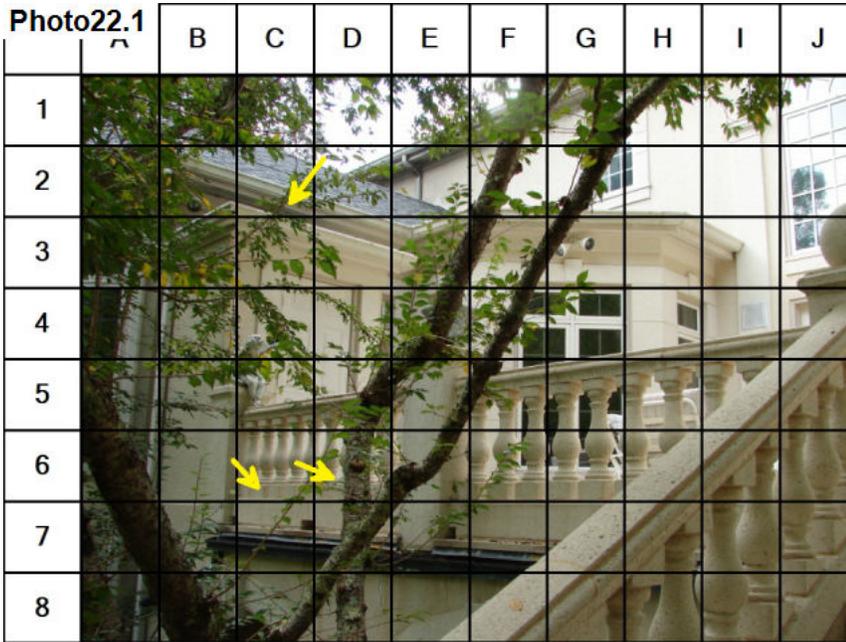
Photo21.4
Caulk failure at the window frame, need to re-caulk the window.



Photo21.5
Exposed cracks need to be repaired and or sealed/caulked correctly.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|---|-------------------|
| D6 | Cracks | Normal | Firm | Exposed cracks need to be repaired and or sealed/caulked correctly. | 3.6 |
| | Windows | Normal | Firm | Thin and failing caulk at the window frame, need to re-caulk. | 3.2 |
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Stucco Inspection Report



Damaged stucco above door area,



Damaged stucco, need to seal correctly.



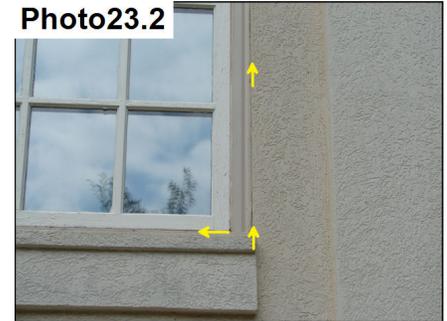
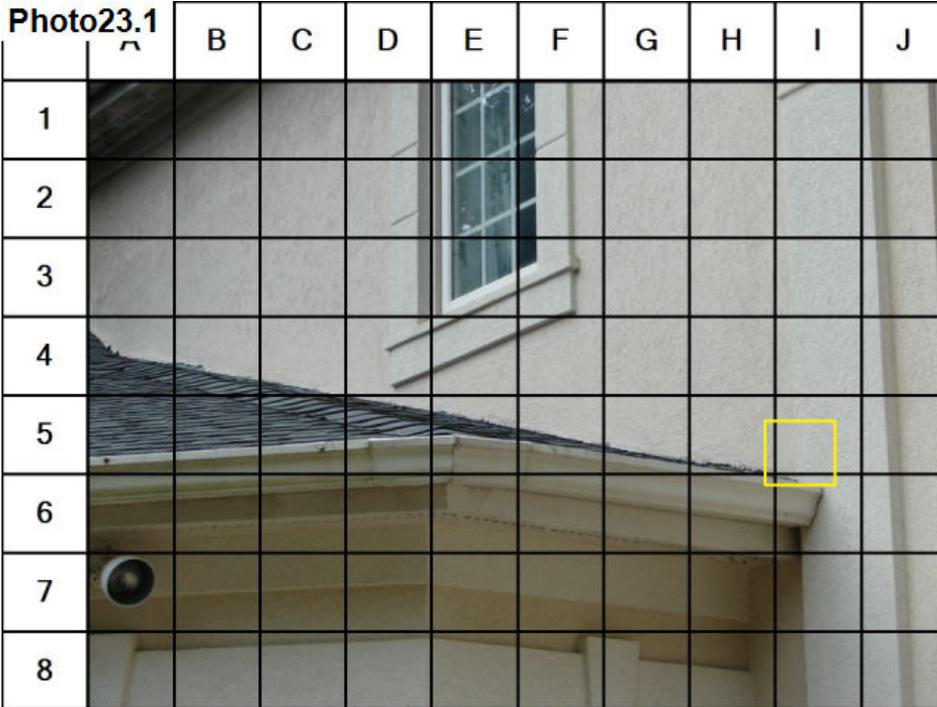
Caulk failure at the accent door threshold area, need to re-caulk.



Thin and failing caulk at the window frame, need to re-caulk.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|---|-------------------|
| C2 | Damage | Normal | Firm | Damaged stucco needs to be repaired. | |
| C&D 6 | Door threshold | | | Caulk failure and damage at the stucco, needs to be sealed/repared. | |
| | Windows | Normal | Firm | Thin and failing caulk at the window frame, need to re-caulk. | 3.2 |
| | Damage | Normal | Firm | Door frame needs some touch-up caulking. | 3.2 |
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Stucco Inspection Report



| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|---|-------------------|
| I5 | Kickout | Normal | Firm | Kickout is missing and needs to be installed. | 3.4 |
| | Windows | Normal | Firm | Thin and failing caulk at the window frame, need to re-caulk. | 3.2 |
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Stucco Inspection Report

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| Photo24.1 | A | B | C | D | E | F | G | H | I | J |
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Photo24.2
Thin and failing caulk at the window frame, need to re-caulk.



Photo24.3
Thin and failing caulk at the door frame, need to re-caulk.



Photo24.4
Thin and failing caulk at the door frame, need to re-caulk.



Photo24.5
Thin and failing caulk at the window frame, need to re-caulk.



Photo24.6
Thin and failing caulk at the door frame, need to re-caulk.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|---|-------------------|
| | Windows | Normal | Firm | Thin and failing caulk at the window frame, need to re-caulk. | 3.2 |
| | Doors | Normal | Firm | Thin and failing caulk at the door frame, need to re-caulk. | 3.2 |
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Stucco Inspection Report

| Photo25.1 | A | B | C | D | E | F | G | H | I | J |
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Thin and failing caulk at the door frame, need to re-caulk.



Thin and failing caulk at the window frame, need to re-caulk.



Thin and failing caulk at the window frame, need to re-caulk.



Damaged stucco needs to be repaired.



Thin and failing caulk at the door frame, need to re-caulk.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|---|-------------------|
| I3 | Damage | | | Damaged stucco needs to be repaired. | |
| | Windows | Normal | Firm | Thin and failing caulk at the window frame, need to re-caulk. | 3.2 |
| | Doors | Normal | Firm | Thin and failing caulk at the door frame, need to re-caulk. | 3.2 |
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Stucco Inspection Report

Photo26.1

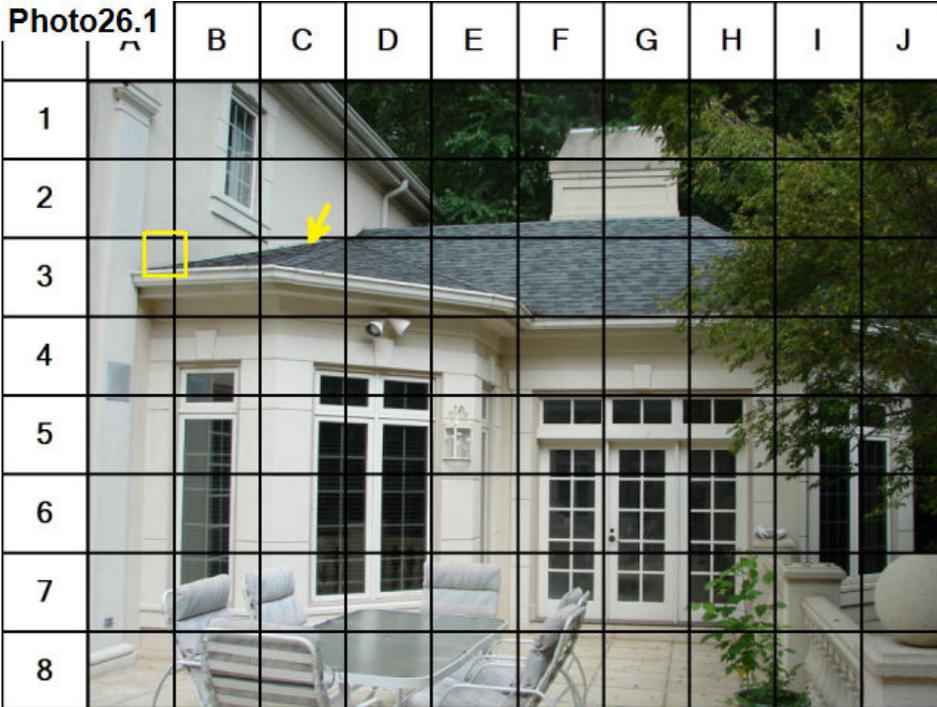


Photo26.2



Kickout flashing is missing and needs to be installed.

Photo26.3



Chimney is capped correctly.

Photo26.4



Thin and failing caulk at the window frame, need to re-caulk.

Photo26.5



Thin and failing caulk at the window frame, need to re-caulk.

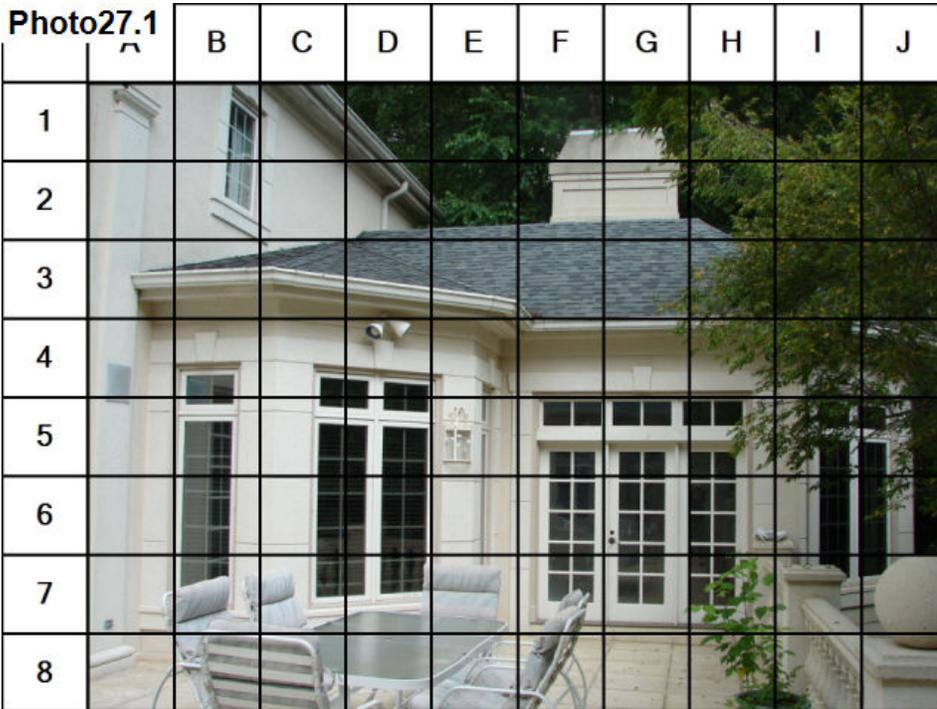
Photo26.6



Thin and failing caulk at the door frame, need to re-caulk.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|-----------------------|-------------------|---------------------|---|-------------------|
| A3 | Kickout | Normal | Firm | Kickout is missing and needs to be installed. | 3.4 |
| C3 | Stucco cutback damage | | | The stucco lacks the proper 2" cutback at the roofline. Damage stucco is present. | |
| | Doors | Normal | | Thin and failing caulk at the door frame, need to re-caulk. | 3.2 |
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Stucco Inspection Report



Grout failure, deck area.



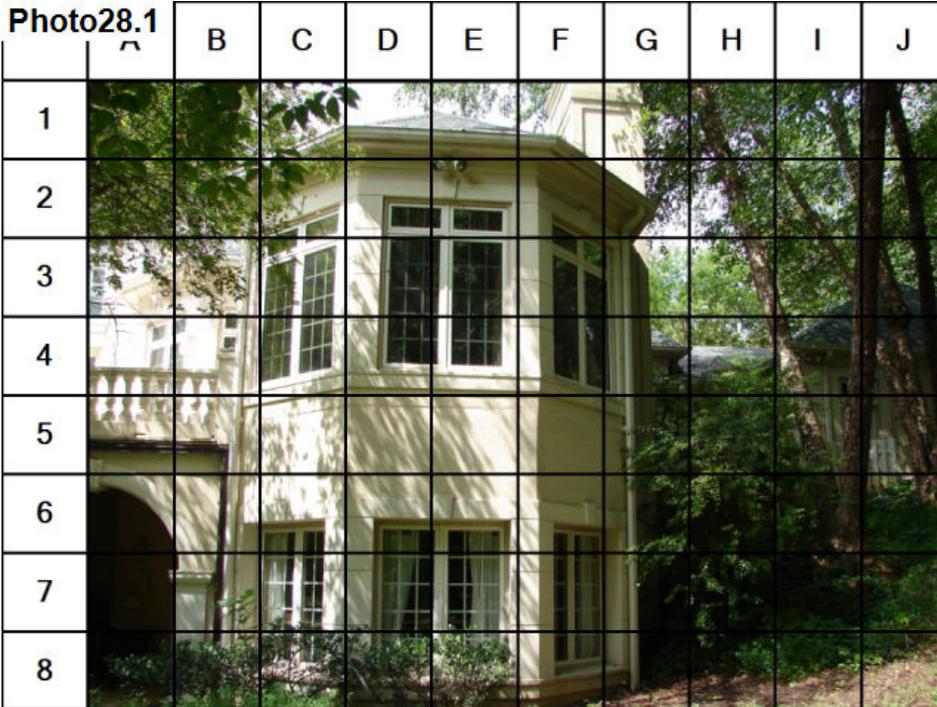
Leak area at deck flowing to lower area.



Thin and failing caulk at the door frame, need to re-caulk.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|--|-------------------|
| | Grout failure | | | Grout failure is causing stucco issues at the lower deck area. | |
| | Doors | Normal | Firm | Thin and failing caulk at the door frame, need to re-caulk. | 3.2 |
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Stucco Inspection Report



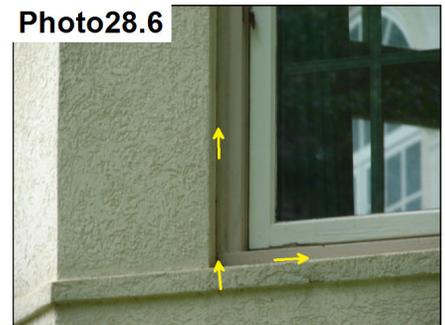
Thin and failing caulk at the window frame, need to re-caulk.



Thin and failing caulk at the window frame, need to re-caulk.



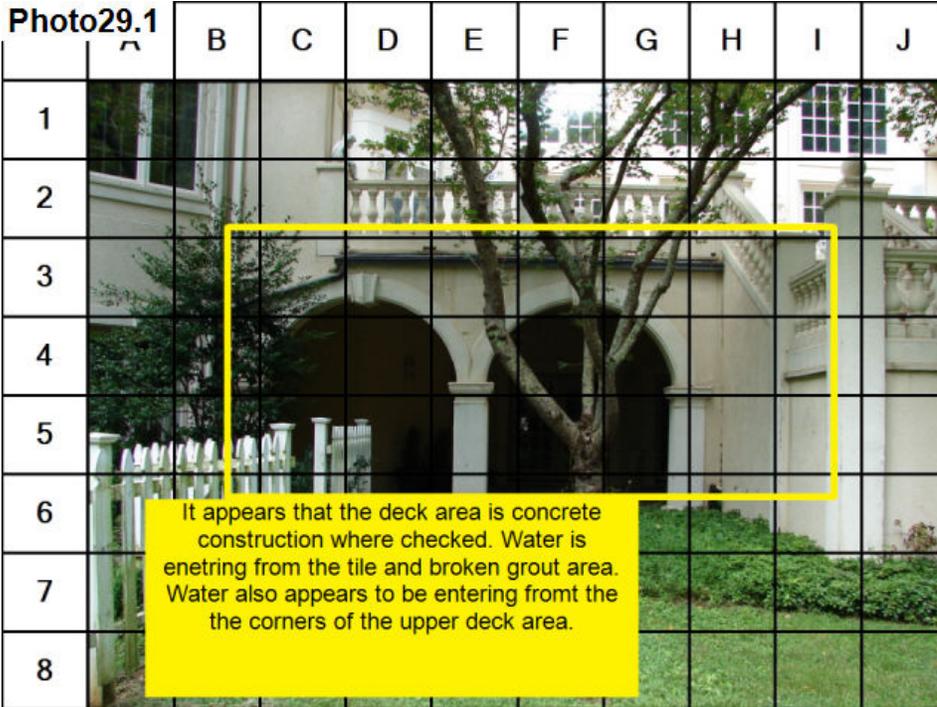
Thin and failing caulk at the window frame, need to re-caulk.



Thin and failing caulk at the window frame, need to re-caulk.

| Grid Location | Item Description | Moisture Readings | Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|-----------|---|-------------------|
| | Windows | Normal | Firm | Thin and failing caulk at the window frame, need to re-caulk. | 3.2 |
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Stucco Inspection Report



Water entering the stucco.



Photo29.3



Water entering the stucco between the stucco and concrete.



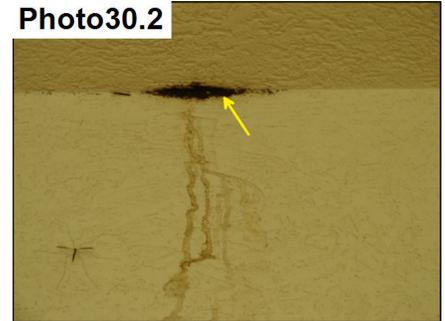
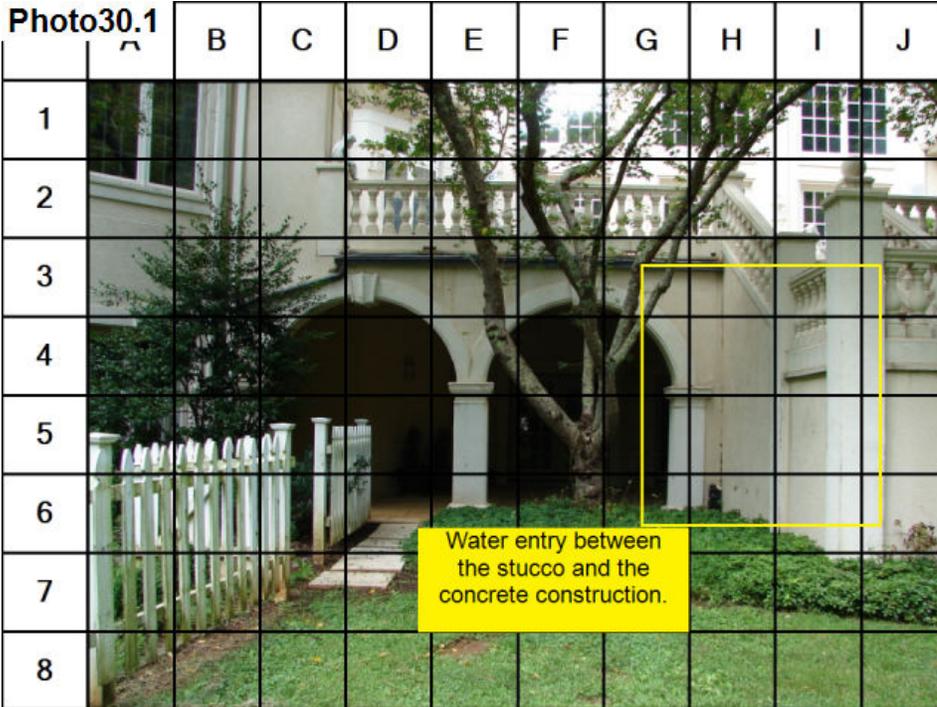
Water entering the stucco between the stucco and concrete.



Water entering the stucco between the stucco and concrete.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
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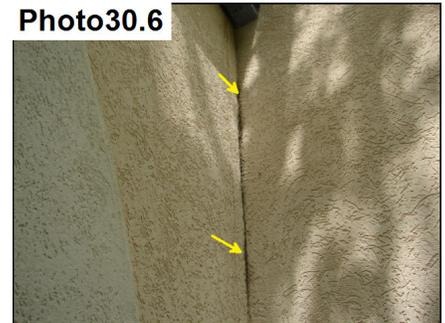
Stucco Inspection Report



Signs of water entry due to grout failure from above.



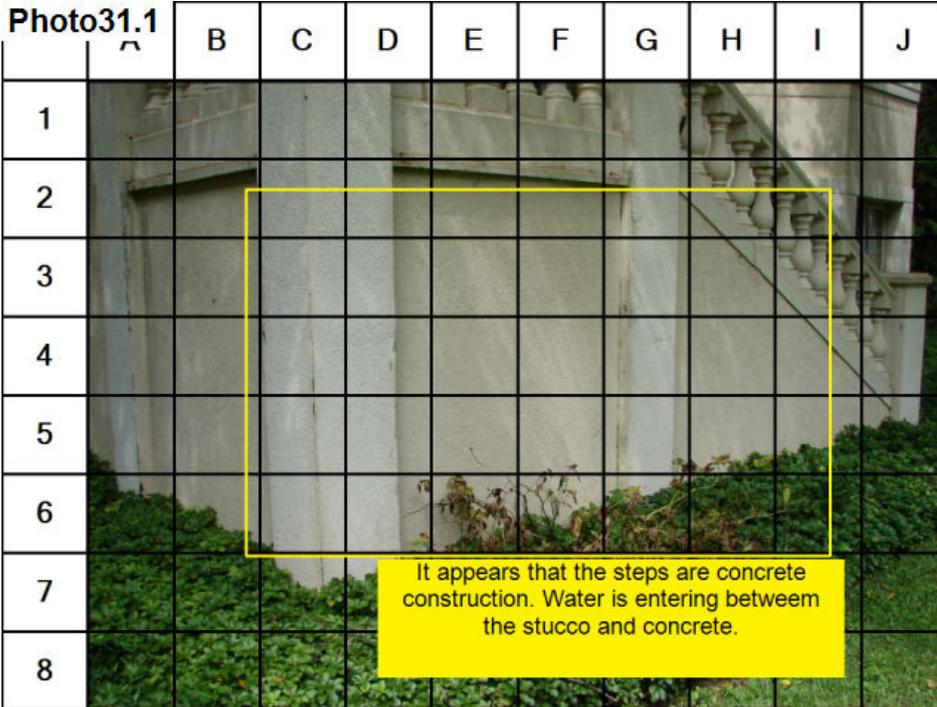
Exposed cracks need to be repaired and or sealed/caulked correctly.



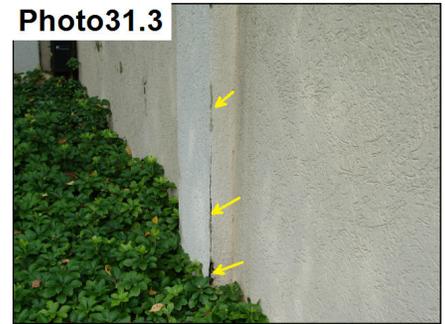
Signs of water entry in the corner at the steps.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
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Stucco Inspection Report



Signs of water entry between the stucco and the concrete construction.



Signs of water entry between the stucco and the concrete construction.



Signs of water entry between the stucco and the concrete construction.



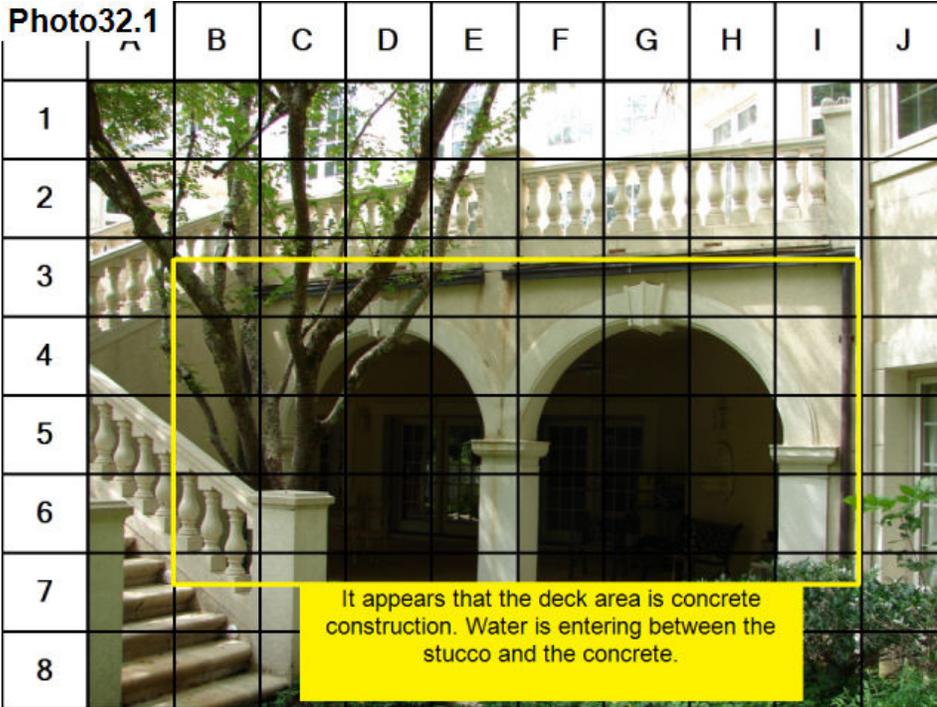
Hole in the stucco needs to be sealed.



Signs of water entry between the stucco and the concrete construction.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
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Stucco Inspection Report



It appears that this is one water entry area.



Signs of water entry between the stucco and the concrete construction.



Signs of water entry between the stucco and the concrete construction.



Signs of water entry between the stucco and the concrete construction.



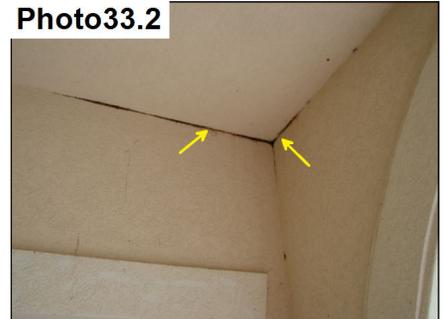
Signs of water entry between the stucco and the concrete construction.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
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Stucco Inspection Report

| Photo33.1 | A | B | C | D | E | F | G | H | I | J |
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Water entering from the deck tile grout failure.



Signs of water entry between the stucco and the concrete construction.



Signs of water entry between the stucco and the concrete construction.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
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Stucco Inspection Report

Photo34.1



Right back area.

Stucco Inspection Report

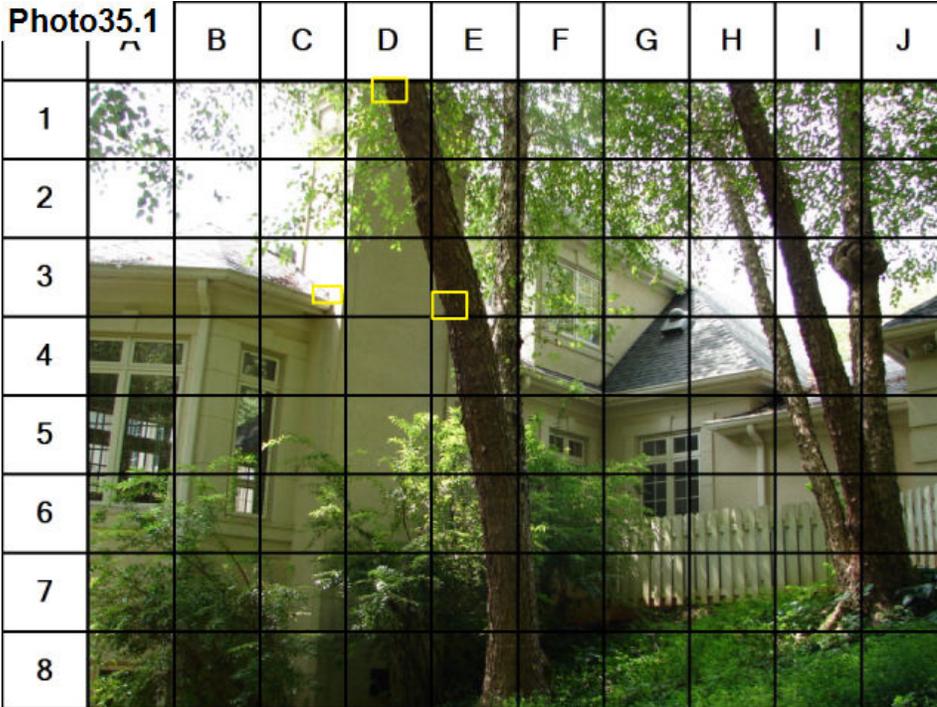


Photo35.2
Kickout flashing is missing and needs to be installed.



Photo35.3
Hole in the chimney, need to seal correctly.



Photo35.4
Kickout flashing is missing and needs to be installed.



Photo35.5
Thin and failing caulk at the window frame, need to re-caulk.



Photo35.6
Thin and failing caulk at the window frame, need to re-caulk.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|---|-------------------|
| D1 | Chimney | | | Hole in the chimney/stucco needs to be sealed. | |
| C&E 3 | Kickout | | | Kickouts are missing and need to be installed. | 3.4 |
| | Windows | Normal | Firm | Thin and failing caulk at the window frame, need to re-caulk. | 3.2 |
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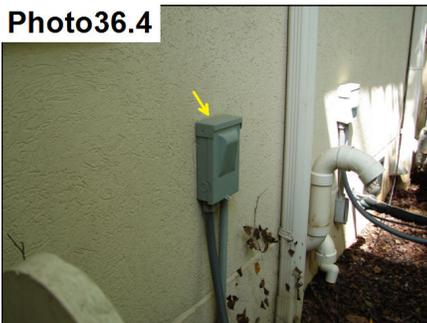
Stucco Inspection Report



Thin and failing caulk at the window frame, need to re-caulk.



Kickout flashing is missing and needs to be installed.



Utility boxes need to be caulked at the stucco.



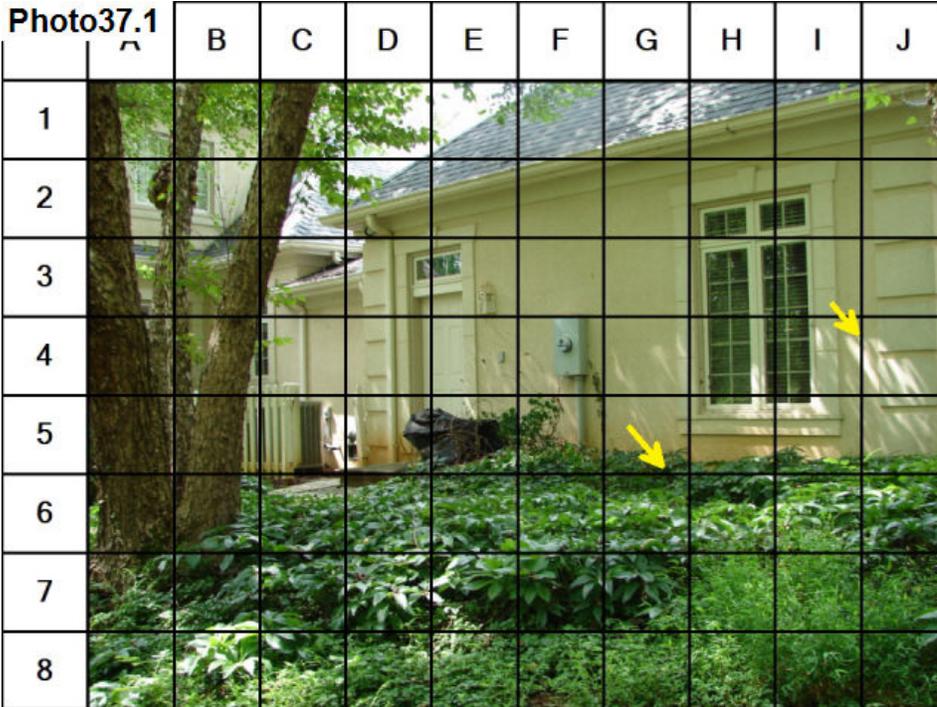
Damaged stucco needs repair.



Thin and failing caulk at the window frame, need to re-caulk.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|---|-------------------|
| F4 | Damage | | | Damaged stucco needs to be repaired. | |
| J4 | Kickout | Normal | Firm | Kickout is missing and needs to be installed. | 3.4 |
| | Windows | Normal | Firm | Thin and failing caulk at the window frame, need to re-caulk. | 3.2 |
| I6 | Utility | Normal | Firm | All utility breach locations need to be caulked. | 3.1 |
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Stucco Inspection Report



Door frame and thresholds need to be sealed correctly.



Stucco is below grade, need to bring above the grade.



Thin and failing caulk at the window frame, need to re-caulk.



Damaged stucco needs to be sealed.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|--|-------------------|
| | Doors | Normal | Firm | Thin and failing caulk at the door frame, need to re-caulk. | 3.2 |
| I4 | Damage | Normal | Firm | Damaged stucco needs to be repaired. | |
| | Windows | Normal | Firm | Thin and failing caulk at the window frame, need to re-caulk. | 3.2 |
| G5 | Below grade | | | The stucco terminates below grade, need to bring up above grade. | |
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Stucco Inspection Report

Photo38.1

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Stucco is sealed correctly.



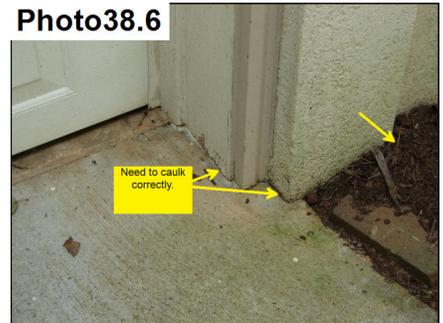
Garage door frame caulk appears to be functioning properly.



Damaged stucco needs to be repaired.



Damaged stucco needs to be repaired.



Below grade, need to bring above grade.

| Grid Location | Item Description | Moisture Readings | Substrate Condition | Observations | Chapter Reference |
|---------------|------------------|-------------------|---------------------|--------------------------------------|-------------------|
| E&H 5 | Damage | Normal | Firm | Damaged stucco needs to be repaired. | |
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Stucco Inspection Report

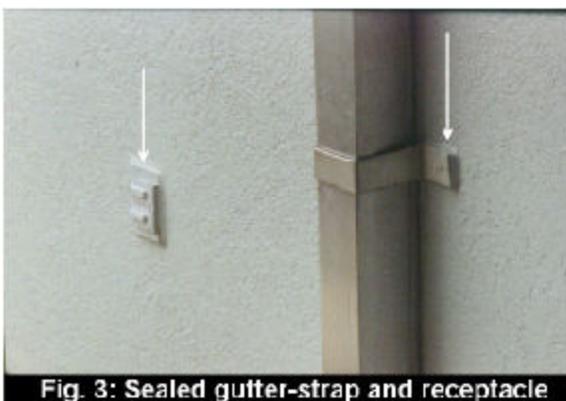
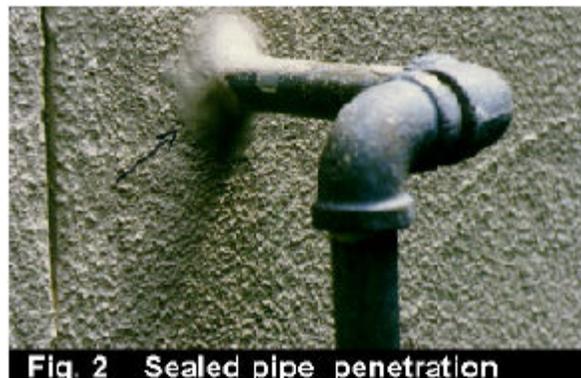
**The Following Pages Have Been Added To Show
Stucco Maintenance And Other Types Of Stucco Systems.
This Is General Information And Is
Not Associated With This Inspection But May Be Used As
A Guide To Solve Any Issues Detected In This Inspection.**

3.1 Water Intrusion Problems Related to Unsealed Stucco Penetrations

Any penetration through the stucco that is left unsealed will allow entry of moisture. Even an average size home can have an extreme number of penetrations, including:

1. electrical boxes
2. exterior receptacles
3. light fixtures
4. plumbing lines and faucets
5. cable TV lines
6. satellite dish mounts
7. security systems
8. gutter straps
9. shutter brackets
10. deck rail penetrations
11. gas lines
12. dryer vents
13. telephone lines
14. damaged or punctured areas of stucco

All penetrations must be sealed with a compatible sealant as recommended by the stucco system manufacturer and required by Model Codes. Damaged areas of stucco must be properly repaired to prevent water intrusion.



3.2 Water Intrusion Problems Related to Doors and Windows

Doors and windows are one of the most common leak areas in stucco buildings. Leaks can occur in these areas for a variety of reasons, including:

No caulking around perimeter of window or doorframes and thresholds. Stucco applicators are supposed to leave a 1/2" gap between the stucco and the frame to allow for a proper joint consisting of backer rod and manufacturer's recommended sealant. If no sealant is installed, a crack will eventually result, due to expansion and contraction, through which moisture or water can enter behind the stucco system. If the stucco installer did not leave the required 1/2" joint, the situation will have to be reviewed to determine the best repair method. Some possible post construction details are shown in the following pages.

Improper or failed joints. Some common reasons for joint failure include improper cleaning or joint preparation, lack of backer rod when needed to control joint depth, improper joint width (should be at least 1/2"), use of inappropriate sealant, or failure to tool the joints. Tooling the joint to a concave surface presses the caulk up against the joint sides to help ensure good adhesion and provides a consistent and neat appearance (Figure 3). Even if joints are properly installed, the life of the sealant is 5 to 20 years depending on the type and quality of sealant used. Sealants should be inspected annually and repairs made promptly.



Fig. 1: Damage caused by No sealants



Fig. 2: Example of unsealed window perimeter



Fig. 4: Damage caused by Alarm sensor



Fig. 3: Serious damage caused by no sealants

3.2 Water Intrusion Problems Related to Doors and Windows (cont'd)

Inadequate or missing flashing. Many windows/doors are installed without the head or sill flashing which is required for EIFS installations by many manufacturers and by Model codes for protection of veneered wall openings). If the leakage cannot be corrected with caulking, corrective repairs may be required to properly install flashing. There are also post construction systems on the market that sometimes can be installed without requiring measures such as removal of the EIFS at the perimeter of the window/door or the removal of the units themselves for repairs/replacement.

Improper house wrap application around windows and doors. If house wrap is not properly lapped and wrapped in the correct sequence around window and door penetrations, any water that intrudes through these areas will be funneled behind the house wrap and saturate the wall cavity causing damage.

Obstructed weep holes. Many windows have tracks with weep holes that are designed to catch any incidental water and weep the water to the outside of the window frame. However, situations are sometimes encountered where the stucco applicator has brought the stucco up past the weep holes causing the water to “dam” up and eventually leak into the walls. These weep holes must be kept clear of stucco, caulk, etc. to allow them to fully and freely function.

Punctured window tracks or frames from security system installation. This may also void your window warranty. Sealing these penetrations will many times correct the leakage.

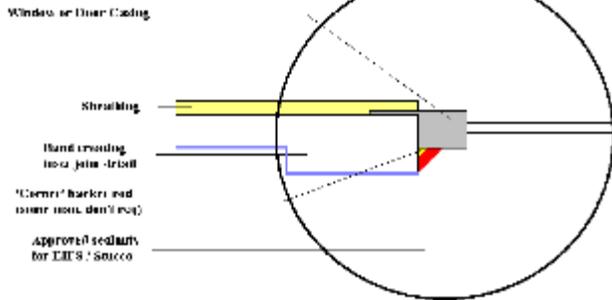
Many window and door units themselves leak through gaps in the door or window frame, sills, tracks and/or at the center mullion where two double hung windows join. This can sometimes be corrected by wet glazing (sealing the frame to glass) or by caulking the gaps in the frames or by making minor modifications to the window. If these measures are not effective, the windows or doors will have to be repaired or replaced with a higher quality window.

Doors: In areas that are prone to strong, gusting winds, in-swing doors seem to be more prone to leakage. Door thresholds should be raised a minimum of two inches and should be sealed to prevent water intrusion. Second floor doors should incorporate "pan flashing" to prevent leakage and potential damage to the areas below. Weather stripping can be used to help ensure water tightness.

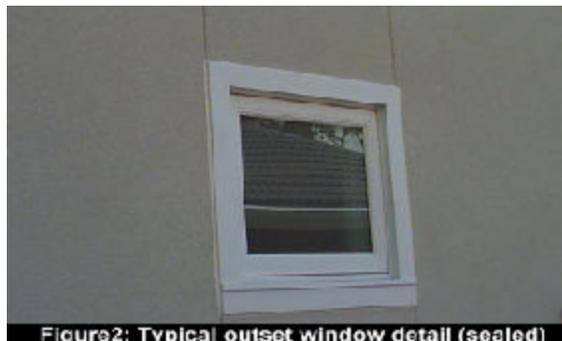
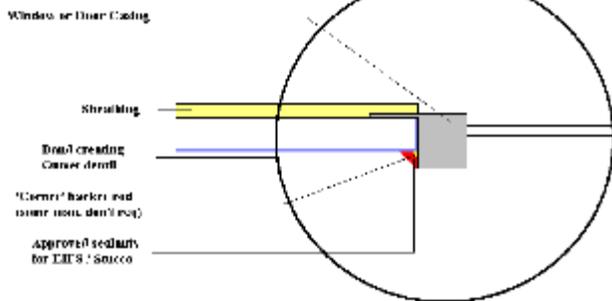


3.2 Typical Window Detail (cont'd)

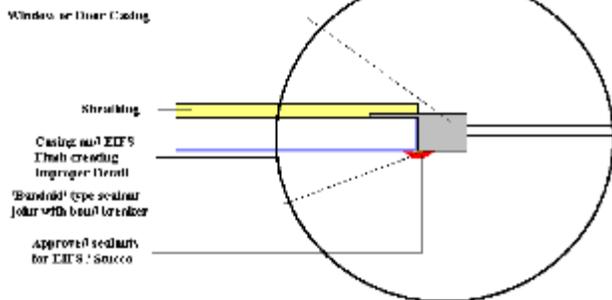
Inset Window or Door Detail



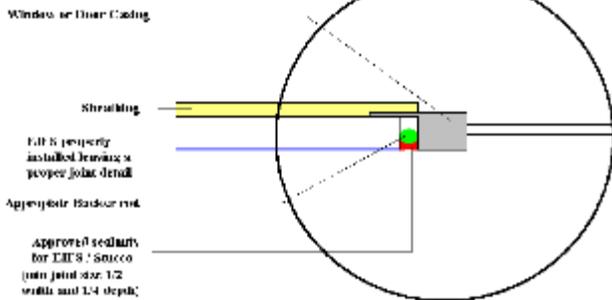
Outset Window or Door Detail



Flush Window or Door Detail



Proper Window and Door Detail



3.3 Water Intrusion Problems Related to Stucco Termination at Grade Level

According to the Model Codes, as well as many state and county codes, all synthetic stucco homes with foam board insulation must be terminated eight inches above the ground. The reasons for this requirement are:

1) To prevent wicking, a process in which standing water is absorbed by the EPS foam board, which leads to mold and mildew behind EIFS. Figure 1 shows an example of a home where the stucco system was not backwrapped and extended below grade. Water wicked up behind the stucco, causing mold, mildew and decay of the underlying sheathing. Wicking can also occur when stucco is terminated at grade level as seen in Figure 4.

2) To eliminate a direct path for termites through the EPS board as well as establish easy access for termite inspectors.

Termite problems associated with stucco systems that extended below grade were recognized in 1996 and various code bodies began to change code requirements. Because of the increased risk of termite infestation, many pest control companies won't issue termite warranties for buildings with below grade stucco terminations including 'hard coat' stucco systems in many cases. One way this problem can be resolved by cutting the stucco eight inches above grade and adding a PVC accessory trim to "lock" the EPS board in place (Figure 2). The PVC accessory trim is an optional item that looks nice and eliminates the need for backwrapping the EIFS. The trim is then sealed with a high-quality sealant. Finally, a textured coat is applied to the bare foundation wall and colored to match the existing EIFS. The pictures below show a cutback with accessory trim. Once landscaping is in place, the modification is hardly noticeable (Figure 3).



Fig. 2 Cutback finished using PVC trim



Fig. 1 Moisture caused by the wicking process



Fig. 3 Cutback complete with landscaping



Fig. 4 Moisture at improper termination

3.4 Water Intrusion Problems Related to Improper Kickout and Other Roof Flashing

Kickout Flashing: Many water intrusion problems in stucco or EIFS homes are the result of improper kickout flashing installation or the lack of kickout flashing. Kickout flashing should be installed where a roof line terminates or intersects with a vertical wall. The word kickout means exactly that; it kicks the water out and away from the stucco system.

If no kickout is installed (Figure 1) or if it is improperly installed/sealed (Figure 2), the water can run down the edge of the roof next to the stucco wall and enter behind the stucco at the point where the roof terminates into the stucco. This will allow substantial moisture accumulation that will eventually cause decay as seen in Figure 3.

Properly installed kickout flashing is absolutely essential. An example of a proper installation can be seen in Figure 4.

Installation of a kickout flashing in an existing stucco system involves cutting out the stucco to reveal the step flashing, inserting the kickout flashing under and behind the step flashing. New stucco base, mesh and finish coat is then applied to blend in with the adjacent stucco as closely as possible. Application of bond breaker and sealant is then required as shown in Figure 5. If stucco color cannot be closely matched, it may be necessary to coat the area to a corner if possible.

Other Roof Flashing: Since many stucco homes have complex roofing designs, other critical flashing areas may also be improperly detailed. Any roofline that terminates into stucco may pose a problem.



Figure 1: No kickout flashing



Fig 2: Improper installation (unsealed)



Figure 3: Failed flashing



Fig 4: Proper repair kickout installation

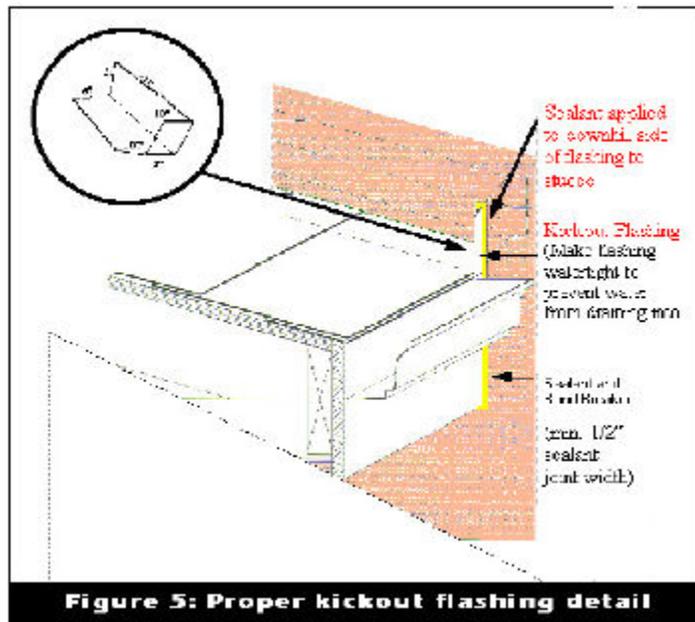


Figure 5: Proper kickout flashing detail

3.5 Water Intrusion Problems Related to Improper Deck and Balcony Terminations (Cont'd)

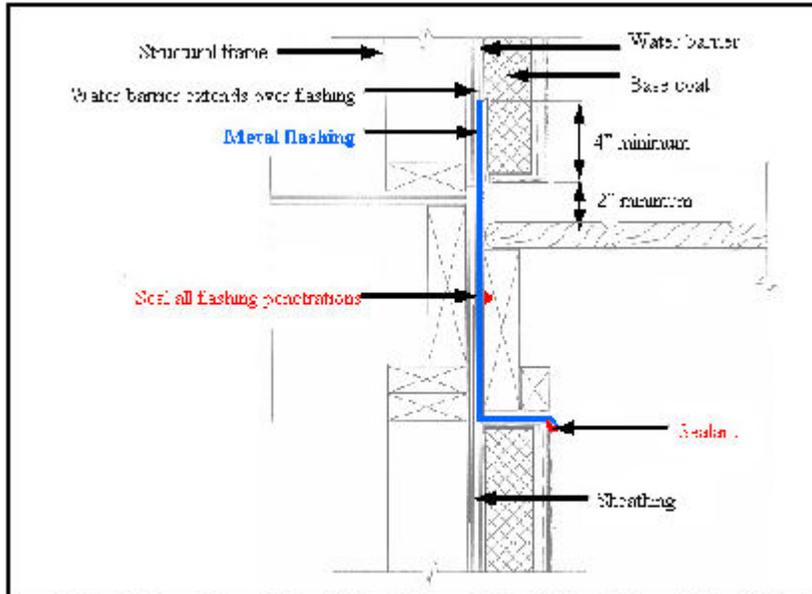


Figure 5: Possible Deck Detail - New

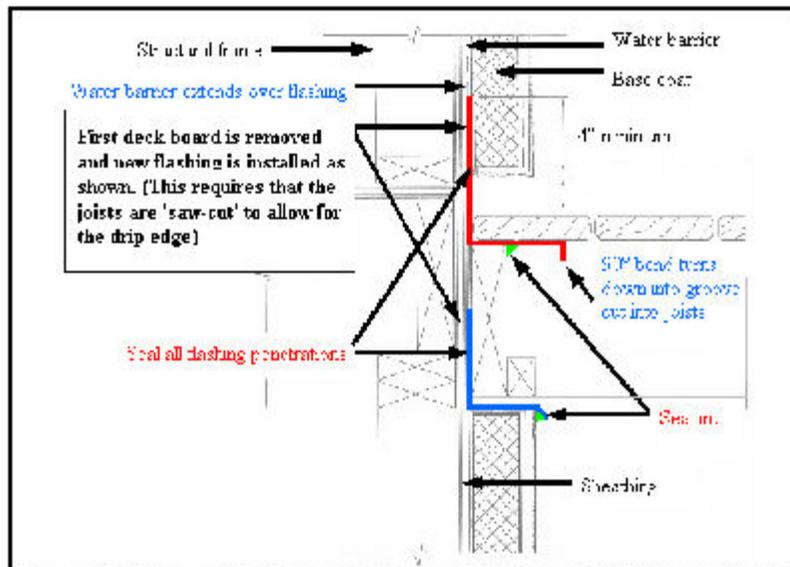


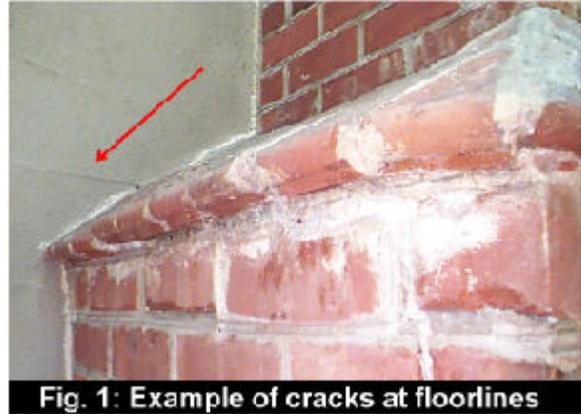
Figure 6: Possible Deck Detail - Post Construction

3.6 Water Intrusion Problems Related to Cracks and Breaches in the Stucco

It does not take a very big crack to allow water intrusion. In fact, a crack as small as 1/16" of an inch wide can permit water to enter behind the stucco, especially with a stucco system that has no moisture barrier. All cracks 1/16" wide or larger and all damaged areas of stucco should be properly repaired as per manufacturers guidelines. Many times the patched areas will still be slightly noticeable even with a good repair application. Extreme cracking will sometimes require the reapplication of EIFS base, mesh, and finish to prevent more cracking and provide a consistent appearance. Cracking is common in hard coat stucco systems, therefore expansion joints are called for every 144 sf, as well as between floorlines and extending vertically from window and door corners to help control cracking. One reason EIFS is so popular, is that these expansion joints, which many feel are unsightly, are not usually necessary with EIFS. The exception to this is that they are needed between floorlines to compensate for the cross-grain shrinkage of wood. As seen in Figure 1, the lack of an expansion joint between floorlines will result in a compression crack in this area. Again, consult with manufacturer for specific requirements of expansion joints.

The most common areas that experience cracking in EIFS are at the corners of windows or roof terminations as seen in Figures 2 and 3. To prevent cracking in this area, most manufacturer and EIMA details specify that an additional layer of reinforcement mesh be applied diagonally at the corners of all windows, doors and other openings. This is called "butterfly" mesh.

Another common cause for cracking in EIFS is the failure of the stucco applicator to stagger the insulation boards or filling gaps in the EPS boards with basecoat rather than "slivers" of foam as required by manufacturers.



3.7 Water Intrusion Problems Related to Stucco Accents and Flat Stucco Surfaces

Flat stucco surfaces, whether conventional hard coat stucco or EIFS, collect and hold water in its rough texture, softening the finish coat, damaging the system and promoting leaks, mildew and discoloration. A good EIFS design will call for bands, quoins, and other accents to have a slope to prevent water accumulation.

The easiest corrective measure would be to coat all flat surfaces with an elastomeric waterproofing coating tinted to match the existing stucco color as closely as possible. Large flat areas, such as a parapet wall, can be capped with metal and sealed.

The joint area where quoins, bands and accents meet the vertical wall surface should be checked for cracks and separation. Cracks and gaps are most likely to occur in this area if these accents have not been properly backwrapped. Backwrapping is bringing the mesh and basecoat around the back of the EPS foam accent. Cracks and gaps should be sealed with an appropriate sealant.

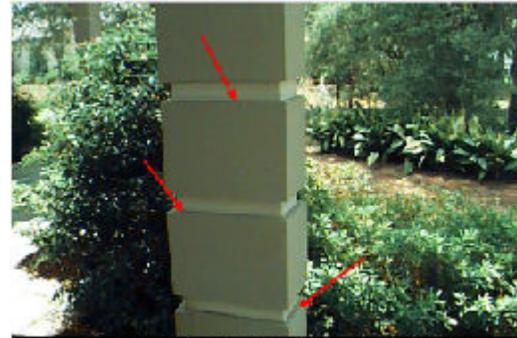


Fig.1: Flat surfaces at tops of quoins



Fig. 2: Flat surfaces on top of beams



Fig. 3: Flat surfaces collect water

3.8 Water Intrusion Problems Related to Stucco Chimneys

No matter whether the exterior cladding is brick, stucco, or vinyl siding, chimneys are a prime area for water intrusion since 1) they intersect with the roof and 2) they're subjected to extreme expansion and contraction due to the hot and cold temperature fluctuations when the chimney is used during the winter. This extreme expansion and contraction can fatigue the sealant joints around the chimney and cause cracks or gaps to form around the edge of the stucco where the stucco terminates into the chimney structure, allowing water to enter. Therefore, water diversion through the use of flashing and properly sealed chimney caps are very important.



Fig.1: Example of improperly flashed chimney

A properly designed chimney cap (coping) will shed water away from the stucco to metal joint (Figure 2) and help prevent leaks in this area. The flue should be properly sealed to the "storm flashing" and the chimney cap (coping) sealed to the stucco.



Fig.2: Chimney cap to stucco should be sealed

Figure 1 shows a chimney that was not properly flashed (sidewall and kickout flashing see section 3.4) which resulted in wood rot and termite infestation. Figure 2 shows a chimney coping that was not sealed to the stucco which has now separated and will allow water into the chimney chase.

3.9 Water Intrusion Problems Related to Improper Transitions

Many buildings incorporate two or more exterior finishes in their design, such as stucco and brick, stucco and stone, stucco and tile, stucco and wood, stucco and vinyl or aluminum siding, etc.

Different materials expand and contract at different rates. This expansion and contraction causes a crack or gap to form where the two materials join.

If left unsealed, or if sealed improperly, this area will allow water to enter the wall cavity. Examples of this would include stucco to wood trim, stucco to brick (Figure 1), stucco to stone (see Figure 2), stucco to concrete, etc. All areas such as these should be sealed with quality sealants and appropriate bond breakers.



4. Stucco Information, Care and Maintenance

4.1 TYPES OF STUCCO

A. Exterior Insulation and Finish Systems

Sometimes referred to as synthetic stucco, the materials used to form EIFS vary from manufacturer to manufacturer. EIFS is broken down into two classes, Class PB (polymer based) and Class PM (polymer modified). Class PB is the most commonly used of the two, especially on residential. Figure 1 shows the typical makeup of an EIFS system, although this can vary. The EIFS can be adhered directly to the substrate or mechanically fastened.

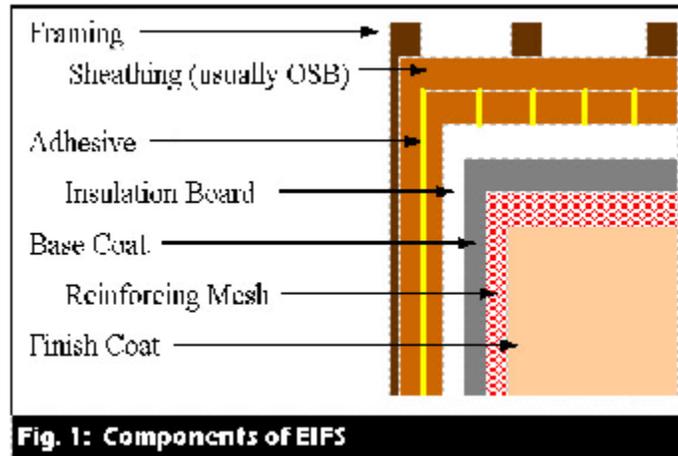


Fig. 1: Components of EIFS

An adhered EIFS is typically considered a "barrier" type cladding system. These systems do not have any built-in drainage capabilities for incidental moisture. Rather, the design intent was that **no** moisture should **ever** get behind the stucco. If water does leak behind the stucco, it can become trapped. The only way out many times is through evaporation—a slow process for an enclosed wall cavity with EPS foam. In a wet climate, it may never have a chance to dry out between rains as long as the leaks continue. Mold, mildew, wallboard damage, rotten sheathing and studs, carpenter ants, and termites can all result—depending upon how long it has been leaking. When these systems utilize oriented strand board (OSB) as the substrate for the stucco, which is common in the residential market, the potential for more serious water damage increases. EIFS that are **mechanically fastened** can have some 'drainage' capability if a properly installed moisture barrier system is present and adequately tied into critical details such as windows, doors, flashings, penetrations, etc. (this is difficult to verify after EIFS installation is complete). However structures with **improperly** installed barrier systems tend to experience the same damages of a structure without any barrier system. Some EIFS have been found to leak from construction onward due to improper installation stucco, flashings and sealants and/or leaky windows and doors. Not all EIFS buildings leak, but they do all require that critical details be properly maintained for continued protection from water intrusion. Even small amounts of leakage over time can cause significant damage to the structure, many times hidden until the damage is severe. Each manufacturer publishes details to guide the stucco applicator, sealant contractor, builder and architect. These details may vary slightly from manufacturer to manufacturer. EIMA, the EIFS Industry Manufacturers Association, publishes a detail guide for the entire EIFS industry.

B. Traditional Hard Coat Systems:

Although these systems have been in use for many decades, in recent years it has become popular to place these systems over wood sheathing and studs. The systems makeup is generally studs, sheathing, felt paper or other moisture barrier, reinforcing lath, scratch, brown and finish coat. The scratch, brown and finish coat are usually cementitious (many use acrylic finishes), mixed in the field, and applied to a thickness of about one inch.

Hardcoat systems are also susceptible to moisture damage if not properly applied, caulked and flashed. In this respect, it is no different than EIFS. Again systems with OSB (oriented strand board) sheathing tend to experience more severe damage when leakage occurs. One disadvantage of traditional hard coat stucco is that it is more susceptible to cracking than synthetic stucco due to expansion and contraction. For this reason, ASTM calls for expansion joints every 144 square feet, as well as between floor lines and at the corners of windows.

C. Water Management or Drainable EIF Systems:

Water management systems typically use a drainage plane behind the stucco coupled with perforated starter strips at the bottom of the walls and under windows to allow any incidental moisture to weep to the outside of the wall. Once the moisture drainage system is properly installed the installation of the EIFS is less critical. Problems can still occur however, if the drainage system is not properly installed (difficult to verify after completion of EIFS application).

4.2 IS STUCCO A GOOD CLADDING SYSTEM? Yes, as long as any construction defects, if any, are properly repaired and the system is well maintained, it should provide good long-term performance. There is no such thing as a permanently maintenance free cladding system. Leak problems occur in all types of cladding systems, including brick and vinyl siding. The only difference is that with stucco, the maintenance is more critical. The sealant joints are your first line of defense against water intrusion, and sometimes it's the only line of defense. Water intrusion must be prevented at all costs due to its destructive nature.

4.3 CARE AND MAINTENANCE: The beautiful architectural designs made possible by synthetic stucco systems make these homes very desirable and marketable. It is critical, however, to carefully maintain these systems to prevent water intrusion and deterioration. With the proper care and maintenance, your stucco system should give you many years of beauty and function. It is very important that the five following steps be followed to protect your investment.

(1) Semi-annually (at least annually) inspect all sealant around windows, doors, penetrations through the stucco, stucco transitions (such as stucco to brick, stucco to stone), and stucco terminations (at roof, at grade, at patios or walkways). Arrange for prompt repair of any areas of caulk that is split, cracking, crazing or is losing adhesion. Also, promptly repair any cracks in the stucco.

(2) Any leaks, cracks, areas of discoloration, mold or mildew should be promptly investigated by a certified EIFS inspector. Repairs should be proper and prompt.

(3) Anytime you make a penetration through the stucco such as to mount a satellite dish, add shutters, new wiring, cables, plumbing, security systems, etc., the perimeters must be sealed with a quality sealant approved for EIFS.

(4) Modifications, additions or renovations (including roof replacement) to the structure of any kind should be inspected by a qualified EIFS inspector to ensure waterproofing of critical details is properly performed.

(5) Periodic cleaning of the stucco is necessary to maintain its appearance and prevent permanent staining. Pressure cleaning equipment must be calibrated to the stucco manufacturer's recommended pressure level (low) to prevent damage to your stucco. Select a firm with experience in cleaning these EIFS systems.