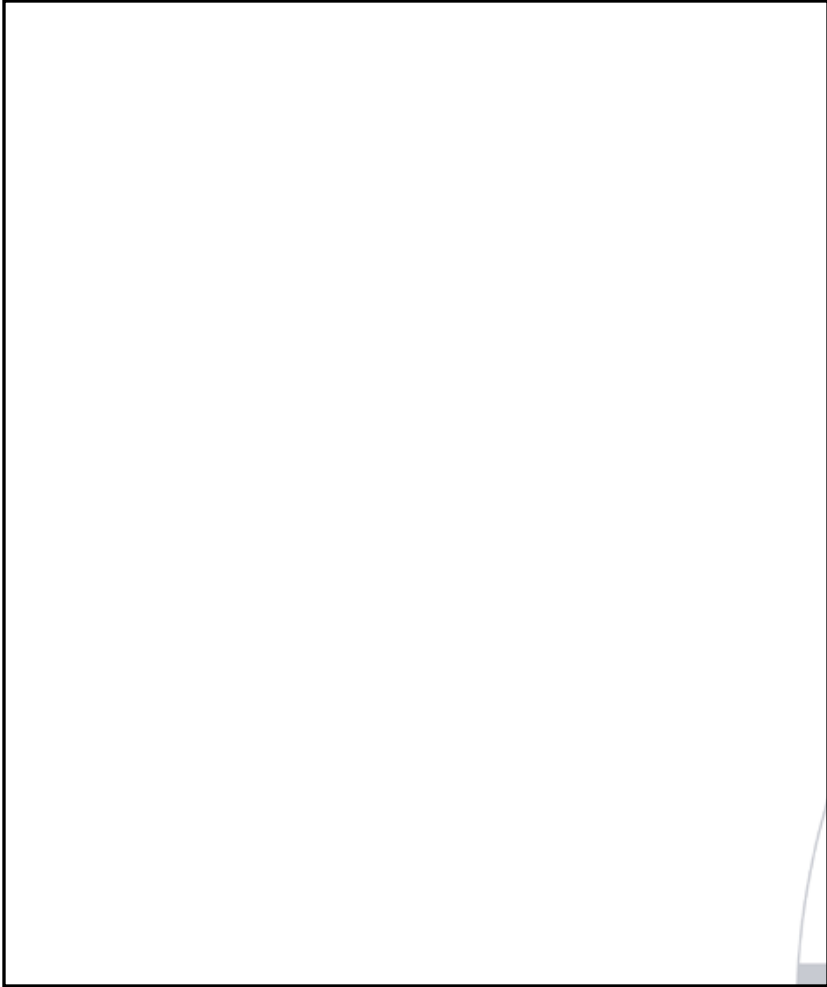
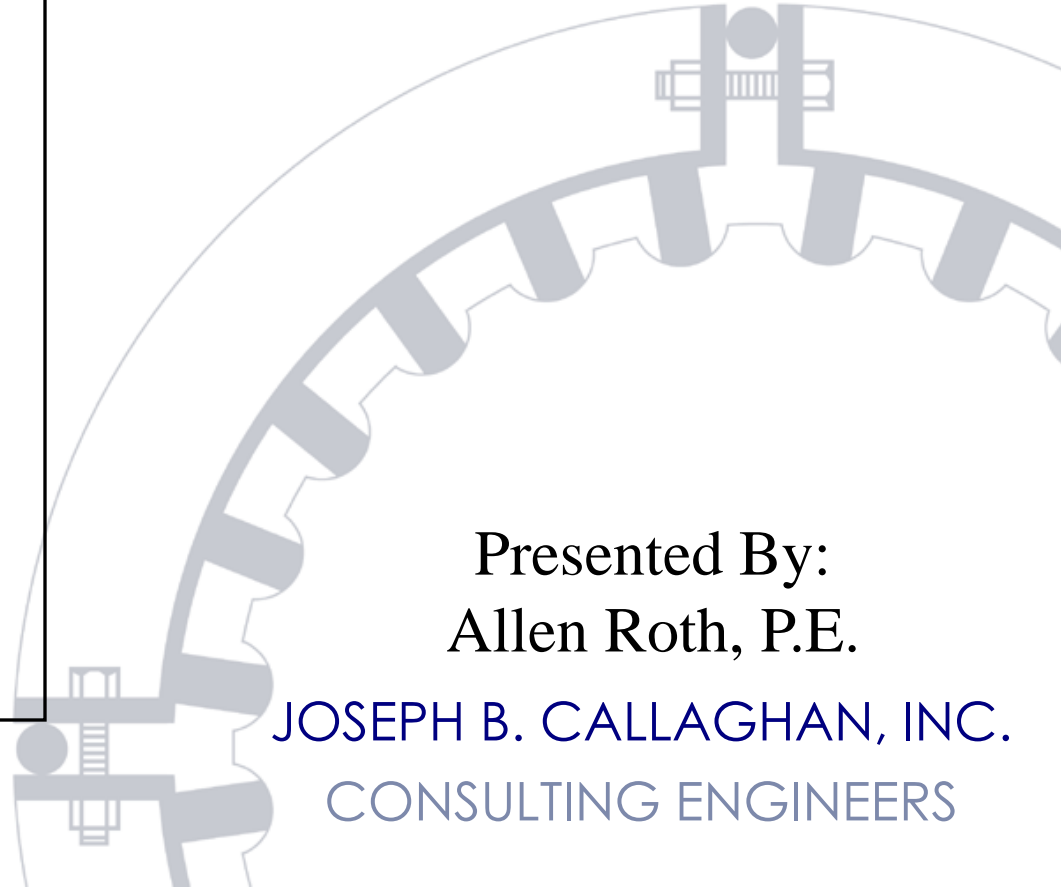


Repairs to Classic Spanish Revival Facade

ICRI 2015 Spring Convention
New York, NY

Presented By:
Allen Roth, P.E.

JOSEPH B. CALLAGHAN, INC.
CONSULTING ENGINEERS



The Santander

- 9 story Spanish Revival Building, built in 1928
- Served as a hotel and apartment complex until 1988
- Floor framing is concrete over mesh draped between open web steel joists spanning to structural steel framing
- The façade is a hard stucco over terra cotta/brick backup articulated with ornamental precast ornaments

Asbury Park, NJ flourished in the 1930s and 1940s



SANTANDER APARTMENTS
ASBURY PARK, N. J.

APARTMENT SCHEDULES:
A-G ONE ROOM APARTMENTS
C-E J TWO ROOM APARTMENTS
B-D H THREE ROOM APARTMENTS
I- FIVE ROOM APARTMENTS
P- FIVE ROOM APARTMENT 2

· SECOND TO SIXTH FLOORS INCLUSIVE ·
* DIMENSIONS ARE APPROXIMATE *

MANAGING AGENTS
T. FRANK APPLEBY AND
MAIN STREET AND MATTHEW
ASBURY PARK, NEW JERSEY

Spanish Influence along the Jersey Shore



Spanish Revival Architecture

Characterized by

- Combination of detail from several eras
- Use of smooth stucco wall
- Low-pitched clay tile, shed, or flat roofs
- Terra cotta or cast concrete ornaments



Spanish Revival Architecture

- Small porches or balconies
- Semi-circular arcades and fenestration,
- Wood casement or tall, double-hung windows
- Canvas awnings and decorative iron trim.



Converted to 82 Unit Condominium in 1988

- Apply new stucco encapsulation throughout
- Aluminum cladding around wood window frames
- Aluminum “shields” over the window heads
- Painting all precast elements



Santander 2010



2010 – Exterior Façade Concerns

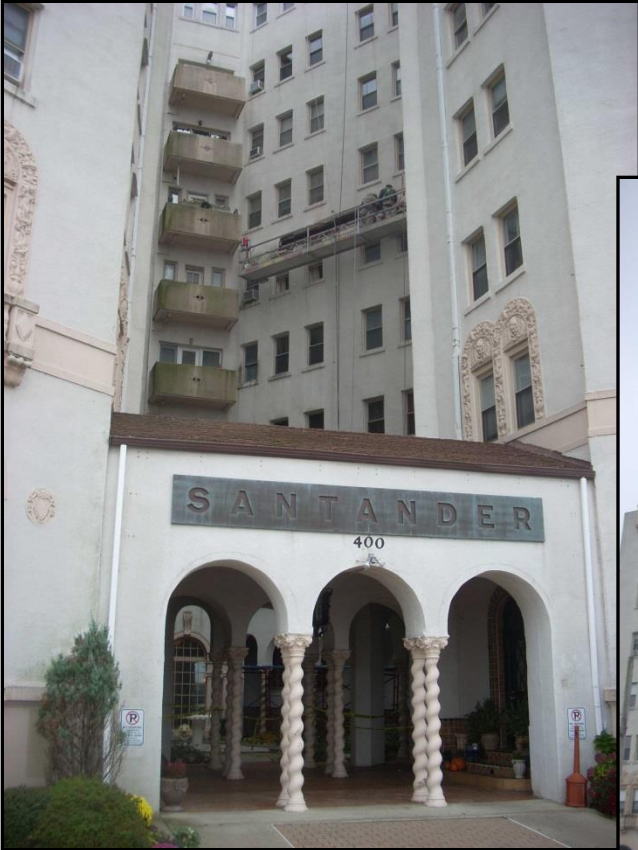
- Extensive water intrusion & air drafts
- Extensive stucco cracking above windows
- Extensive stucco spalling, delamination and bulging
- Open vertical cracking at building corners
- Discoloration



Emergency Repairs Required



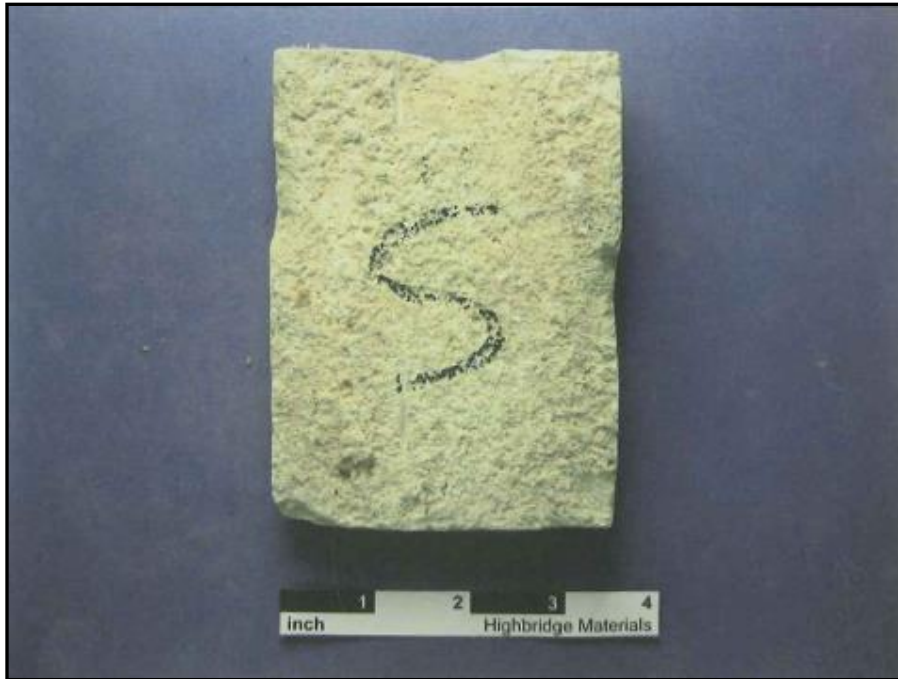
Façade Assessment and Repair Documentation



Stucco Façade Probes



Stucco Petrographical Analysis



- All stucco components were well mixed, placed and hydrated.
- No micro-cracking, chemical reactions or instabilities were found.
- Both the finish coat and the brown coat are well bonded to the substrate terra cotta.

Exterior Finish System Mockup



- Examined several finish systems.

Window Surround Mockups



Ornamental Precast Mockups



- Intricate precast detailing exposed when paint was removed.

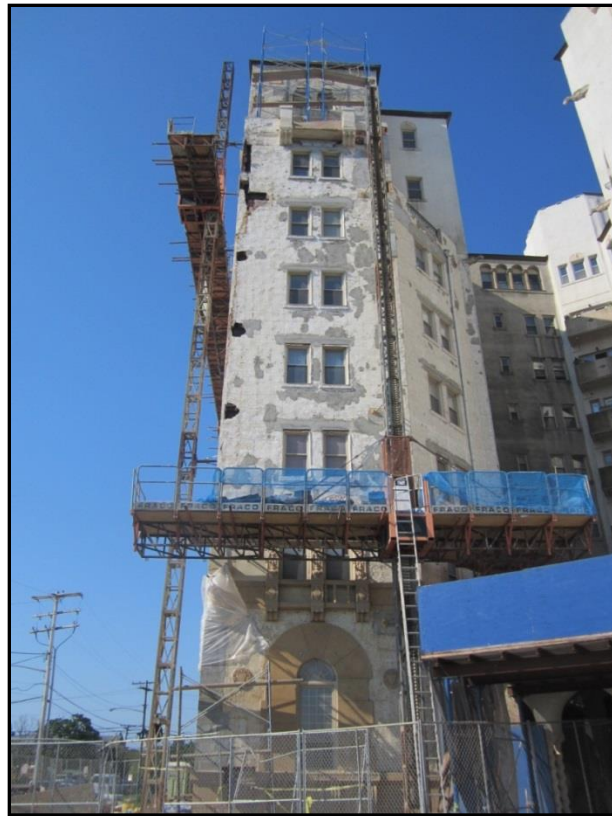
Exterior Façade Repair Procedure

- Remove all stucco installed in 1988
- Coat all exposed fasteners with corrosion inhibitor
- Repair damaged stucco and terra cotta backup
- Replace all steel window lintels with CMU lintels
- Repair uncovered damaged structural steel
- Remove all window cladding and install new foam blocking
- Repair and stain all ornamental precast elements
- Install new five coat finish system

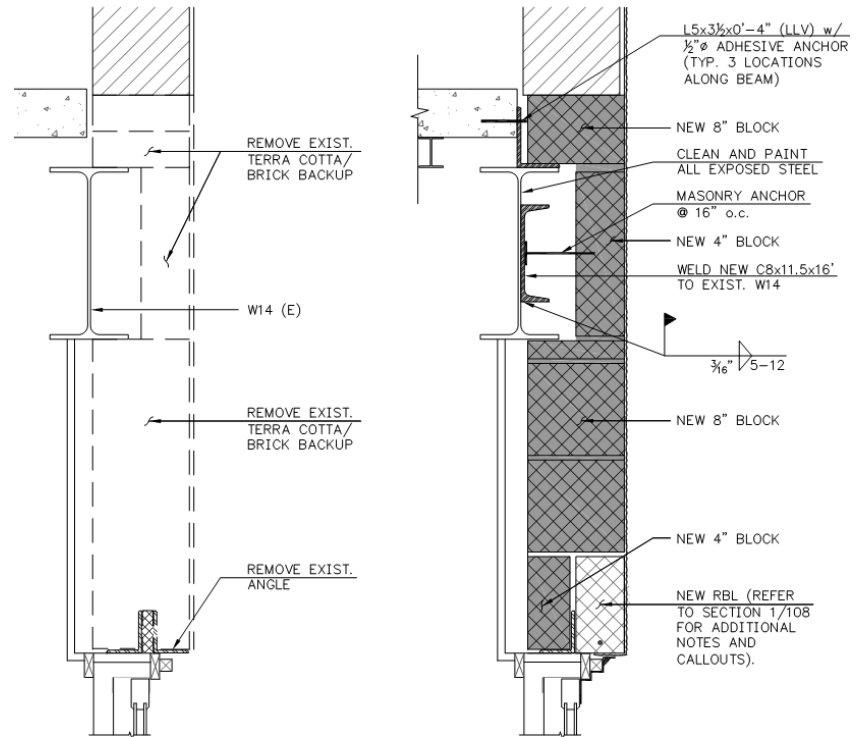
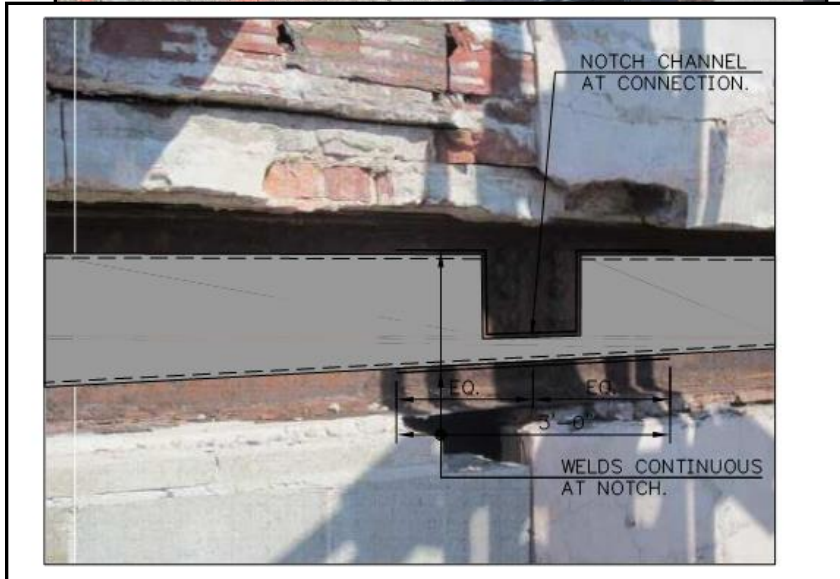
Challenging Access Methods



Repairs in Progress



Uncovered Structural Steel Conditions



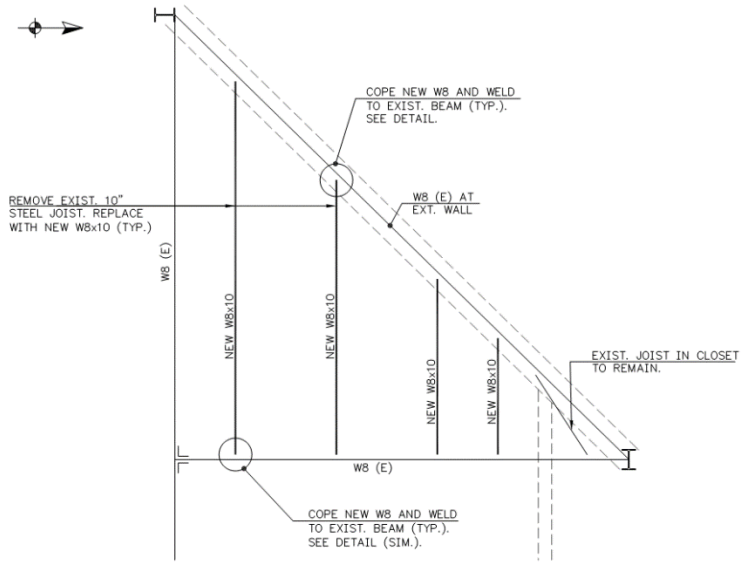
DEMOLITION

NOTE: OUTER STUCCO LAYER TO BE REMOVED NOT SHOWN FOR CLARITY.

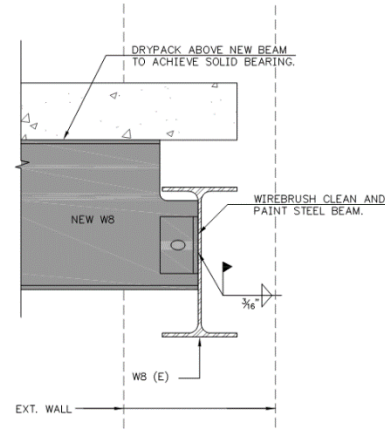
REBUILD

NOTE: SET ALL NEW BLOCK FLUSH WITH FACE OF ORIGINAL STUCCO.

Terrace Steel Framing Damage



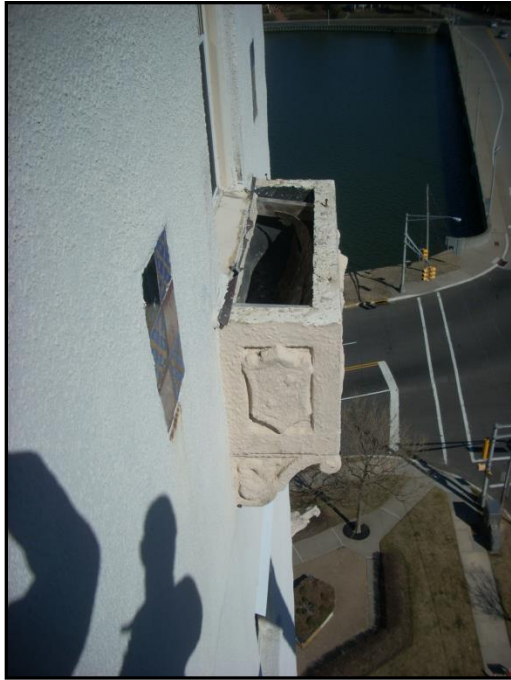
PARTIAL 7TH FLOOR FRAMING PLAN
 UNIT 6B BELOW
 SCALE: 1/2"=1'-0"



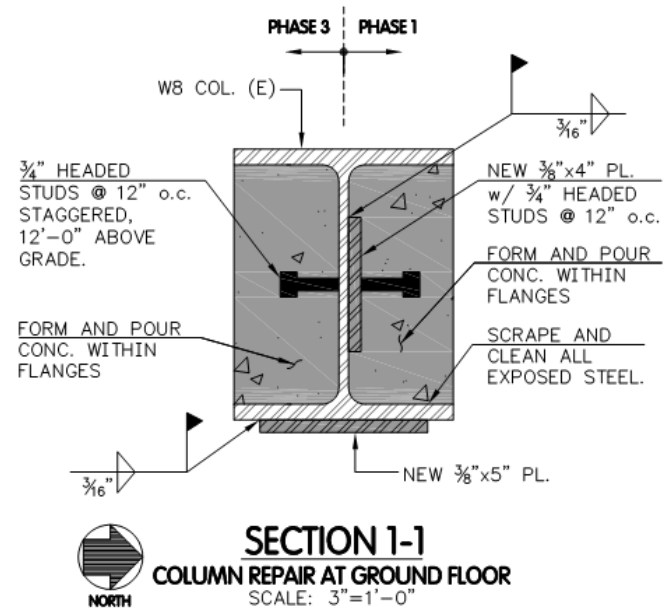
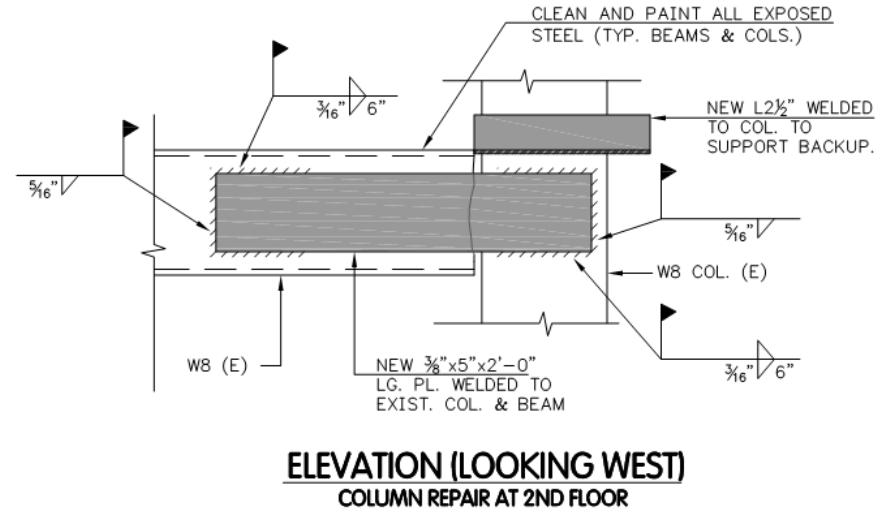
TYPICAL CONNECTION DETAIL
 SCALE: 3"=1'-0"



Planter Structural Steel Damage



Steel Column Damage



Terrace Spandrel Beam Damage

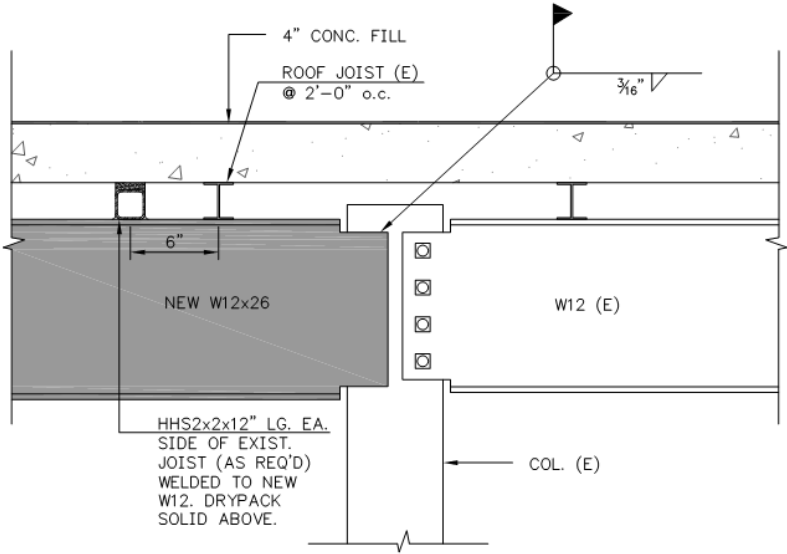


Penthouse Wall Framing Damage

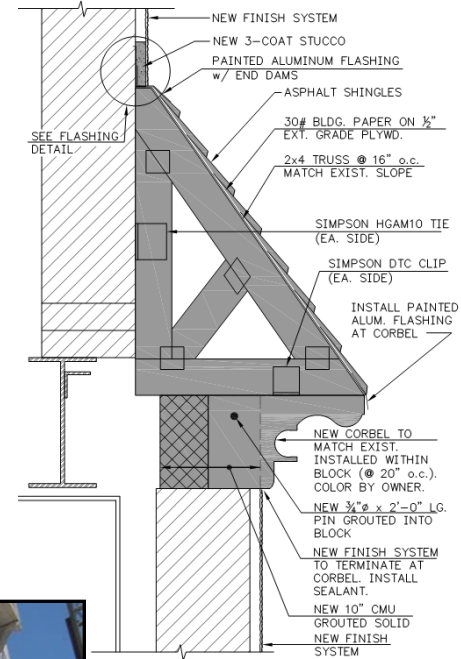


Not my Intent!

Terrace Spandrel Beam/Floor Joist Damage



Shed Roof Repairs



TRUSS AT CORBEL



Typical Precast Window Head Repair



Precast Gargoyle Repair/Replacement



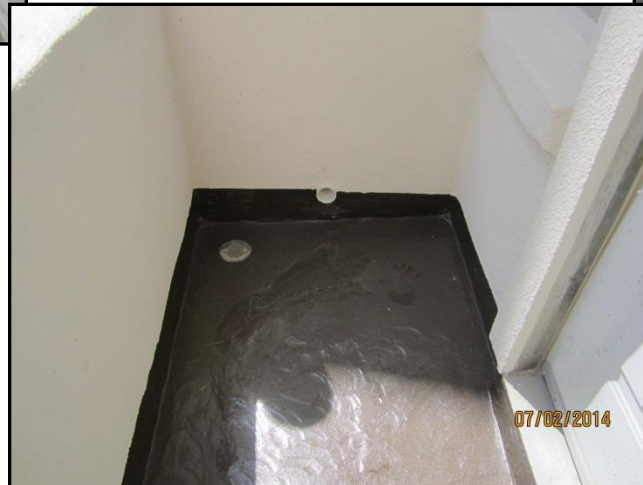
Precast Corbel Replacement



Terrace Waterproofing



Balcony Restoration



Completed Façade Restoration



Completed Façade Restoration



Questions??

