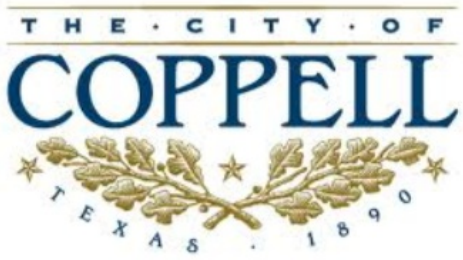


Senior Center & Community Center Roof Conditions & Solutions Report

Prepared By
Russell Roberts

Prepared For
Andrew Moore

December 09, 2020

Table of Contents

Facility Summary

Client: The City of Coppell

Facility: Coppell Senior Center

Facility Data

Address 1	345 W Bethel
City	Coppell
State	Texas
ZIP	75019
Type of Facility	Municipal
Square Footage	19,393
Contact Person	Andrew Moore

Notes

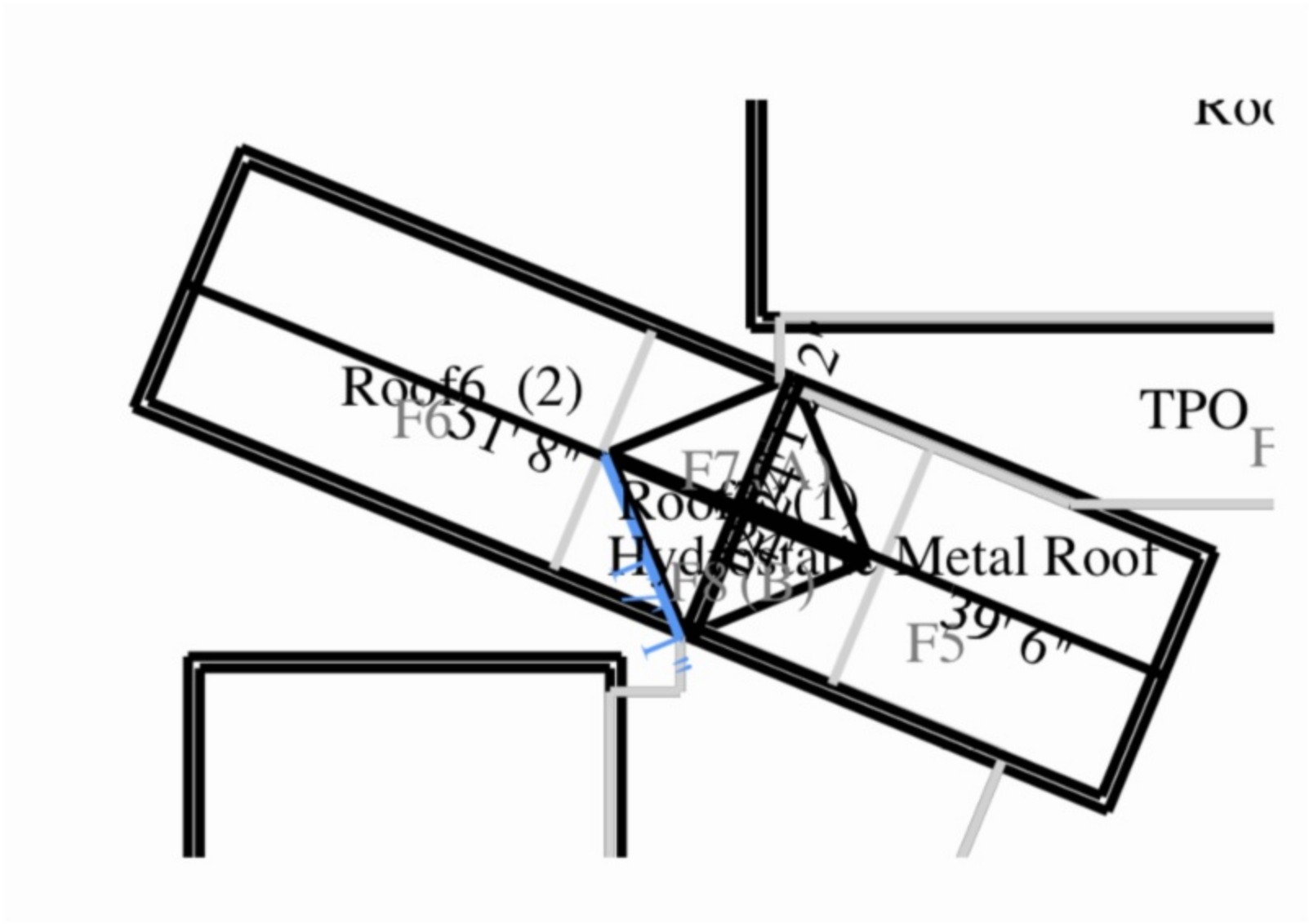
CASE # TGCRR-345-01

As requested, The Garland Company has inspected the roofing systems and assemblies associated with the structures located at the above referenced site, and file the following report. At the request of interested parties, The Garland Company, Russell Roberts, was asked to provide a roof conditions investigation of metal roof systems installed at 345 Bethel, Coppell, TX 75019.

Asset Information

Name	Date Installed	Square Footage	Roof Access
Flat Roof: Single Ply	2008	3,900	Internal Roof Hatch
Low Slope: Hydrostatic Roof System (1 on 12)	2008	2,300	Ladder Needed
Sloped Roof: Snap Lock Metal (3 on 12)	2008	13,375	Ladder Needed


3:12
1:12
3:12
3:12


Roof6 (2)
F6
31' 8"
TPO
F5
39' 6"

Construction Details

Client: The City of Coppell

Facility: Coppell Senior Center

Roof Section: Low Slope: Hydrostatic Roof System (1 on 12)

Information

Year Installed	2008	**Square Footage**	2,300
Slope Dimension	1 on 12	**Eave Height**	24'
Roof Access	Ladder Needed	**System Type**	Standing Seam
		Contractor	Kimora Custom Roofing Inc. Manuel Darnell 817-602-5361 (Mobile) mdarnell@kimoracustomroofing.com

Assembly

Roof #	Layer Type	Description	Attachment	R-Value	Thickness
1	Deck		Mechanically attached	-	-
1	Insulation	Polyisocyanurate	Mechanically attached	19	3"
1	Metal Standing Seam	Galvalume	Mechanically attached	-	22 GA

Notes

CASE #TGCRR-345-01

Section Summary: (Hydrostatic Metal Roof System)

In general: (1) 2"+ hail impacts on metal roof system, (2) protective coating of steel "rusting" at hail impact locations, (3) uv degradation, (4) exposed clips, (5) weather related damage on exhaust cap surface, (6) hail impacts observed on Hip and Ridge cap metal surfaces

Photo Report

Client: The City of Coppell
Facility: Coppell Senior Center
Roof Section: Low Slope: Hydrostatic Roof System (1 on 12)

Report Date: 06/20/2019
Title: Roof Conditions Photographic Report

During our roof leak investigation of low slope (1:12) hydrostatic metal roof system alongside City of Coppell, Jeff Graham and The Garland Company, Russell Roberts we discovered the following items:

- Weather related impacts on roof surfaces
- Hydrostatic metal roof system water proofing seams with hail impacts
- Temporary patches installed over impact locations on TPO surface
- Hail impacts on gutter tray and downspouts
- Hail impacts on exterior stone surfaces
- Hail impacts on roof top units and duct work

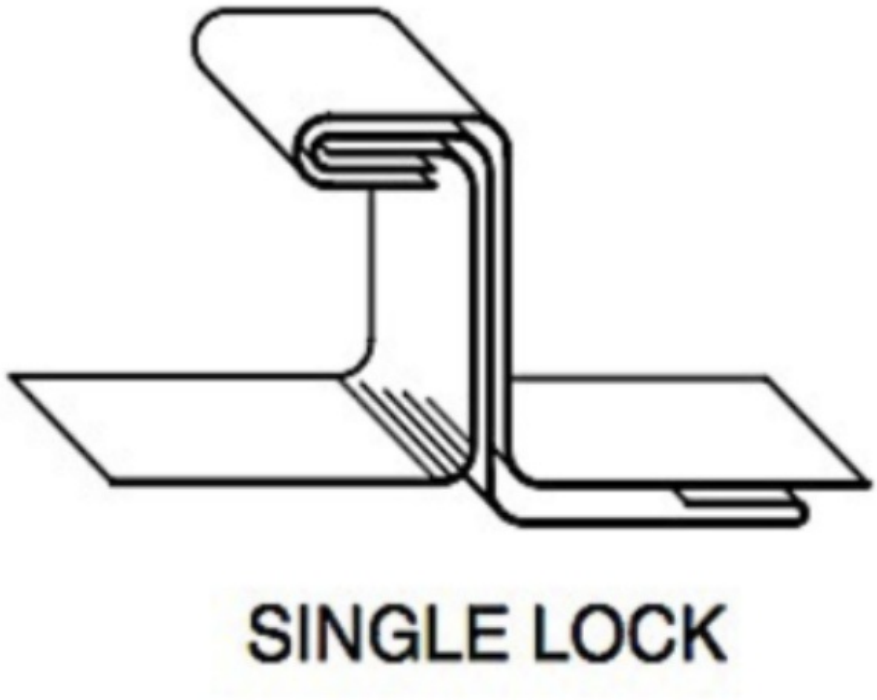


Photo 1

Drawing shows existing single lock system currently installed.

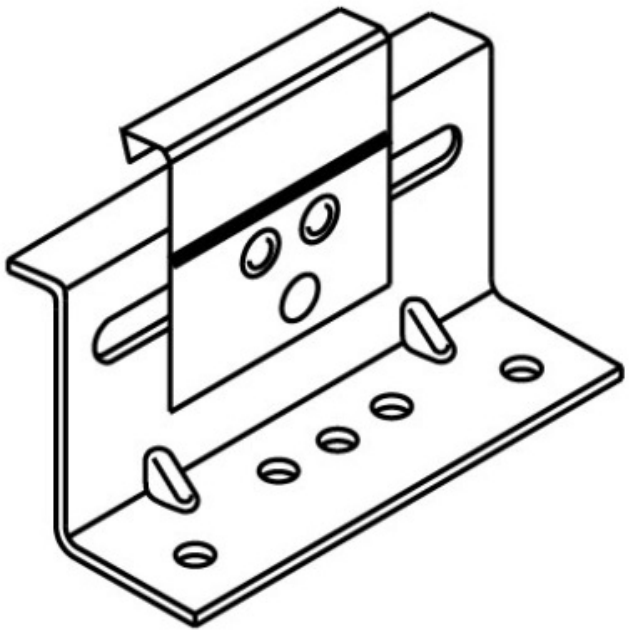


Photo 2

Drawing shows existing low floating clips installed with single lock system.

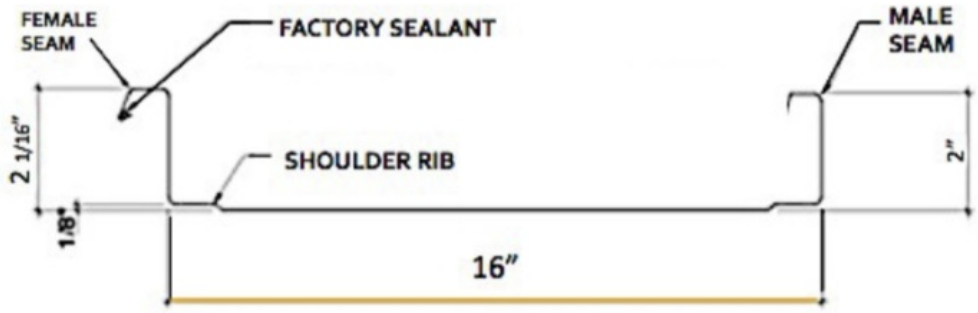


Photo 3

Drawing shows existing panel dimensions of single lock metal roof system currently installed.

Photo 4

Observed 1" on 12" slope of hydrostatic metal roof system.

Photo 5

Observed 2" height on metal panel leg.

Photo 6

Observed .75" seam width at adjoining seams.

Photo 7

Observed 16" wide metal roof panel currently installed.

Photo 8

Observed "W" Valley metal pan installed in valley.

Photo 9

Photograph shows overall conditions of low slope roof system installed on front elevation.

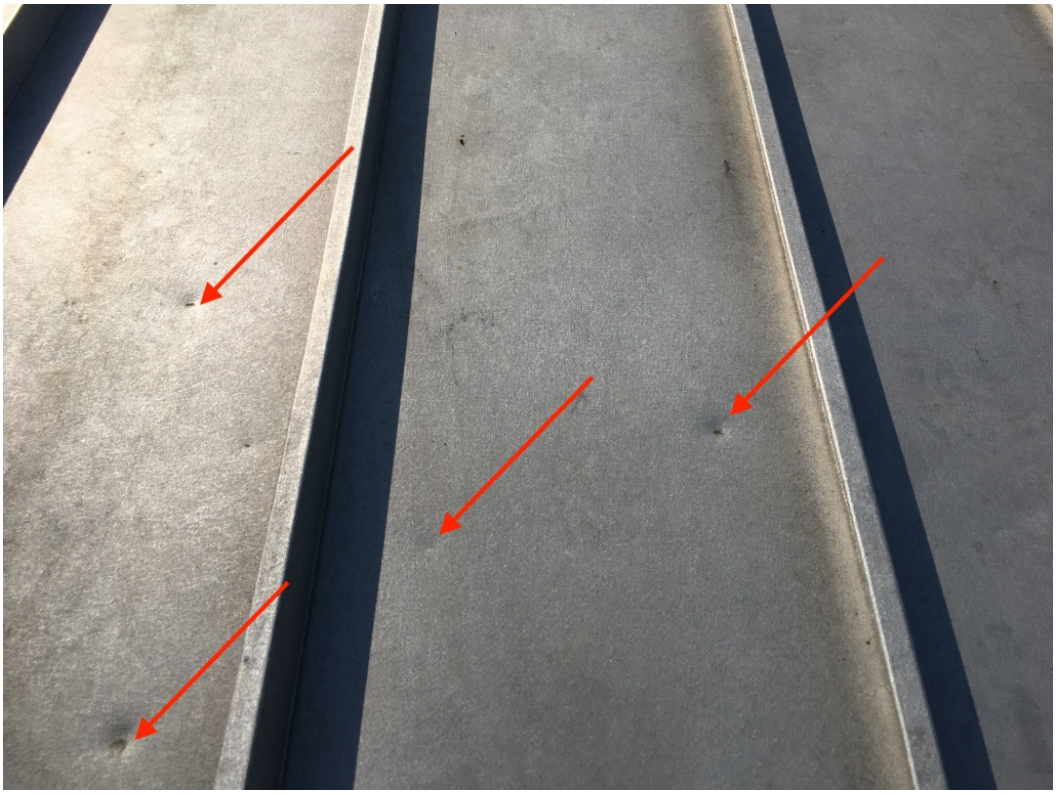


Photo 10

Observed weather related impacts on metal panel roof surfaces.

Observed moisture ponding in metal roof surfaces degrading water shedding capabilities.

Photo 11

Observed weather related impacts on metal panel roof surfaces.

Observed moisture ponding in metal roof surfaces degrading water shedding capabilities.

Photo 12

Observed weather related impacts on metal panel roof surfaces.

Observed moisture ponding in metal roof surfaces degrading water shedding capabilities.

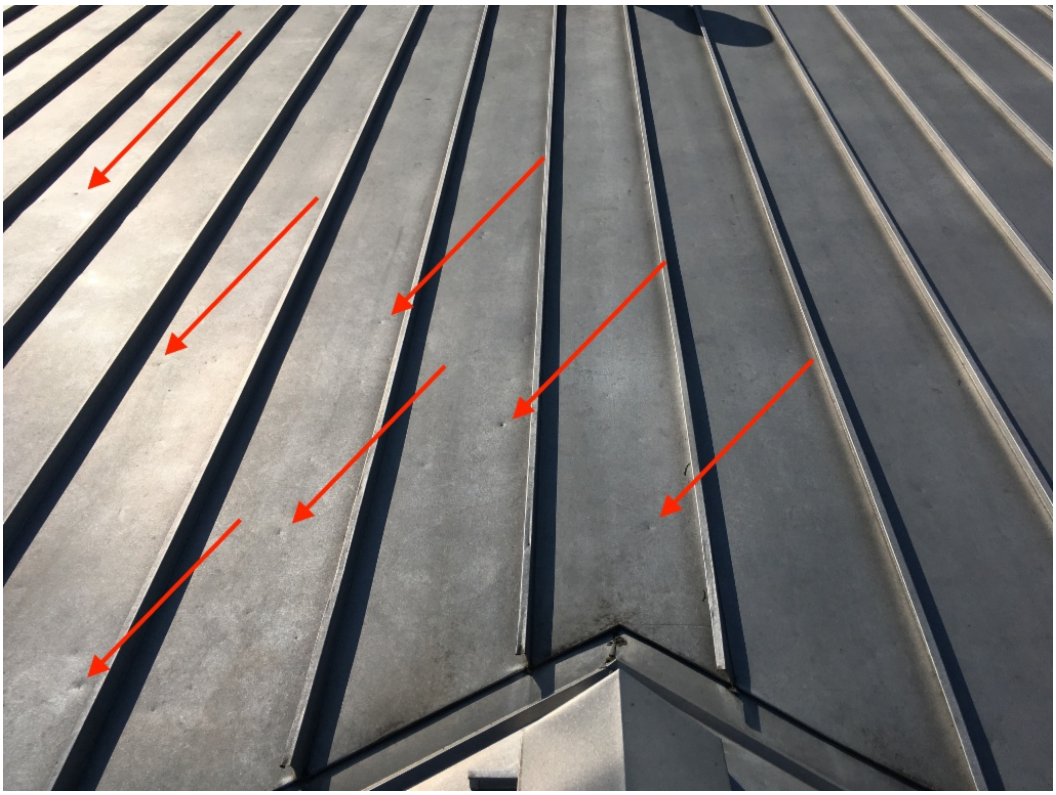


Photo 13

Observed weather related impacts on metal panel roof surfaces.

Observed moisture ponding in metal roof surfaces degrading water shedding capabilities.

Photo 14

Observed weather related impacts on metal panel roof surfaces.

Observed moisture ponding in metal roof surfaces degrading water shedding capabilities.

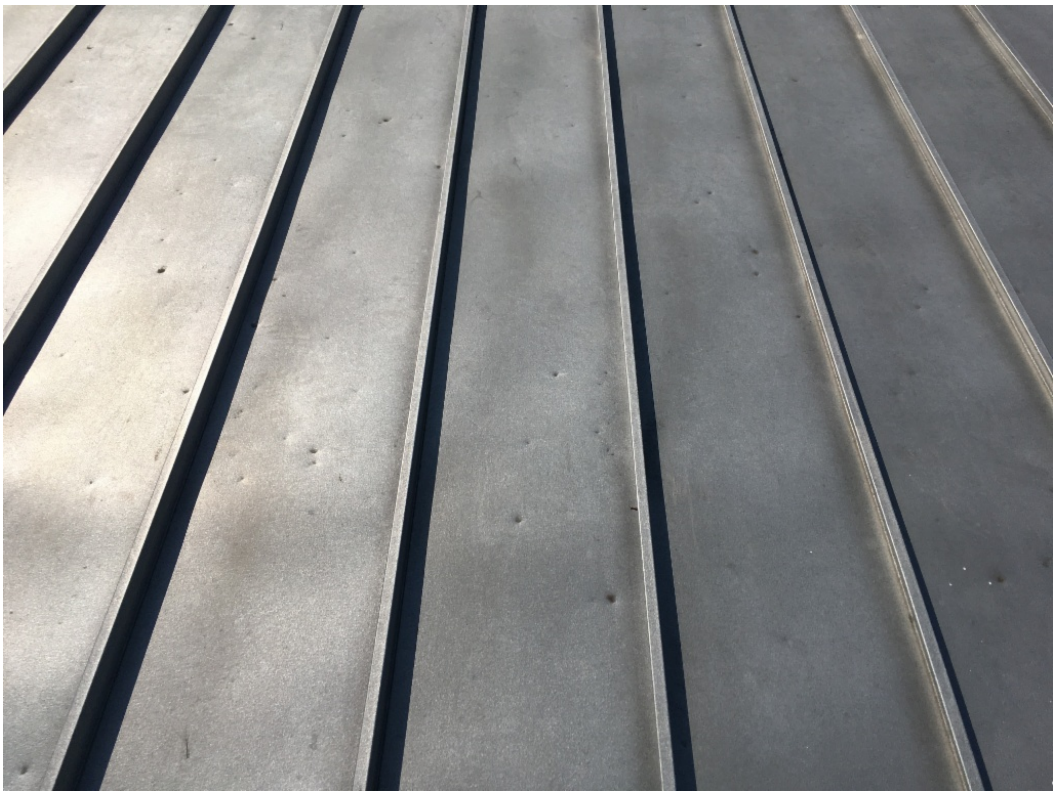


Photo 15

Observed weather related impacts on metal panel roof surfaces.

Observed moisture ponding in metal roof surfaces degrading water shedding capabilities.

Solution Options

Client: The City of Coppell

Facility: Coppell Senior Center

Roof Section: Low Slope: Hydrostatic Roof System (1 on 12)

Restore Options			
Solution Option:	Restore	**Action Year:**	2021
Square Footage:	2,300	**Expected Life (Years):**	10
Budget:	$29,900.00		

SCOPE OF WORK- SURFACE RESTORATION (10 YR)

DESCRIPTION

This guide covers proper application tips when spraying liquid SEBS rubber coatings. Airless spray equipment is an effective method of application particularly on large areas and irregular or vertical surfaces. Gas powered spray equipment can also be used (consult with equipment manufacturer for recommendations). Air-atomized application is not recommended.

NOTE: CPR System can be applied by brush, roller or spray.
Personnel using these products should familiarize themselves with procedures for personal safety, workplace precautions, and equipment operation. Refer to Product Data Sheet, Safety Data Sheet, and General Instructions for the spray pumps.

CLIMATIC CONDITIONS

1. Rain, fog, dew, frost, and relative humidity above 90% will adversely affect adhesion and physical properties of the coating. Do not apply if any of these conditions exist or will exist within five hours of application. The substrate must be dry at the time of application.
2. At temperatures below 60°F (16°C), store and maintain material temperature above 65°F (18°C) in the container. Spray application is not recommended below 50°F (10°C).
3. At temperatures above 80°F (27°C), reduce the application rate on vertical or irregular surfaces to prevent sags or runs. Do not apply when temperatures are above 100°F (38°C).

SPRAY EQUIPMENT

Airless spray equipment generates very high fluid pressure. Spray equipment must be properly maintained and operated. Any misuse of spray equipment or accessories (such as over-pressurizing, modified parts, or worn or damaged parts) can result in serious bodily injury, fire, explosion, or property damage. Read and follow the equipment manufacturer's instructions and recommendations.

1. Airless spray pump must have minimum 4,000 psi output pressure rating and adequate delivery volume to support the spray tip orifice, gallons per minute, rating. High-pressure airless sprayers with a higher maximum pressure capability will allow spray application in cooler weather or by using spray hose lengths greater than 200 feet (60.96 m).
2. Spray Pump Recommendations:
   a. Pump Ratio 45:1
   b. Hose 3/8" ID Hose first 50' (15.24 m) with swivel connections and 1/2" ID hose for second 150' (45.72 m)

c. Pressure 4,000 psi. Working pressure is 2,000 psi min. at the gun. Depending on equipment set-up, you may be able to spray the coating as low as 1,800 psi. Based on tip size, raise pressure to remove fingers in spray pattern
e. High-pressure fittings
f. Input flow 100 psi
g. Tip = .025-.031 for an 10" pattern at 12" distance when spraying the CPR White Coating or CPR Base Coat

3. Recommended 12" extension with swivel tip
   i. Tip and pump sizes will change depending on temperature and pattern concerns
   j. Tip = .035 when spraying the CPR Seam Sealer BG

SPRAYING TECHNIQUE

1. Hold the spray gun perpendicular to the surface at a distance of 18" to 24" (46 cm to 61 cm) from the roof. While triggering the spray gun, move it at a rate to produce the desired wet coating mil thickness without thin spots or "holidays. " Spray technique should include a "half lap" technique where each spray pass is overlapped 50% for uniform coverage. Check applied film thickness using a wet mil gauge. (32 wet mils per 100 sq. ft. (9.29 m2).
   2. Using the 3,000 psi fluid pressure will provide a uniform spray pattern without fingering.
   3. Allow a minimum of 24-72 hours cure time between coats for cure and solvent evaporation

NOTE: Spray across roof and back-roll as needed to ensure uniform coverage, then back-spray across the same area to complete application.

SPRAYING PRECAUTIONS

1. Rope off the area within 150' (45.72 m) of spray area.
   2. Seal off ventilation intakes within the affected area.
   3. Use windbreaks, where necessary, to confine spray mist and avoid damage to nearby surfaces due to overspray or drift. 4. Keep spectators and personnel away from spray area.

CLEAN UP

1. Clean airless spray equipment with mineral spirits. Re-circulate thinner through pump supply, airless spray pump and spray hose to remove residual coating. Then flush with clean mineral spirits.
2. Do not leave in airless spray system for more than one hour. Under certain conditions, it is possible for these coatings to gel or harden inside the equipment.
3. For long-term storage, a final flush with mineral spirits is recommended.
4. For further details, consult with technical support or a sales representative.

PROTECTION EQUIPMENT

1. Use supplied air-breathing apparatus with full-face mask or hood during any spray application unless monitoring demonstrates TDI exposure below OSHA permissible limits.
2. Fabric coveralls are recommended.
3. Impervious gloves are recommended.

STORAGE AND HANDLING

1. Storage
   a. Keep containers closed, store in a dry, cool place away from heat, sparks, open flame, and moisture.
2. Keep material stored above 65°F (18°C).
   c. Open containers should be blanketed with dry nitrogen before resealing.
3. Mixing
   a. Settling or separation may occur upon storage.
   b. Mix material before using to assure uniform consistency. Use Jiffy mixer for open head drums. c. Ground container and equipment to prevent accumulation of static charge.

Construction Details

Client: The City of Coppell

Facility: Coppell Senior Center

Roof Section: Sloped Roof: Snap Lock Metal (3 on 12)

Information

Year Installed	2008	**Square Footage**	13,375
Slope Dimension	3": 12"	**Eave Height**	24
Roof Access	Ladder Needed	**System Type**	Snap Lock
		Contractor	Kimora Custom Roofing Inc. Manuel Darnell 817-602-5361 (Mobile) mdarnell@kimoracustomroofing.com

Notes

Case #TGCRR-345-01

CASE #TGCRR-345-01

Section Summary: (Hydro-kinetic Metal Roof System)

In general: (1) 2"+ hail impacts on metal roof system, (2) protective coating of steel "rusting" at hail impact locations, (3) uv degradation, (4) exposed clips, (5) weather related damage on exhaust cap surface, (6) hail impacts observed on Hip and Ridge cap metal surfaces, (7) hail impacts on gutters, (8) hail impacts observed on apron flashing metal surfaces.

Photo Report

Client: The City of Coppell
Facility: Coppell Senior Center
Roof Section: Sloped Roof: Snap Lock Metal (3 on 12)

Report Date: 06/20/2019
Title: Roof Conditions Photographic Report

During our roof leak investigation of hydro-kinetic metal roof system installed on 3 on 12 roof pitch alongside City of Coppell, Jeff Graham and The Garland Company, Russell Roberts we discovered the following items:

- Weather related impacts on roof surfaces
- Hydrostatic metal roof system water proofing seams with hail impacts
- Temporary patches installed over impact locations on TPO surface
- Hail impacts on gutter tray and downspouts
- Hail impacts on exterior stone surfaces
- Hail impacts on roof top units and duct work

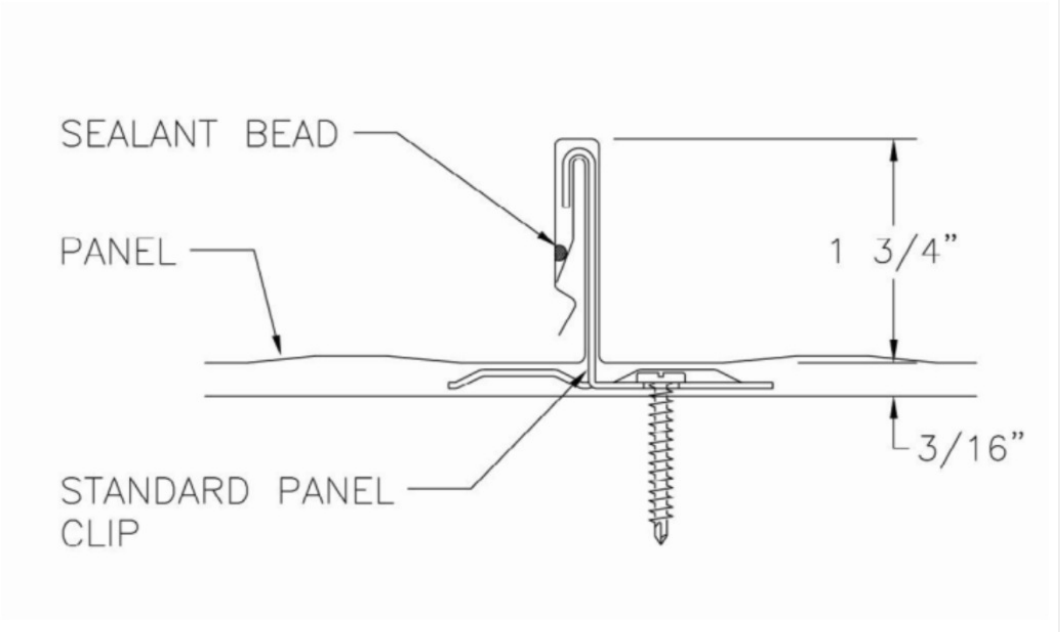


Photo 1

Diagram shows roof system components installed on sloped roof section.

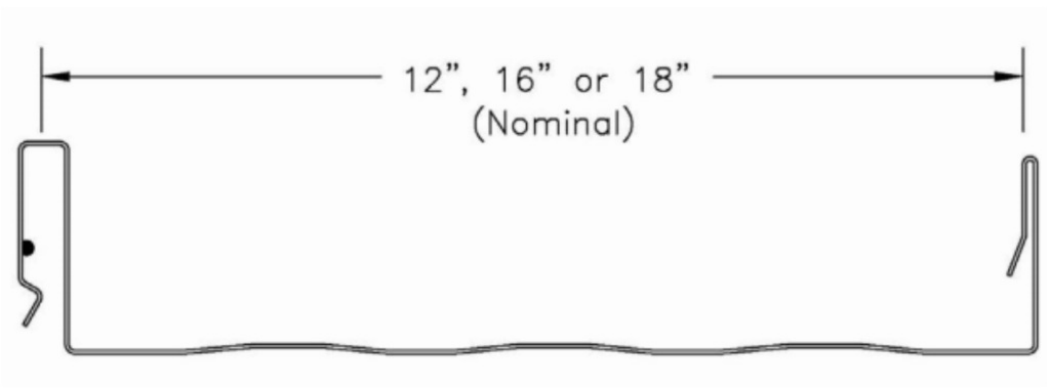


Photo 2

Diagram shows roof system components installed on sloped roof section.

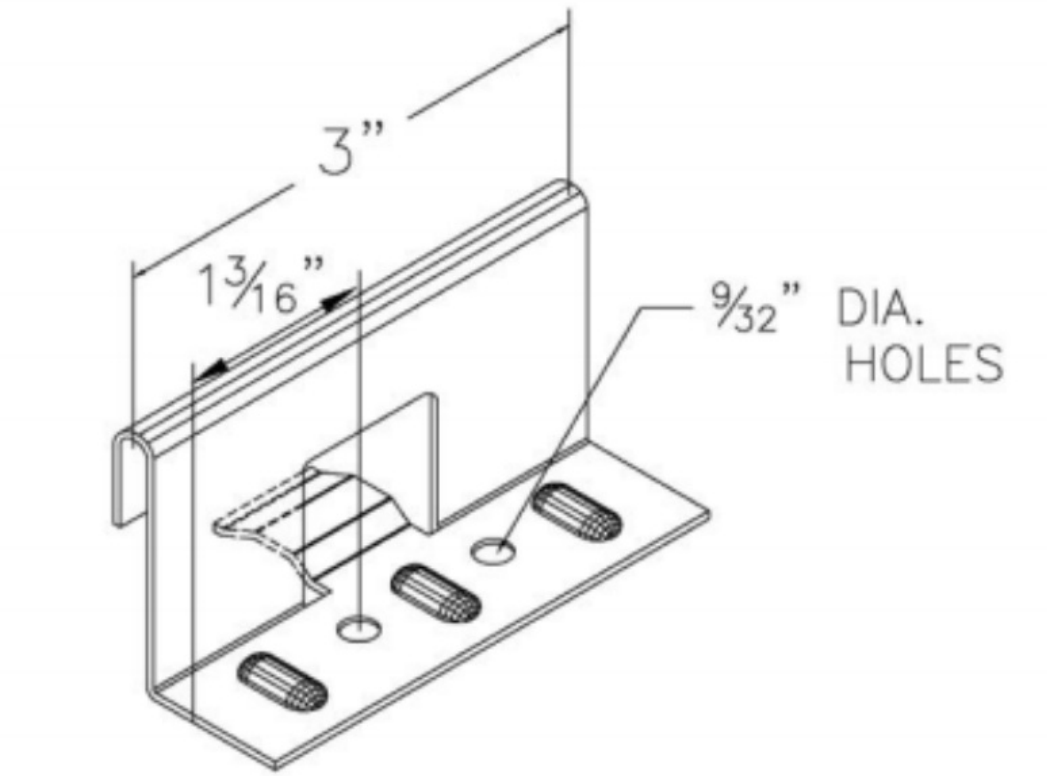


Photo 3

Photo shows roof clip required in assembly of snap lock hydro-kinetic roof system currently installed.

Photo 4

Photograph shows snap lock metal roof panel width installed on sloped roof section measuring 3 on 12 pitch.

Photo 5

Photograph shows snap lock metal roof panel height installed on sloped roof section measuring 3 on 12 pitch.

Photo 6

Photograph shows apron flashing width installed on sloped roof section measuring 3 on 12 pitch.

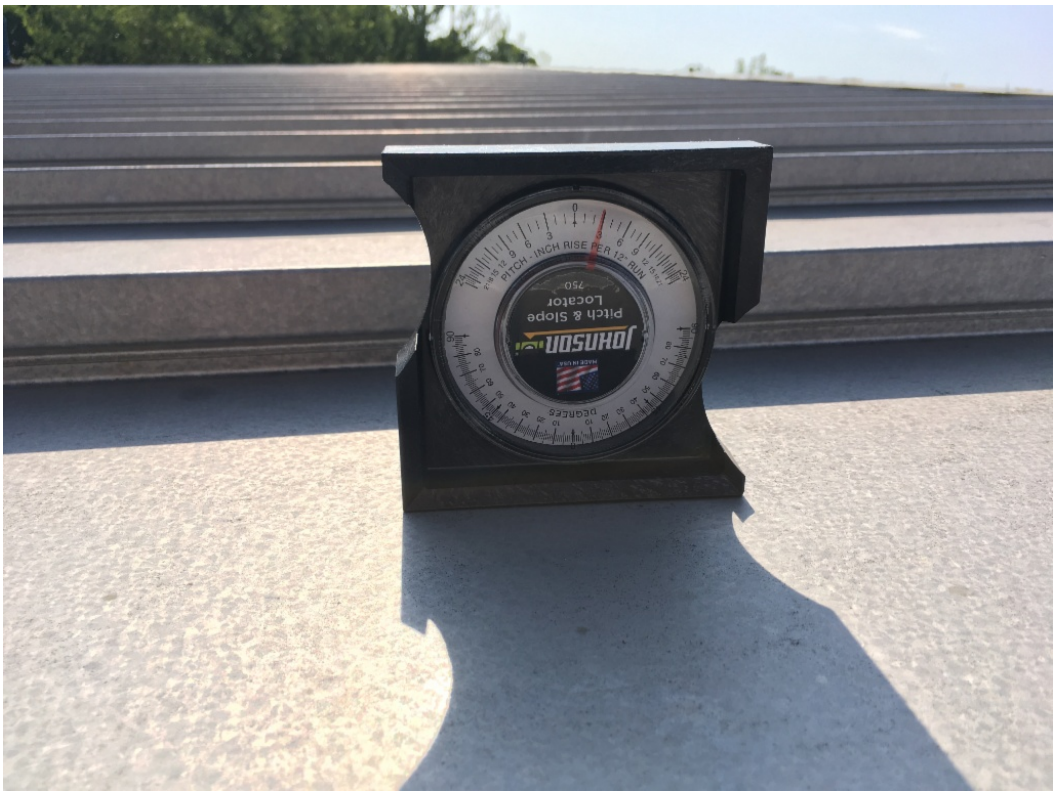


Photo 7

Observed 3 on 12 roof slope on upper roof sections.

*** Hydrokinetic roof system "Snap lock" panels typically installed on roof decks with 3 on 12 pitch or greater.

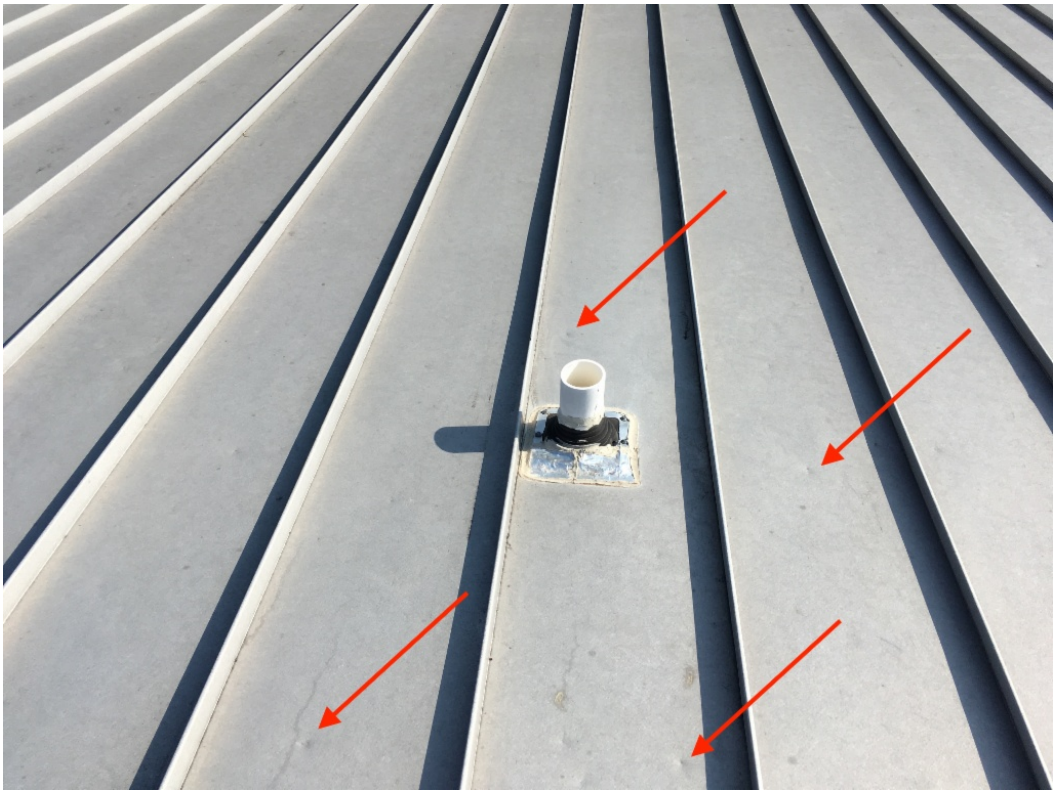


Photo 8

Observed weather related impacts on metal panel roof surfaces.

Observed moisture ponding in metal roof surfaces degrading water shedding capabilities.

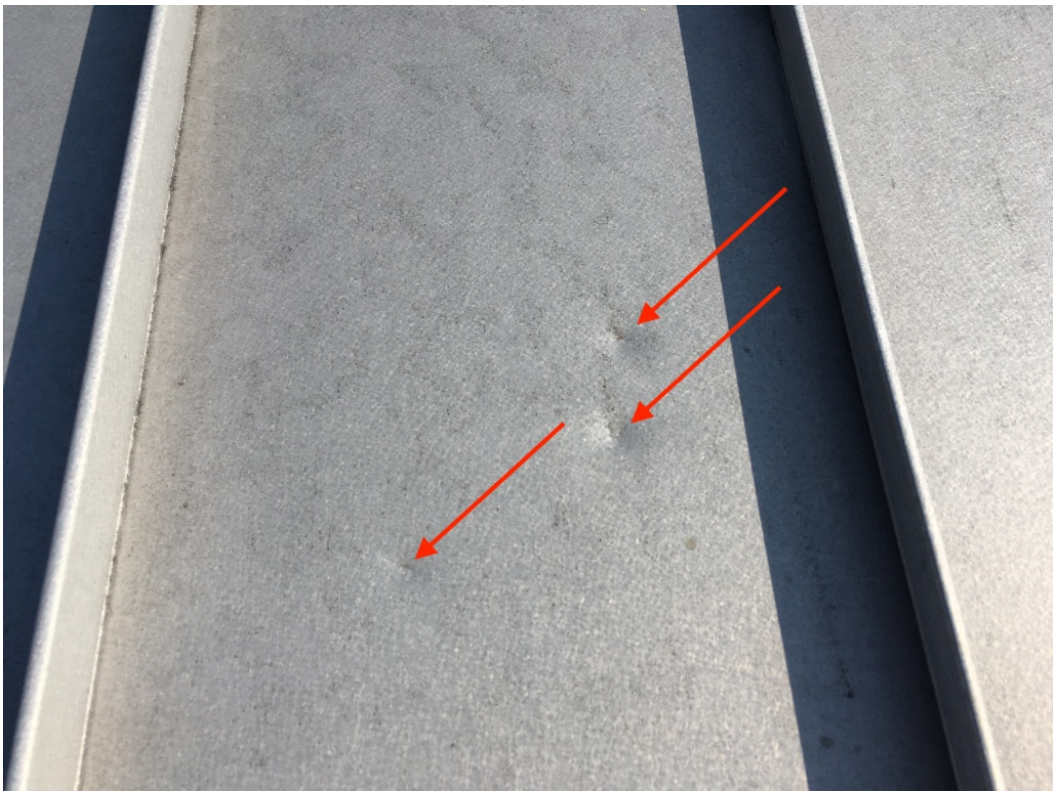


Photo 9

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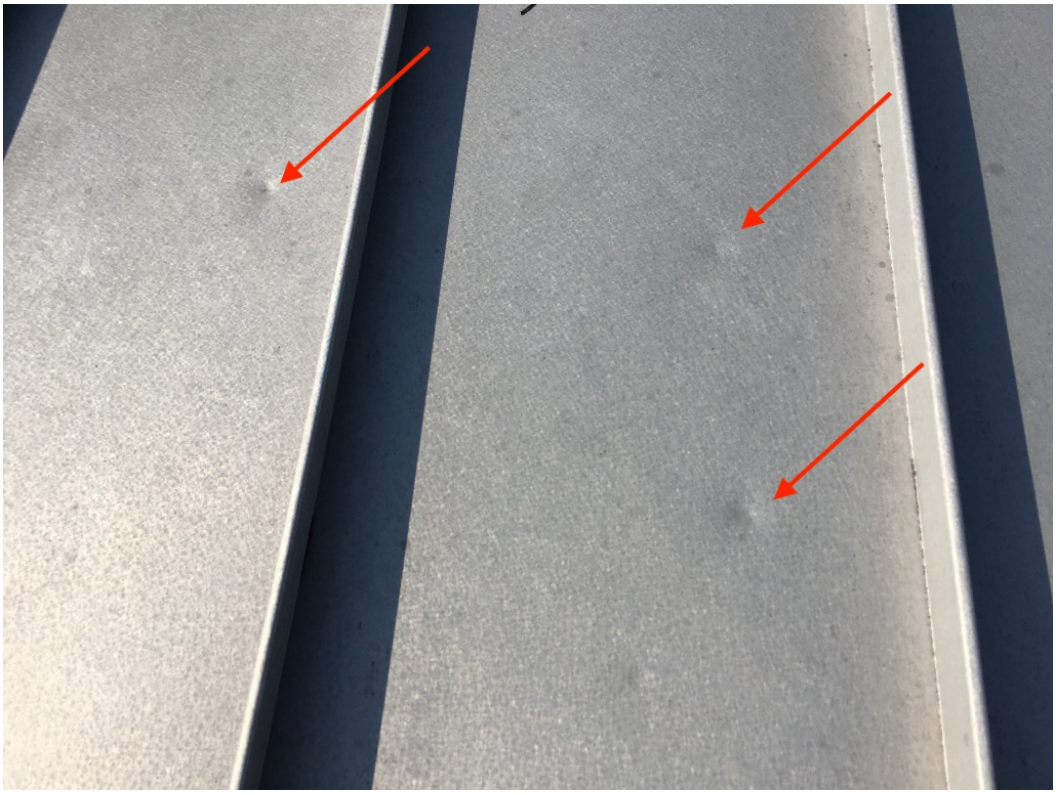

Photo 10

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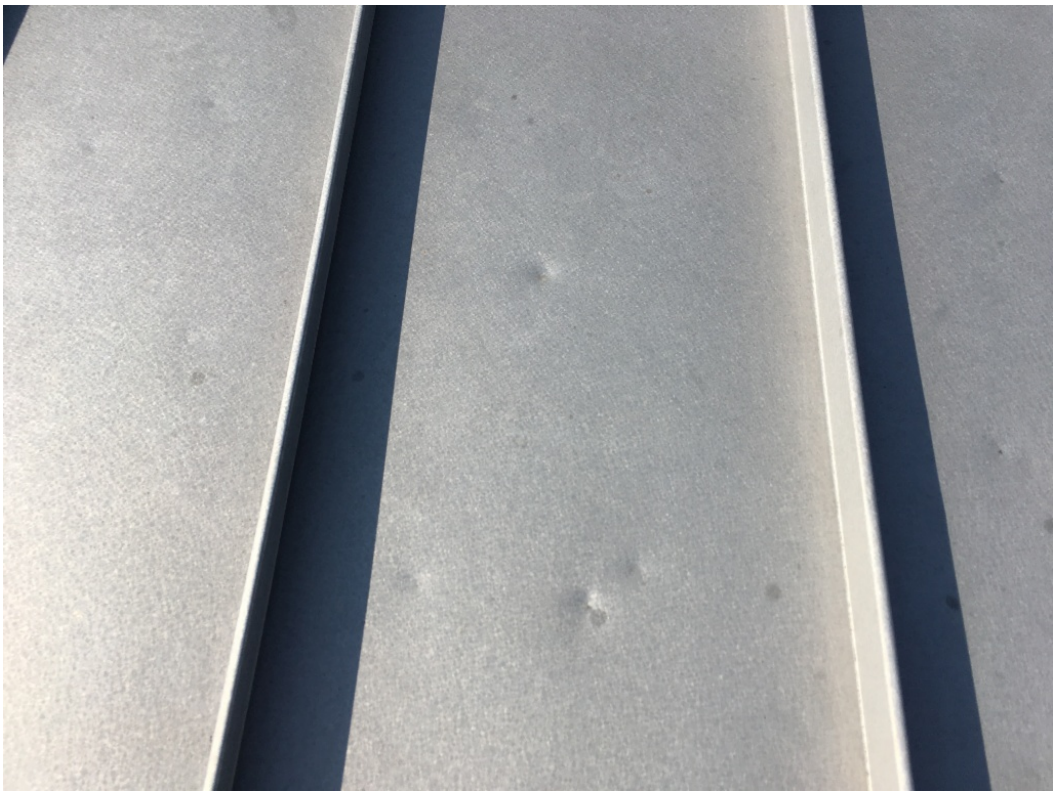

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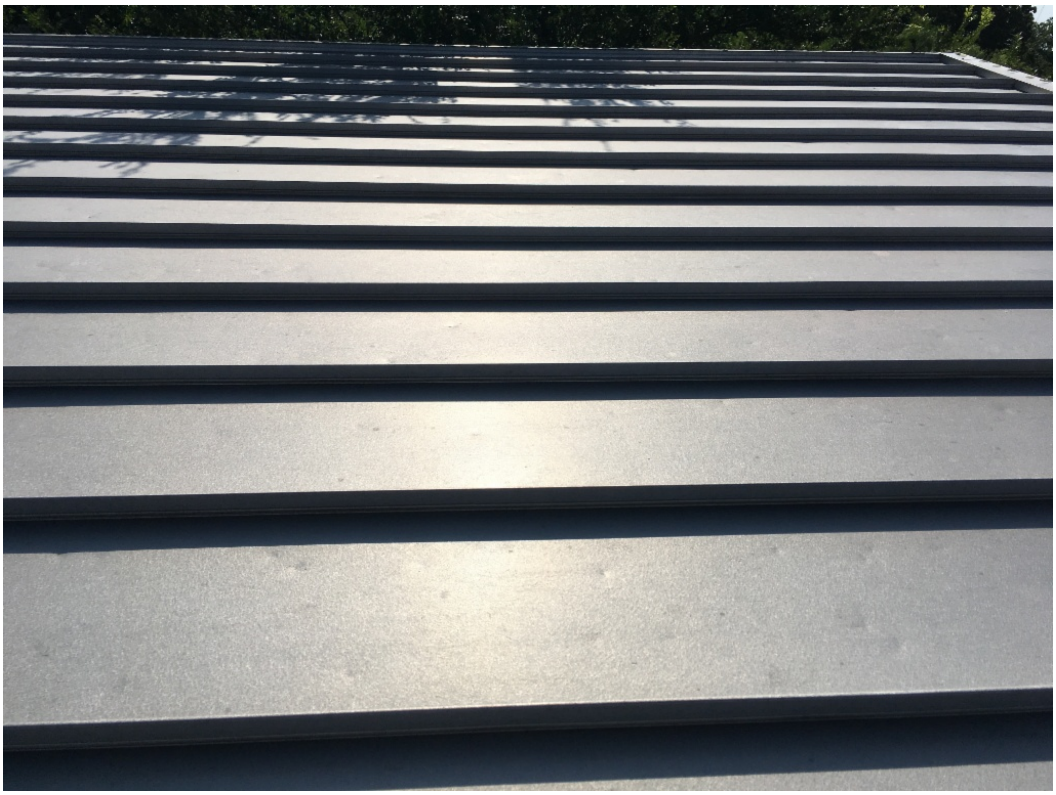

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Solution Options

Client: The City of Coppell

Facility: Coppell Senior Center

Roof Section: Sloped Roof: Snap Lock Metal (3 on 12)

Restore Options			
Solution Option:	Restore	**Action Year:**	2021
Square Footage:	13,375	**Expected Life (Years):**	10
Budget:	$148,765.00		

SCOPE OF WORK- SURFACE RESTORATION (10 YR)

DESCRIPTION

This guide covers proper application tips when spraying liquid SEBS rubber coatings. Airless spray equipment is an effective method of application particularly on large areas and irregular or vertical surfaces. Gas powered spray equipment can also be used (consult with equipment manufacturer for recommendations). Air-atomized application is not recommended.

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e. High-pressure fittings
f. Input flow 100 psi
g. Tip = .025-.031 for an 10" pattern at 12" distance when spraying the CPR White Coating or CPR Base Coat

3. Recommended 12" extension with swivel tip
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