

Orchard Commercial  
**Project 7700**  
2013 Annual Roof Survey

Submitted to:

Debbie Kaiser  
Orchard Commercial  
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Prepared by:

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March 28, 2013

Debbie Kaiser  
Orchard Commercial  
2055 Laurelwood Road, Ste 130  
Santa Clara, CA 95054

Re: 2013 Annual Roof Survey Report for **Project 7700**

Dear Ms. Kaiser,

During March of 2013 we conducted a roof survey on the above referenced facility located in Livermore, California. This report indicates the current condition of the roof, presents appropriate repair or replacement recommendations, and for budgetary purposes, provides approximate costs for each recommendation.

The *Roof Survey Report* and *Detailed Roof Diagram* provide information regarding the roofs, their present condition, and any noted deficiencies. The *Roof Spreadsheet* provides valuable information for repair and replacement costs and will assist your staff with future budgeting. In an effort to maintain this roof in a serviceable condition, estimated repair costs are provided for the next three (3) years.

The roof repair and replacement recommendations for 2014 are determined by observations based on this year's condition and are subject to change upon next year's survey.

It has been our pleasure to present this information and it is our objective to address the specific roofing needs, while adding life and value to your investment. If you have any questions regarding this report, please do not hesitate to contact me at our office.

Sincerely,

Anthony A de Kerf  
Technical Consultant

# Roof Inspection Report **Project 7700**

for

**Orchard Commercial**

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## **Executive Summary**

The roof was surveyed during March of 2013 and an evaluation was made concerning current roof conditions, preventative maintenance requirements, remaining serviceable life and roofing options.

**Project 7700** consist of two four story buildings located in San Carlos, CA 94070 at:

- One Circle Star Way
- Two Circle Start Way

Each of the two buildings have a single built-up roof system installed as new construction in 1999. Building "One" has a 4-ply BUR with a serviceable life expectation of 20 years and there is a 5-ply BUR installed on building "Two" which has a serviceable life expectancy of 25 years.

Based on configuration, current condition and an progressive maintenance program, the remaining serviceable life is estimated to be three (3) four (4) years for Building One and three (3) to five (5) years (Building Two) before resurfacing or replacement should be required.

Current maintenance vary by building as detailed in the individual building summaries below and include field blisters, base flashing repairs, open or exposed seams, membrane scoring, sealed roof system breather vents\*, field ridging, gaps in reglet metal seams and significant to extensive cap-sheet granule loss on Building Two.

Previous repairs to the original BUR systems have been moderate while extensive effort has been put into upgrading all penetrations and many base flashing seams at equipment curbs or risers. In addition, significant strip repair of the west facing base flashings were observed.

Mechanical Items include: condensation drain line replacement and electrical box equipment support sleeper redesign sp relieved pressure on through-roof conduit penetrations.

Tenant Improvements appear to include a number of small HVAC units with penetrations that have proper use of pitch-pans / pitch-pockets with sufficient care and attention to waterproofing around through the roof substrate penetration components.

\*Breather Vents are typically installed to release vapors from within the roof system. A full spread of Breather Vents (indicated on the roof diagram by an "x") have been installed on Building Two. Nearly all Breather Vents were subsequently sealed by previous repairs.

### *SUMMARY OF RECOMMENDATIONS*

- Budget for partial acrylic coating at extensive cap-sheet granule loss (Building Two)
  - Not included in the attached 2014 budget
- Repair field blisters
- Install reglet metal over gap in seams
- Seal base flashing blisters and fish-mouth openings
- Seal open or exposed seams
- Remove breather vents during next roofing project
- Monitor field ridging, repair as required or during next roofing project
- Monitor membrane scoring (initiate care policy for service personnel)
- Monitor granule loss, repair as required
- Monitor west facing base flashings for granule loss and moisture depletion
- Install new condensation drain line
- Modify electrical box equipment support sleepers to evenly distribute weight and prevent bending of through roof substrate conduits

Sub-Project	Building Address	Comments
7700.1	One Circle Star Way	
7700.2	Two Circle Star Way	NON-BUR Budget forecast for Electrical and Plumbing related items
		Plumbing includes bent condensation line replacement
		Electrical includes redesign and installation of sleepers for several large electrical boxes at boxcar HVAC units
		Budgets are in 2014 \$'s and subject to revision in subsequent budget years

- a. Total Roof Sq. Ft. includes all other system types (metal, tile, wood/composition shingles, ect.)
- b. Estimated Life is the number of years before major resurfacing, or reroofing should be scheduled
- c. Non-BUR Repair Budget observations are detailed in the Building Summary's
- d. Preventative Maintenance budgets are for Built-Up Roof (BUR) systems only
- e. Budgets include Consulting, Inspections and QC omitting project management

- 1 - Resurfacing is not an option. History of water intrusion and too many roof systems have been installed.
- 2 - Significant number of concerning issues and age leading to recommendations for resurfacing or replacement
- 3 - Fair Condition, unknown history of water intrusion and anticipation of increasing requirements for Preventative Maintenance
- 4 - Out of warranty but still in good condition, minimum history of water intrusion and minor anticipation of Preventative Maintenance requirements
- 5 - Roof system appears to be in new condition and is still under warranty, minimum to no expectations for Preventative Maintenance requirements

# PREVENTATIVE MAINTENANCE ROOF REPAIR CODES

(Key to Roof Diagrams)

R = REPAIR, I = INFORMATION, M = MONITOR

- R1** = Pipe Penetration Repair (electrical, and vent pipes, etc,)
- R2** = Horizontal Flashing Repair (fans, vents, etc)
- R3** = Small Field Repair
- R4** = Moving Pipe Block Repair
- R5** = Roof Hatch Repair
- R6** = Skylight Flashing Repair
- R7** = Repair or Replace Skylight Lens
- R8** = Field Blister
- R9** = Wall Blister
- R10** = Base Flashing Repair
- R11** = Open Field Seam
- R12** = Open wall Seam
- R13** = Open Base Flashing Seam
- R14** = Wall / Base Flashing Repair
- R15** = Plywood Wall or Sightscreen Repair or Replacement
- R16** = Top of Wall Repair and/or Coating
- R17** = Wall or Sight Screen Coating
- R18** = HVAC Supports, Sleepers & Bolts
- R19** = Leaking HVAC Unit
- R20** = HVAC Duct Flashing Repair
- R21** = HVAC Condensate Line Repair or Replace
- R22** = Site Screen Wall, Supports Footers, Sleepers, Bolt Repair
- R23** = Drain Repair
- R24** = Scupper Over-Flow Hole Repair
- R25** = Exterior Metal Scupper Caulking
- R26** = Metal to Roof Membrane Seam Repair
- R27** = Metal Seam Repair (Coping or Metal Edge)
- R28** = Metal Base Reglet Repair
- R29** = Large Previous Repair
- R30** = Small Previous Repair
- R31** = Interior Panel Joint Caulking
- R32** = Large Split, "Floating Patch" Repair
- R33** = Clean and Re-Fill Pitch Pan
- R34** = Abandoned Equipment (Mechanical, Sleepers, Blocks)
- R35** = Unmarked Guy Wires
- R36** = Coat with Silver Protective Coating
- R37** = Coat with White Protective Coating
- R38** = Low Area, Ponding Water
- R39** = Wrinkles / Buckles / Mole Runs
- R40** = Wrinkles in Wall
- R41** = Leaking Compressor
- R42** = Cap-Sheet Crazing
- R43** = Tenant Improvements
- R44** = Open Electrical Conduit/Junction Box
- R45** = Open/Exposed Electrical Wiring
  
- DC** = Replace Drain Cover/Basket      **CD** = Clear Debris from Drain

Revised June 2010

## 2013 Project Information

Project: **7700**  
 Building Address: One Circle Star Way, San Carlos, CA 94070  
 Roof Access: Interior Roof Access Ladder (2nd Floor)

### Statistics

Previous Inspection Date	n/a		
Original Installation	1999	Resurfaced:	n/a
Warranty Expires	2009	by:	
General Condition	Fair		
Low-Slope Roof Size	27,350 sq. ft.	Sloped Roof Size:	n/a
Total Roof Size	27,350 sq. ft.	Sight Screen:	350 ft.
No. of Stories	4		
Wall Height	1-4 ft	Wall Types:	Concrete
Building Height	88 ft		
Counter Flashing	Reglet	Type:	Metal
Estimated Service Life			
	Replace:	3-5 years	
	Resurface:	2-4 years	

### Low-Slope Roof System (4-Ply BUR)

Surfacing:	Mineral Surfaced Cap-Sheet
Membrane:	2 Plies, Fiberglass Felt Sheet
Underlying Membrane:	Inverted Cap-Sheet
Method of Attachment:	Adhered
Deck Type:	Concrete
Base / Wall Flashing:	Mineral Surfaced Cap-Sheet
Asbestos Detected:	not tested

### Perimeter Roof

Tile / Shake/Shingle / Metal:	n/a
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## OBSERVATIONS

The following conditions were found during the roof survey:

### **BUR Membrane**

- Core Samples indicate the inter-ply asphalt is brittle with good inter-ply adhesion

### **Surfacing**

- Moderate to extensive granule loss
- Scoring of cap-sheet membrane
- Field blisters

### **Base Flashing**

- Previously repaired at parapet walls (monitor)
- Continued crazing and moisture depletion
- Blisters, open seams and fish-mouth wrinkles

### **Wall Covering**

- Open seams
- Some loose membrane adhesion (monitor)

### **Horizontal Flashings**

- Previously upgraded with acrylic type sealants

### **Roof Drains**

- Not a concern at the time of the inspection

### **Metal Edge / Coping**

- Open seams

### **Sight Screen / Parapet Wall Supports**

- Not a concern at the time of the inspection

### **Pitch Pans**

- Not a concern at the time of the inspection

### **Skylights**

- Not applicable

### **Equipment Supports**

- Uneven weight distribution

### **Counter Flashing**

- Not a concern at the time of the inspection

### **Other Mechanical Deficiencies**

- Electrical distribution/junction boxes are insufficiently supported
- HVAC condensation line is bent to obstruction (needs replacement)

### **Other Perimeter Roof Sections**

- None

### **Gutters**

- Not applicable

## BUILDING SUMMARY

This building has a single 4-ply built-up roof system, installed during new construction in 1999 <sup>(14)</sup> with an expected serviceable life of 20 years. Based on configuration, current condition and a progressive maintenance program, the remaining serviceable life is estimated to be two (2) to five (5) years before resurfacing or replacement should be required.

The repair history include a considerable number of field related items with extensive effort put into upgrading penetrations and base flashing seams at equipment curbs (risers). In addition, significant strip repair of the west facing base flashings were observed and there are eight new blisters marked for repair.

Overall, the roof system appeared to be in fair condition and should reach its expected serviceable life if properly maintained and repaired. Notwithstanding, repair history and analysis of the asphalt suggest this roof system should be resurfaced with an acrylic roof system within the next two (2) to four (4) years while the inter-ply asphalt and membrane remain a suitable base for re-roofing.

Current maintenance includes several field blisters, base flashing repairs, open or exposed seams, membrane scoring and gaps in reglet metal seams significant to extensive cap-sheet granule loss on Building Two.

Mechanical Items include an HVAC condensation line replacement and electrical box equipment support sleeper redesign to relieved pressure on through-roof conduit penetrations.

No testing for asbestos was performed and considering age of the current roof system, it is unlikely to exist.

## RECOMMENDATIONS




















Based on configuration, current condition and a progressive maintenance program, the remaining serviceable life is estimated to be two (2) five (5) years before resurfacing should be required.

- Repair field blisters
- Install reglet metal over gap in seams
- Seal base flashing blisters and fish-mouth openings
- Seal open or exposed seams
- Monitor membrane scoring (initiate care policy for service personnel)
- Monitor west facing base flashings for granule loss and moisture depletion
- Install new condensation drain line
- Modify electrical box equipment support sleepers to evenly distribute weight and prevent bending of through roof substrate conduits

R, M, I = REPAIR CODES

CRS ROOF CONSULTANTS  
1361 S. WINCHESTER BLVD, STE 207  
SAN JOSE, CA 95128  
(408) 871-9296

ORCHARD COMMERCIAL  
PROJECT: 7700.1  
ONE CIRCLE STAR WAY  
SAN CARLOS, CA 94070

	HEAT UNIT		BLOWER		COMPRESSOR		PENETRATION		ANTENNA
	SITE SCREEN		DUCT		SCUPPER/Drain		TURBINE		ELECTRICAL PANEL
	CAP		HVAC		HATCH		FAN		
	SKY LIGHT		LARGE HVAC		SATELLITE		VENT		REFRIGERATION UNIT

Orchard Commercial – Project 7700 (One Circle Star Way)



Overview I



Overview II

Orchard Commercial – Project 7700 (One Circle Star Way)



Overview III



Overview IV



Orchard Commercial – Project 7700 (One Circle Star Way)



Inside Sightscreen Overview I



Inside Sightscreen Overview II

Orchard Commercial – Project 7700 (One Circle Star Way)



Bent / Obstructed Condensation Line



Open Base Flashing Seams



Orchard Commercial – Project 7700 (One Circle Star Way)

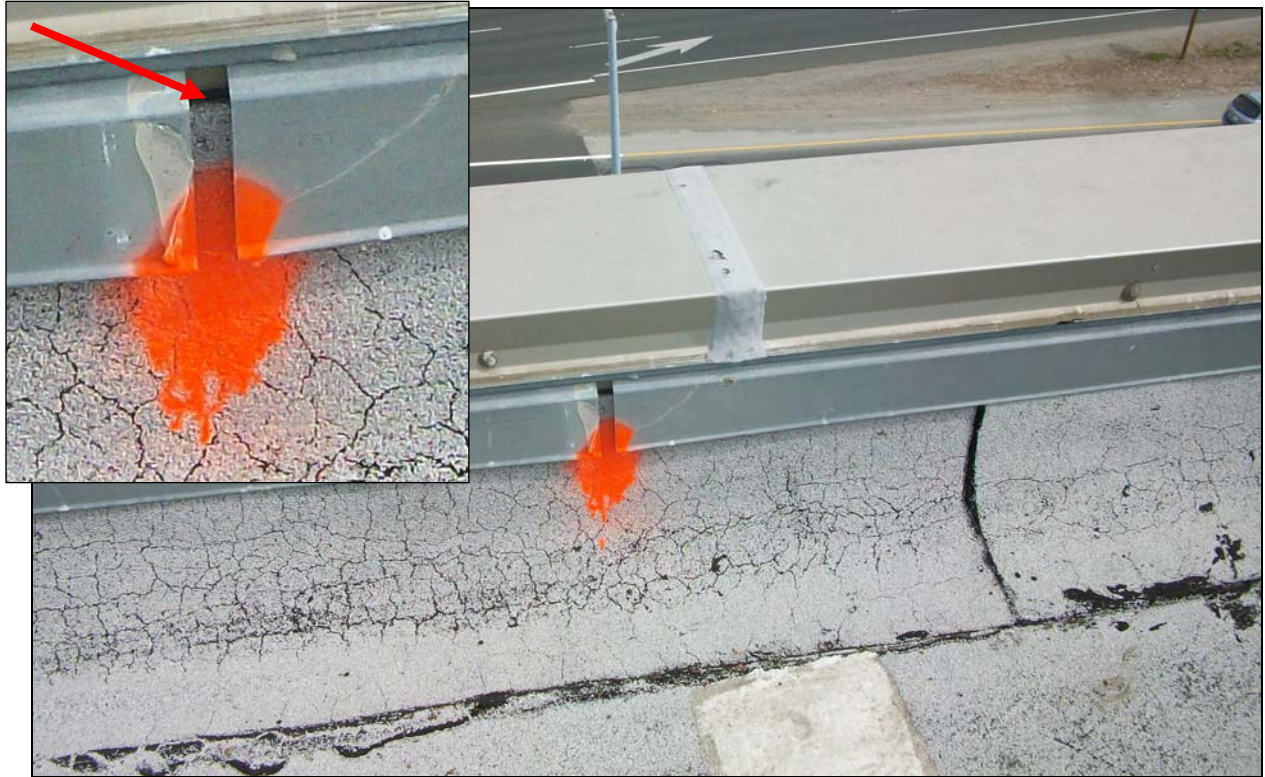


Field Blisters



Base Flashing Repairs

Orchard Commercial – Project 7700 (One Circle Star Way)



Open Reglet Seam – Expose Base Flashing



Previous Repairs (Small)





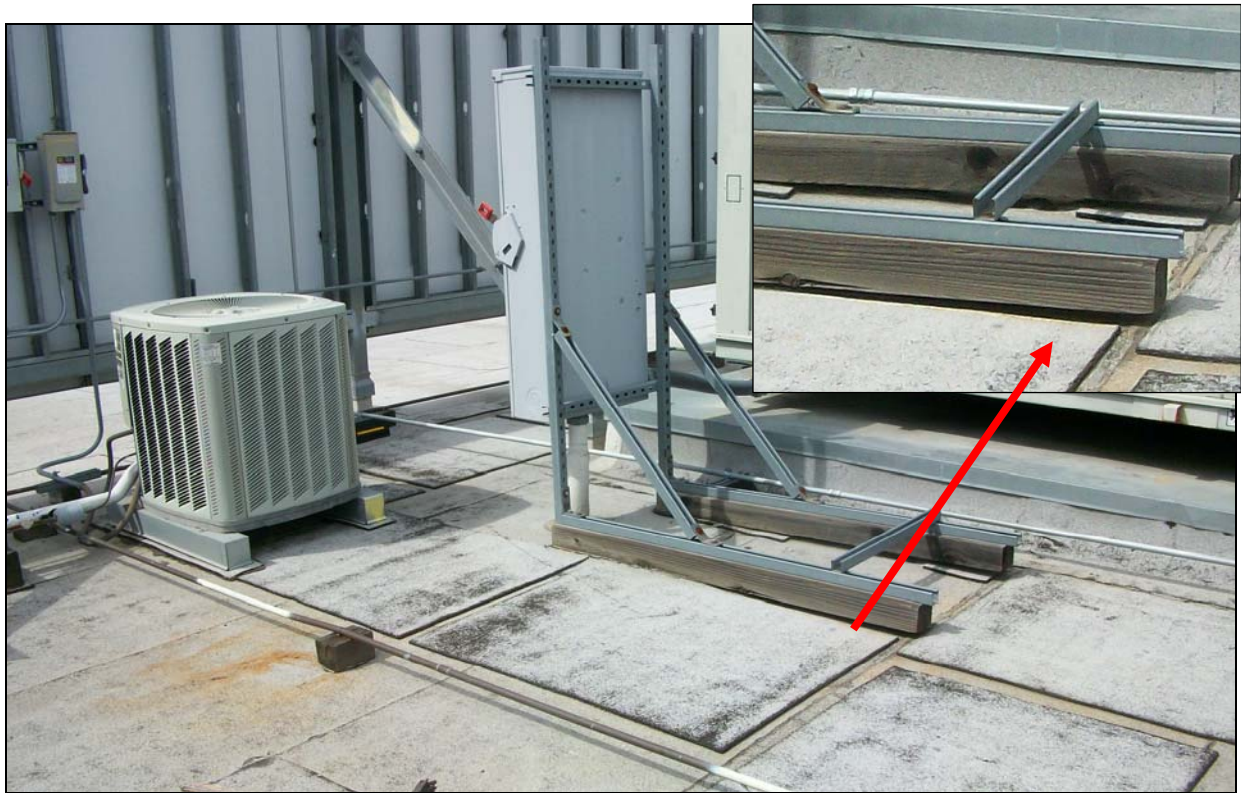
Base Flashing Blisters



Cap-Sheet Scoring (Mechanical Service Personnel)



Orchard Commercial – Project 7700 (One Circle Star Way)



Electrical Box Movement – Unsupported Weight



Electrical Box Installations – Unequal Weight Distribution (typical)

## 2013 Project Information

Project: **7700**  
 Building Address: Two Circle Start Way, San Carlos, CA 94070  
 Roof Access: Interior Roof Access Ladder (2nd Floor)

### Statistics

Previous Inspection Date	n/a		
Original Installation	1999	Resurfaced:	n/a
Warranty Expires	2009	by:	
General Condition	Fair		
Low-Slope Roof Size	27,350 sq. ft.	Sloped Roof Size:	n/a
Total Roof Size	27,350 sq. ft.	Sight Screen:	350 ft.
No. of Stories	4		
Wall Height	1-4 ft	Wall Types:	Concrete
Building Height	88 ft		
Counter Flashing	Reglet	Type:	Metal
Estimated Service Life			
Replace:	6-8 years		
Resurface:	2-5 years		

### Low-Slope Roof System (5-Ply BUR)

Surfacing:	Mineral Surfaced Cap-Sheet
Membrane:	3 Inner-Plies, Fiberglass Felt Sheets
Underlying Membrane:	Inverted Cap-Sheet
Method of Attachment:	Adhered
Deck Type:	Concrete
Base / Wall Flashing:	Mineral Surfaced Cap-Sheet
Asbestos Detected:	not tested

### Perimeter Roof

Tile / Shake/Shingle / Metal:	n/a
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## OBSERVATIONS

The following conditions were found during the roof survey:

### **BUR Membrane**

- Core Samples indicate the inter-ply asphalt is brittle with good inter-ply adhesion

### **Surfacing**

- Considerable to extensive granule loss
- Scoring of cap-sheet membrane
- Membrane ridging along cricket deflections

### **Base Flashing**

- Previously repaired at parapet walls (monitor)
- Continued crazing and moisture depletion
- Fish-mouth wrinkles/openings
- Open base flashing seams

### **Wall Covering**

- Minor loose membrane adhesion (monitor)

### **Horizontal Flashings**

- Previously upgraded with acrylic type sealants

### **Roof Drains**

- Not a concern at the time of the inspection

### **Metal Edge / Coping**

- Loose coping metal fasteners

### **Sight Screen / Parapet Wall Supports**

- Not a concern at the time of the inspection

### **Pitch Pans**

- Not a concern at the time of the inspection

### **Skylights**

- Not applicable

### **Equipment Supports**

- Not a concern at the time of the inspection

### **Counter Flashing**

- Not a concern at the time of the inspection

### **Other Mechanical Deficiencies**

- Breather vents have been sealed by previous roof repairs

### **Other Perimeter Roof Sections**

- Protection pads at Ventilation Duct Supports have been sealed with acrylic
- One breather vent (under Ventilation Duct) missing cover

### **Gutters**

- Not applicable

## BUILDING SUMMARY

This building has a single 5-ply built-up roof system, installed during new construction in 1999 <sup>(14)</sup> with an expected serviceable life of 25 years. Based on configuration, current condition and a progressive maintenance program, the remaining serviceable life is estimated to be two (2) to eight (8) years before resurfacing or replacement should be required.

The repair history includes a relatively low number of field related items with extensive effort put into upgrading penetrations and base flashing seams at equipment curbs (risers). In addition, significant strip repair of the west facing base flashings were also observed with a minimum number of field repairs.

Overall, the inter-ply configuration is good while the roof surfacing appears to be in poor condition. The latter suggest the current roof system may not reach its expected serviceable life. Observations suggest deficiencies existed in portions of the cap-sheet installed in 1999. This cap-sheet exposure directly affects sustainability of the inter-ply membrane.

A light coat of acrylic over the exposed cap-sheet could extend these exposed sections for another three to five years until the roof is resurfaced with a reinforced emulsion-acrylic roof system. In the absence of preventive measures, this roof system will likely require resurfacing within the next two (2) to four (4) years.

Current maintenance includes base flashing repairs, open or exposed seams, membrane scoring and significant to extensive cap-sheet granule loss.

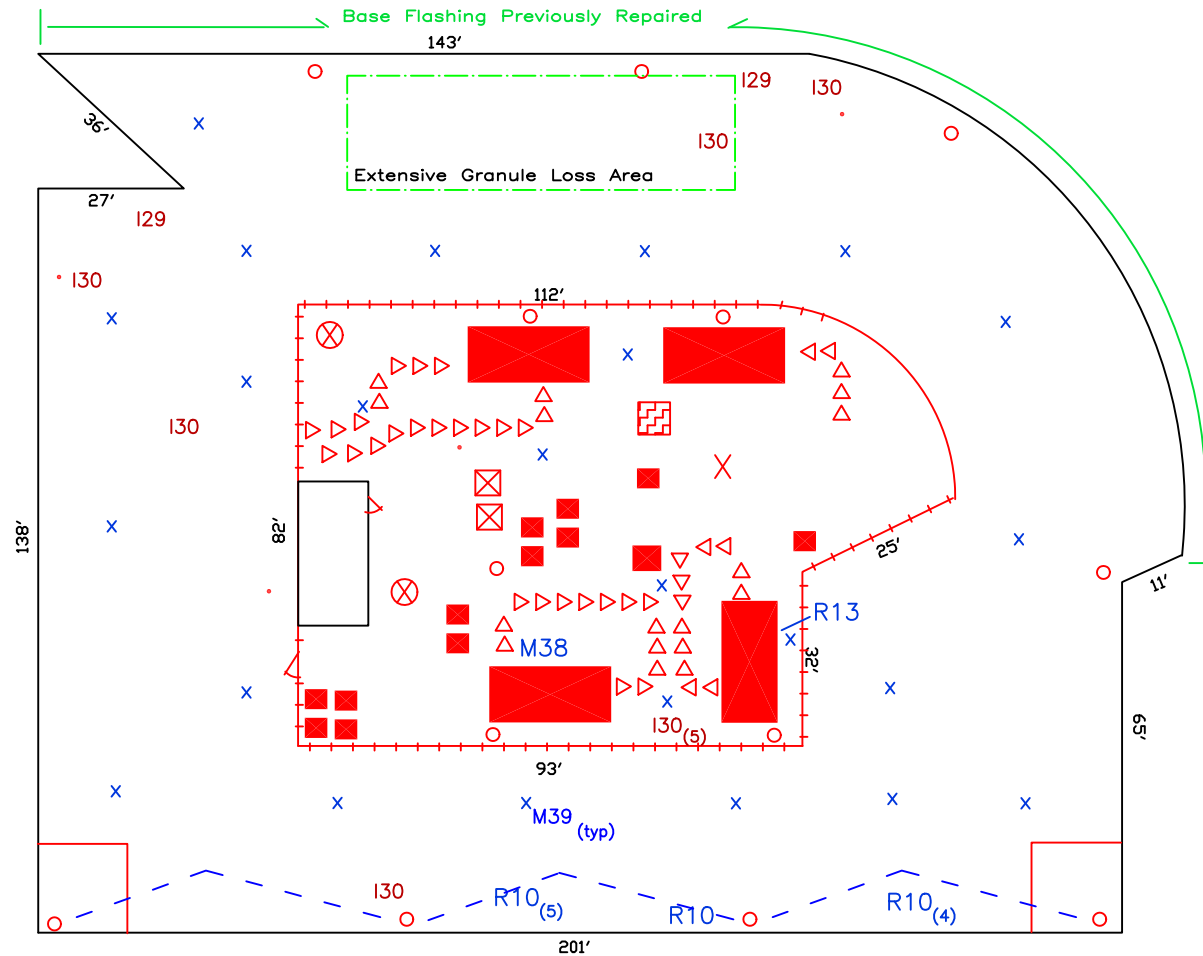
## RECOMMENDATIONS

Based on configuration, current condition and a progressive maintenance program (no interim cap-sheet mediation), the remaining serviceable life is estimated to be three (3) to five (5) years before resurfacing would be required.

- Budget for partial acrylic coating at extensive cap-sheet granule loss (Building Two)
  - Not included in the attached 2014 budget
- Seal base flashing seams and fish-mouth openings
- Remove breather vents during next roofing project
- Install new Cap (or seal) breather vent under ventilation duct
- Monitor field ridging, repair as required or during next roofing project
- Monitor membrane scoring (initiate care policy for service personnel)
- Monitor granule loss, repair as required
- Monitor west facing base flashings for granule loss and moisture depletion






















x = Breather Vents (typically decommissioned)



R, M, I = REPAIR CODES

ORCHARD COMMERCIAL  
PROJECT: 7700.2  
TWO CIRCLE STAR WAY  
SAN CARLOS, CA 94070

	HEAT UNIT		BLOWER		COMPRESSOR		PENETRATION		ANTENNA
	SITE SCREEN		DUCT		SCUPPER/Drain		TURBINE		ELECTRICAL PANEL
	CAP		HVAC		HATCH		FAN		
	SKY LIGHT		LARGE HVAC		SATELLITE		VENT		REFRIGERATION UNIT

Orchard Commercial – Project 7700 (Two Circle Star Way)



Overview I



Overview II

Orchard Commercial – Project 7700 (Two Circle Star Way)



Overview III



Overview IV



Orchard Commercial – Project 7700 (Two Circle Star Way)



Breather Vent Missing Cap



Roof System Breather Vents - Decommissioned by Previous Roof Repairs

Orchard Commercial – Project 7700 (Two Circle Star Way)



Membrane Scoring (poor care by service personnel)



Extensive Granule Loss



Orchard Commercial – Project 7700 (Two Circle Star Way)

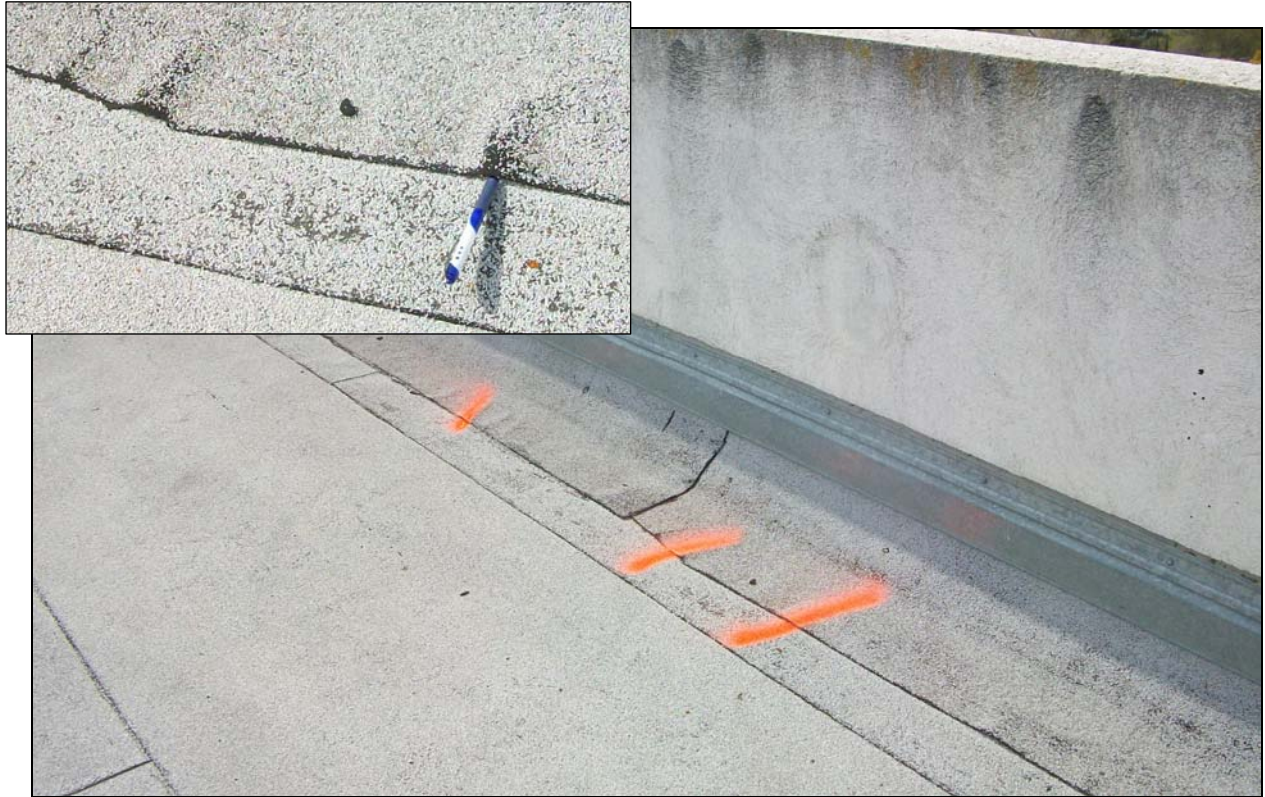


Membrane Ridging Deflection Crickets



Underlying Membrane Ridging (close-up)

Orchard Commercial – Project 7700 (Two Circle Star Way)



Fish-Mouth Openings – Base Flashing Repairs



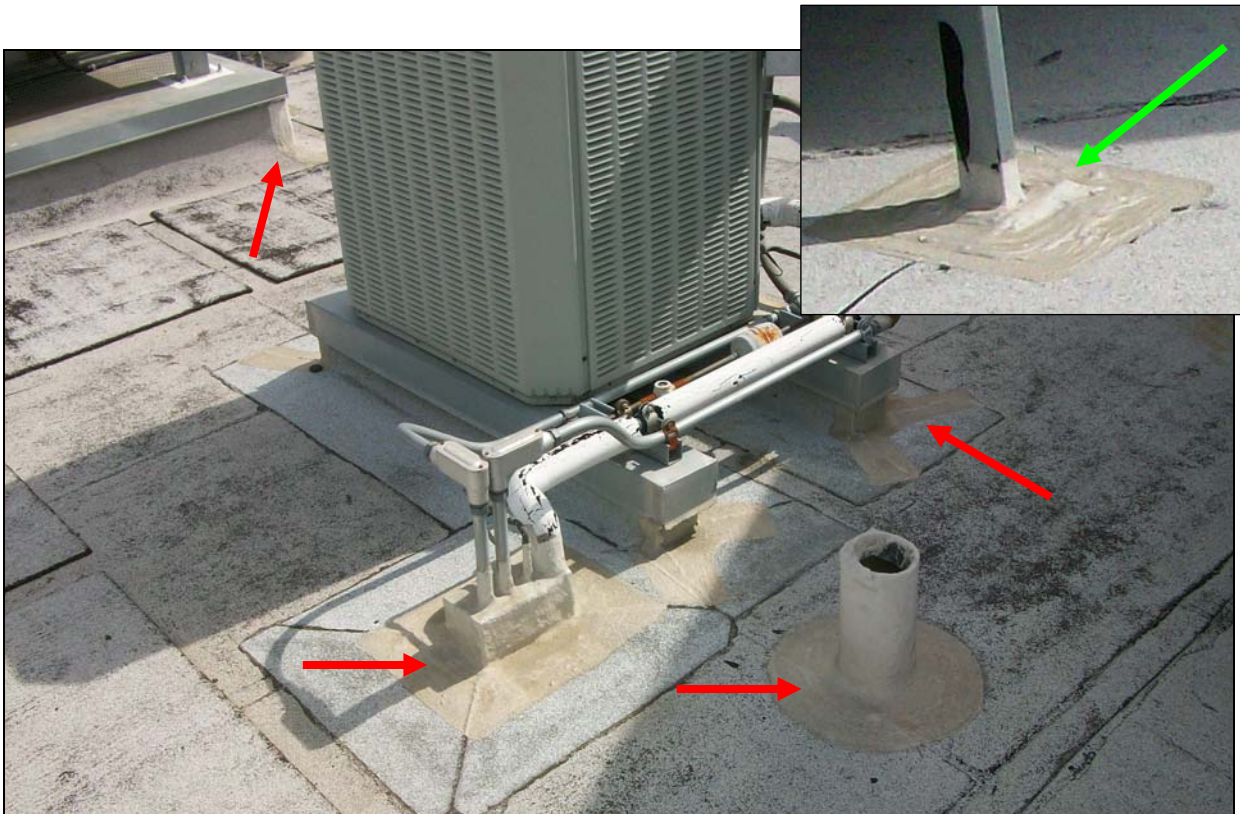
Loose Coping Metal Fasteners



Orchard Commercial – Project 7700 (Two Circle Star Way)



Open / Exposed Base Flashing Seams



Blanket Previous Repairs