



Golden Sands Hollow Core and  
Prestressed Beam/Column  
Construction



West Elevation

# Golden Sands Condominium

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Prestressed Beam/Column  
Construction

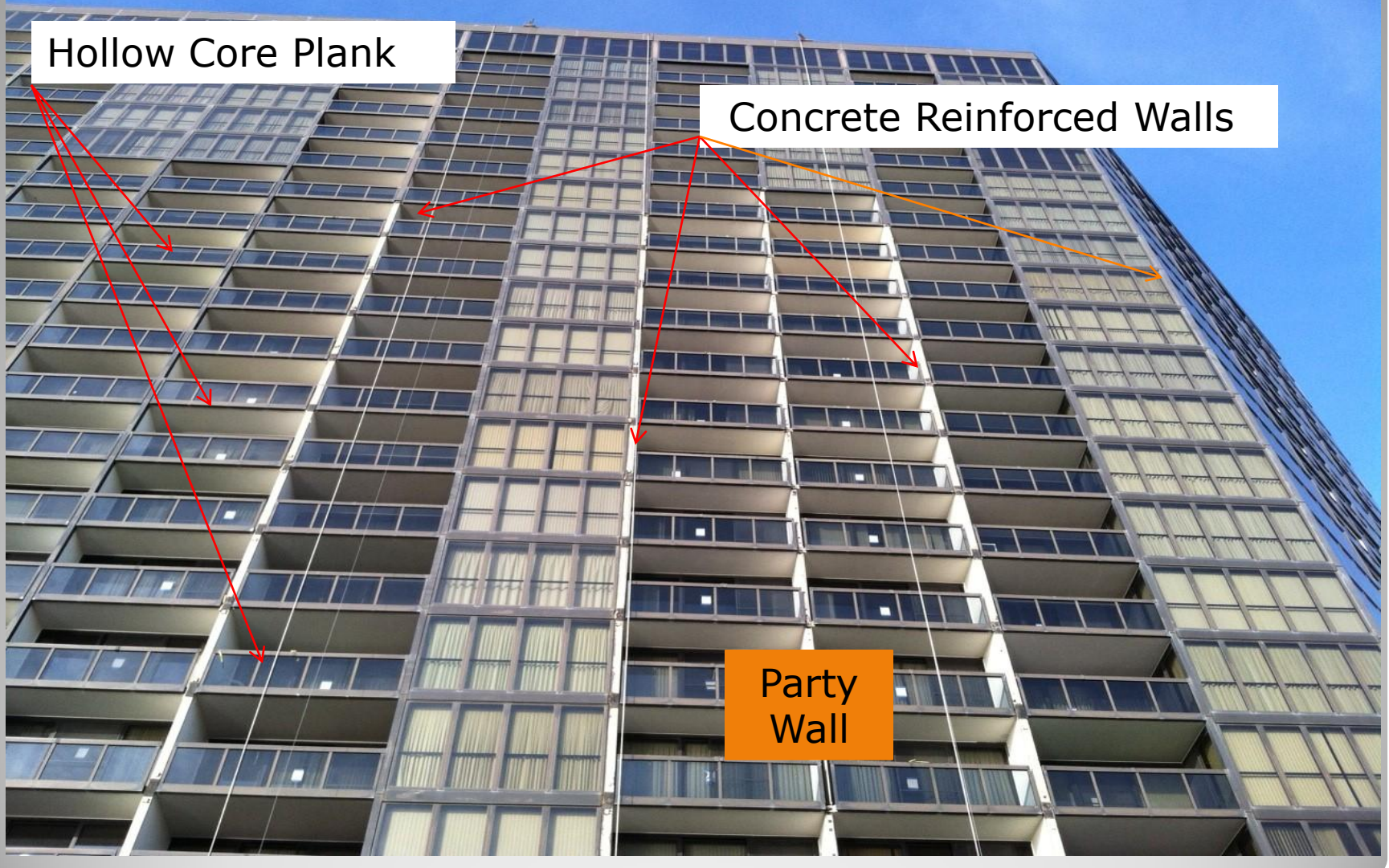
# Golden Sands Condominium

## Method of Construction

Original Façade had Exposed Balcony's 1970's

- a. Prestressed Columns and Beams
- b. Hollow Core Deck Plank
- c. Poured in Place Concrete Walls @ Column Lines
- d. Major Water Infiltration Issues @ Balconies

Installation of a Steel and Glass Curtain Wall Mid 1980's



Hollow Core Plank

Concrete Reinforced Walls

Party Wall

East Elevation

Golden Sands Hollow Core and Prestressed Beam/Column Construction



Plank = 8' x 26' +/-  
Plank Reinforcing 7 Strand -  
Prestressed Wire  
Embedded weld plate  
Formed edge key for grouting  
Planks have a concave slope end to  
end

Grout Key

Embedded weld plates



Construction



Typical PC  
Columns

Typical PC Beams

Typical Building Skeleton

Typical Plank

**Golden Sands** consists of  
**Reinforced Concrete  
Walls** at Column Lines and  
**Party Walls** at Plank Mid-  
Span

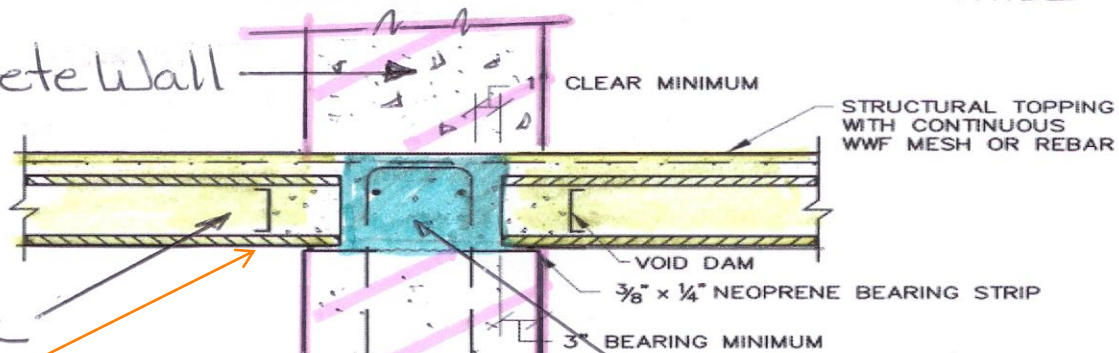
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2C

# INTERIOR BEARING ON CONCRETE BEAM WALL

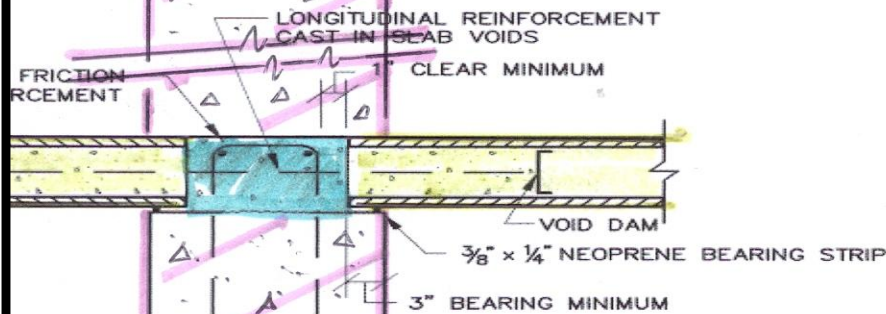
Concrete Wall

PLANK



## TOPPED DETAIL

FILLER BLOCK



## UNTOPPED DETAIL

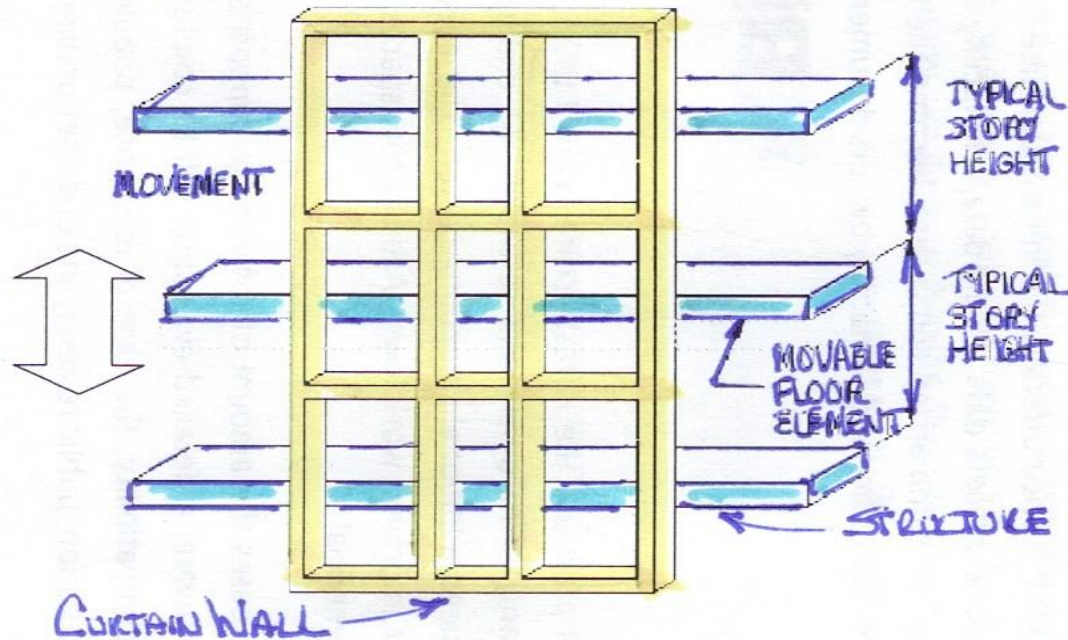
1. See general notes for typical information.

PROBLEM:

Plank bearing length on concrete wall varies 1" → 4"

At Exposed  
Balcony: Hinging  
@ Hollow Core  
Plank w/Balcony  
Slab Cracking  
and **Water  
Infiltration**

# Building Movements

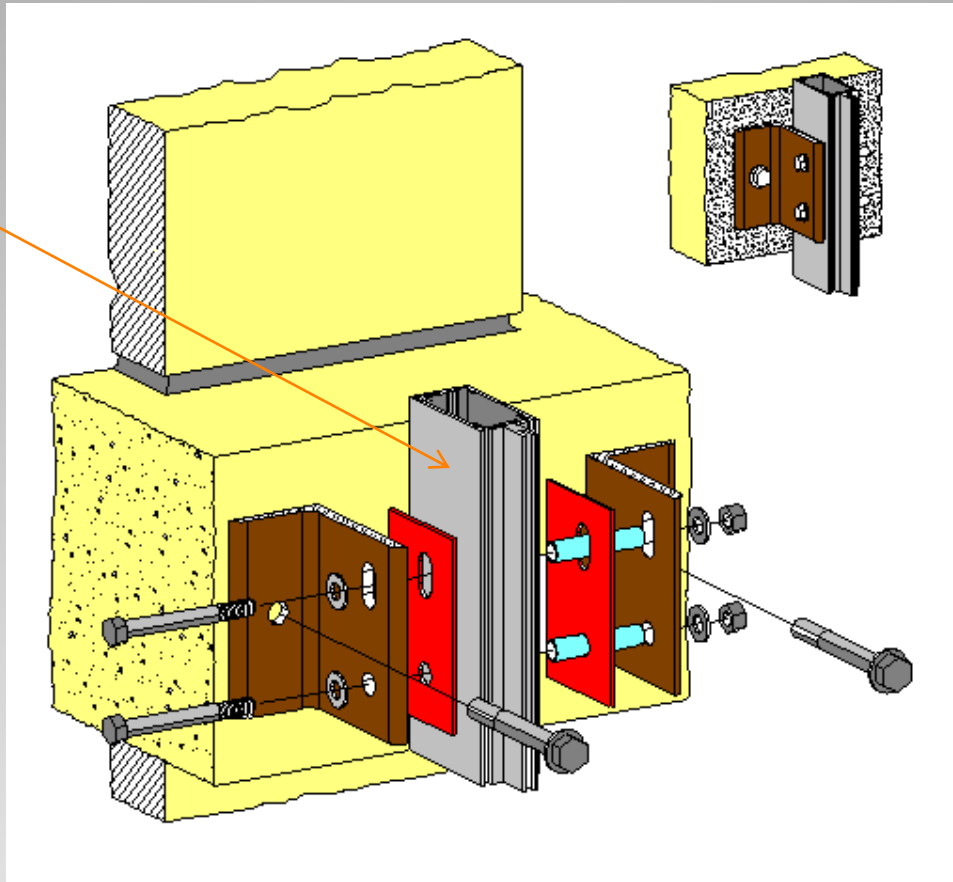


Aluminum curtainwall is a dynamic assembly

Lots of Movement



Mullion

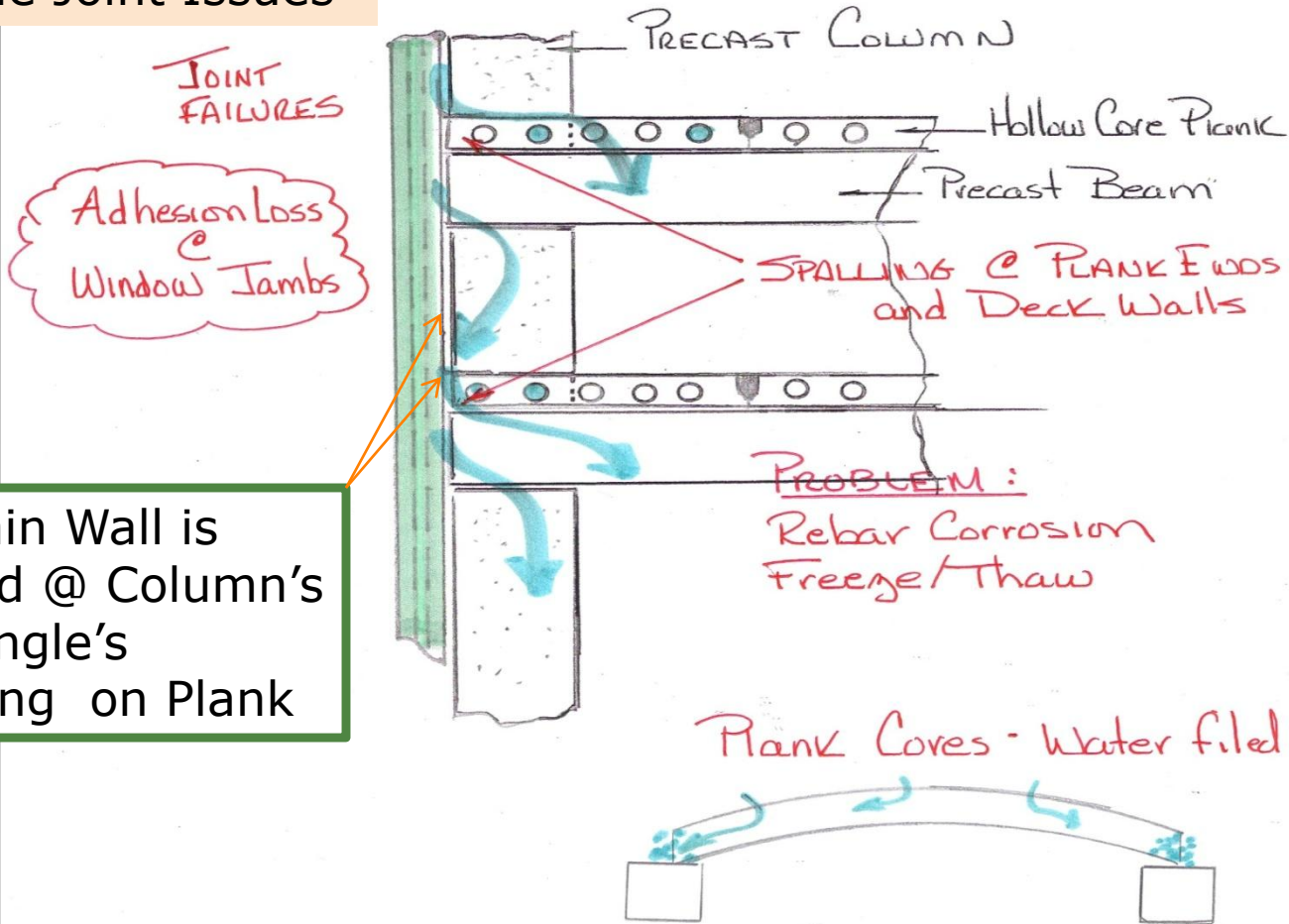


# Curtain Wall Attachment Bracket

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# TYPICAL WATER INFILTRATION

## Multiple Joint Issues





# Balcony Floor Bearing Plate

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Typical Rebar Corrosion and Spalling of Concrete due to insufficient concrete cover

Exterior Failed Joints allow Water to Travel through the Mullion and weeps out where it will

# Corrosion of Reinforcing Steel and Spalling Concrete



55' Swing Stage

# Swing Stage Access

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# Removal of Aluminum Cladding @ Poured-in-place concrete wall



Slider Wall  
Not In Scope

Party Wall

Improperly installed  
sealant @ Butt joints  
In cover panel

No Existing Pocket  
Form to receive  
Sealant



## Cover Plate @ Columns

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Existing Condition:

The sealant was packed in the joint throat...

4-6" deep... Restricting movement between the balcony handrail and column .



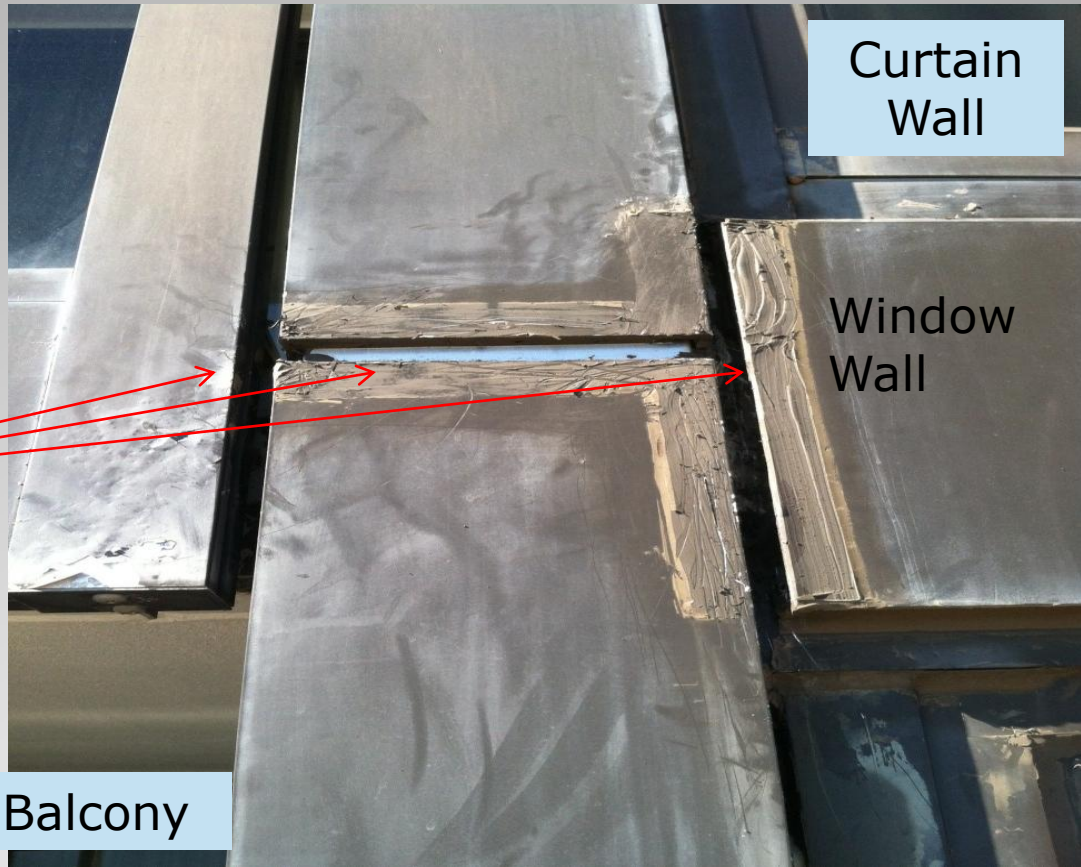
**Deteriorated Seal due to pressure pushing on column cover plate**

## Balcony Handrail @ Column Intersection

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Floor Plank and  
Column  
Intersection w/  
Existing Caulk  
cut out of Joint  
Throat



# Typical Sealant Removal

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Curtain Wall bolted  
together...Disassembly  
occurred at each  
column line  
Excluding Slider Wall



# Disassembling Curtain Wall

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Handrail



Balcony  
Interior Wall

## Bolted Connection @ Handrail

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Unbolting bracket  
at Party  
Wall...Center of  
hollow core  
plank...non-load  
bearing interior  
wall



Note: Openings in  
Steel Stud and  
Mullion were  
closed & coated  
with a Rubber  
Membrane...(No  
allowances were  
made for frame  
drainage)

**Party Wall...center of plank**

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Concrete  
Wall



Sounding:  
Hollow  
Thud

Plank

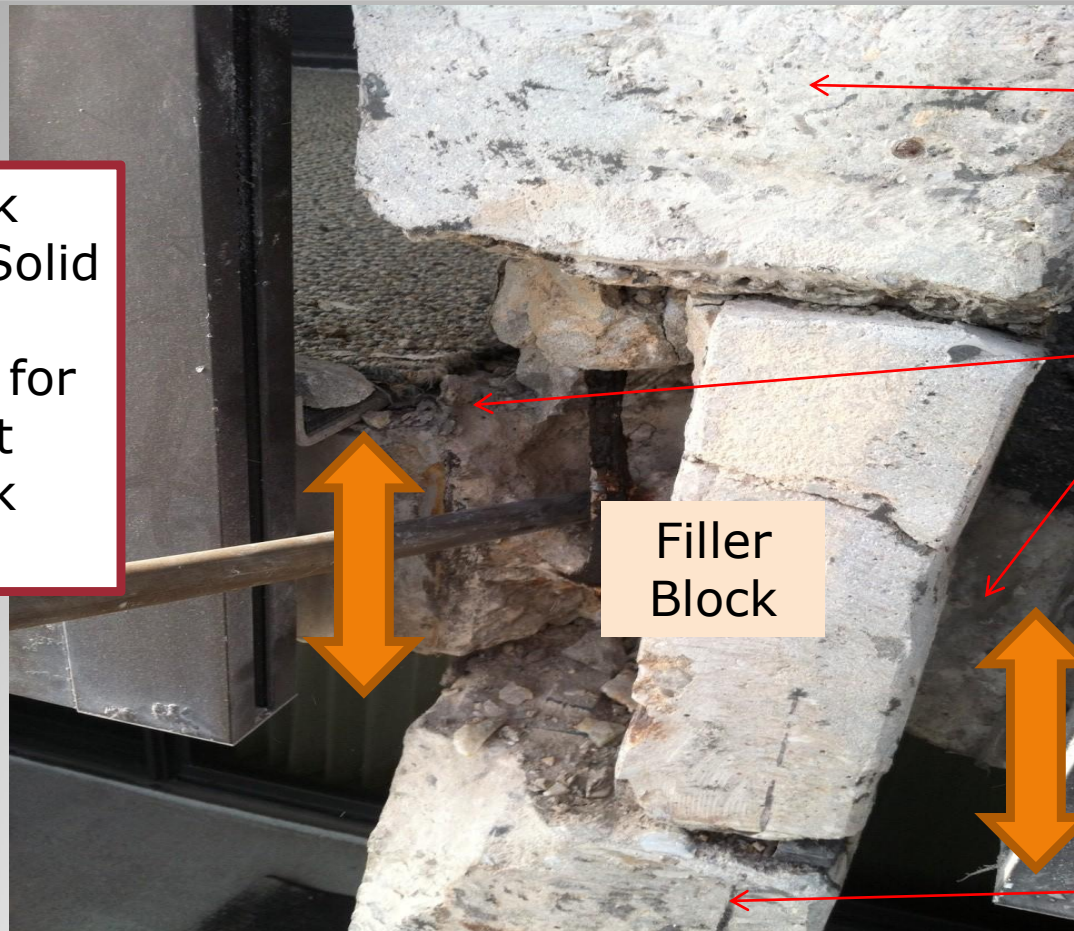
Filler Block

Concrete  
Wall

## Exposed Intersection of Hollow Core Plank and Prestressed Beam

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Filler Block  
Installed Solid  
with...No  
allowance for  
movement  
from plank  
hinging



Top Wall

Plank

Filler  
Block

Bottom Wall

## Cracked and Spalled Filler Block

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Corroded  
Reinforcing  
Steel

Alignment  
Column  
Track

# Corroded Steel

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Interior  
Floor



Typcon Dowels  
@ 6" staggered

# Surfaced Prepped Concrete

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High Strength  
Repair Mortar

Notched Groove  
for anticipated  
cracking

## Repaired Filler Block

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$\frac{3}{4}$  " Depth to  
create a weaken  
plane for crack  
control



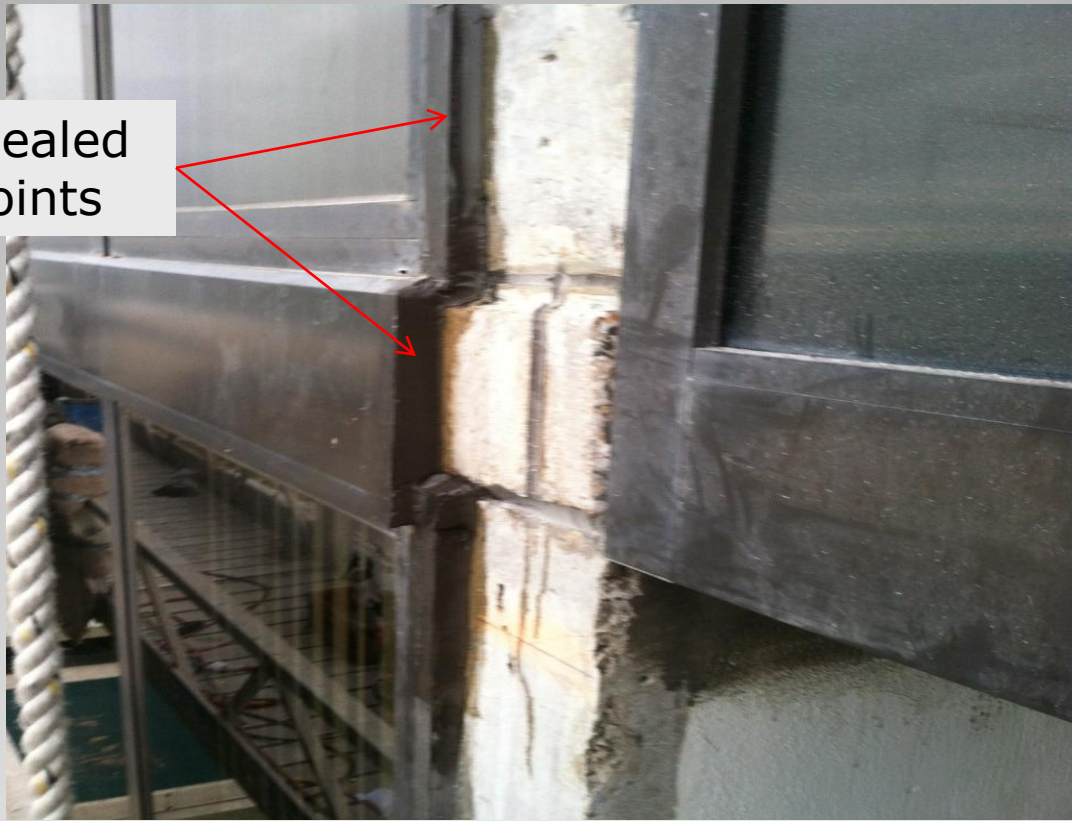
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All joints are primed  
Sealed @ Filler Block



Golden Sands Hollow Core and  
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Primer & Sealed  
Vertical Joints



# Curtain Wall to Concrete Wall

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# Mounting Bracket for Track

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## Sealant Installation



## Liquid Membrane



# Multi Redundant Seals

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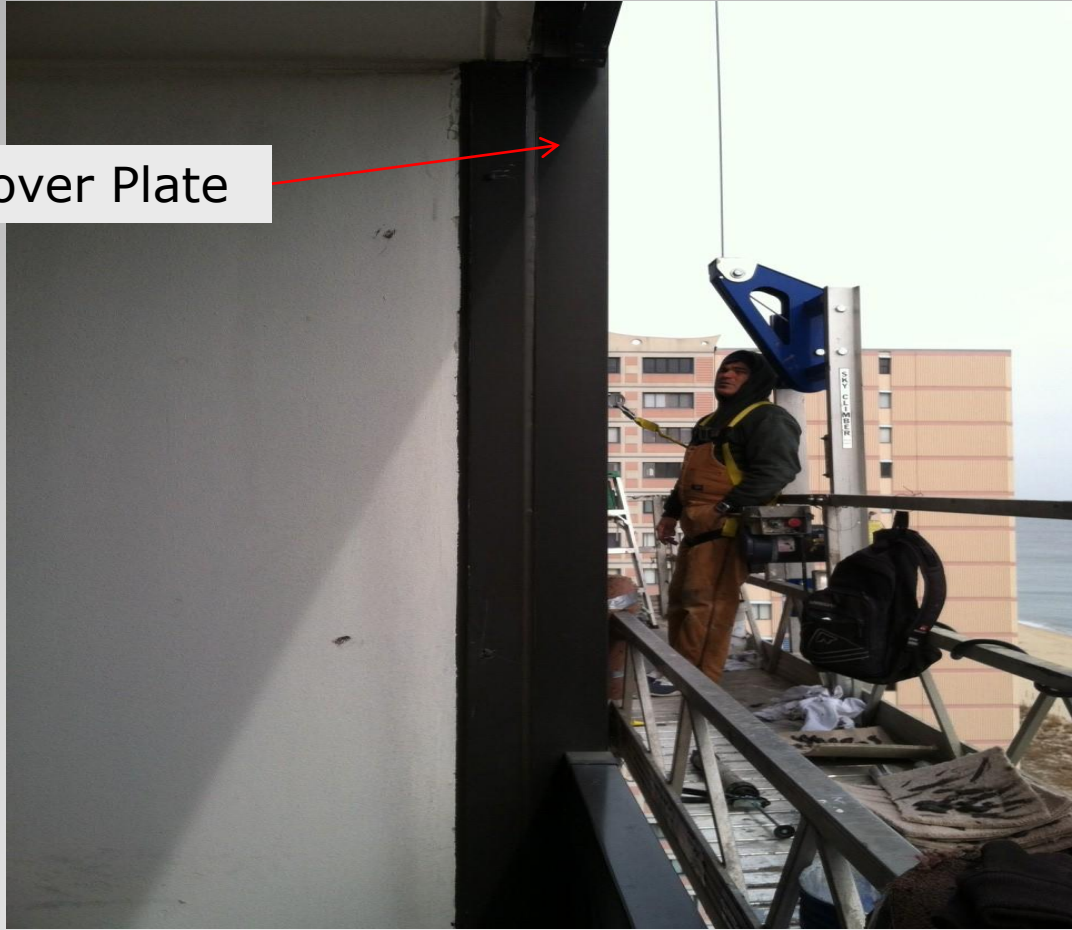
Liquid Rubber Membrane applied over concrete, sealant and rolled up on to the metal window jamb



## Liquid Membrane at Wall

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Wall Trim Cover Plate



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Final Installation of  
Exterior Column Cover  
Plate with caulking @  
vertical edges in  
concrete pocket and  
Silicone Tape seal @  
cover plate butt joints

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## Repairs incorporating 5 avenues of protection:

1. Repaired Spalled Concrete
  - a. At balcony slab plank & Column intersection
  - b. At plank filler block
  - c. At hollow core plank ending bearing on PC Beam
2. Tooled a notched Weaken Plane in filler block... allowing for directional cracking and installed sealant
3. Sealed Perimeter Joint of window jamb to concrete wall
4. Coated concrete wall, filler block, vertical joints and curtain intersection framing with a rubber membrane
5. Reinstalled Column Cover Plates & Sealed All Metal Seams

**Multiple Waterproofing Repair**