INFORMATION TO PROPOSERS
for

(C3) RFP No. E22-101
Design and Construction Administration Services for the
Treadwell Arena Roof Replacement

ISSUED BY:

City and Borough of Juneau
ENGINEERING DEPARTMENT
155 South Seward Street
Juneau, Alaska 99801

Date Issued: August 19, 2021

The following information is posted online. Please refer to the CBJ Public Purchase webpage at: https://www.publicpurchase.com/gems/juneau,ak/buyer/public/home. This is ***not*** an addendum.

CLARIFICATIONS:

Question: *How old is the existing Arena?*

Response: 18 years old.

Question: *Was a study or investigation done regarding the roof? If so can you make that available? If not what are the problems and issues with the existing roof that it has been determined that replacement is needed so we can best respond to the RFP: Leaks? Condensation? Corrosion? Glaciation at eaves?*

Response: See the attached field report from 2016 and information on the retro-fitted cap flashings that were installed three years ago.

Question: *Have any significant repairs or modifications been made to the existing roof in the past? If so, what was done?*

Response: There have been no significant repairs or modifications.

Question: *Does the CBJ anticipate issuing an Addendum for this project soon?*

Response: No.

ATTACHMENT: Field Report and retro-fitted cap flashing information (9 pages)

Jensen Yorba Lott Inc.

Treadwell Arena Roof - Field Report

Date: **Aug 26, 2016**

Serving Alaska Since 1935

To: **Steve Tada**
CBJ Engineering

From: **Dan Fabrello**

RE: **Treadwell Roof**

Over the past year we have performed a range of test and repair work to the Treadwell Ice Arena roof using procedures outlined in our testing reports. The goal of these test procedures was to identify specific roof system leak types and address them by determining methods of repair to those areas to eliminate water intrusion. We have also identified additional leak points, specifically the standing seams between panels. Repair methods for these leaks have not yet been identified. We propose to work with a roofing contractor to test additional means and methods of sealing the leaking seams. Once an effective method is identified we can assist with determining how best to implement the repair over the entire roof.

On July 6th JYL Consultant Don Olberding with Dawson Construction, his staff and myself conducted additional spray testing to the roof at the Treadwell Ice Arena.

The areas of spray testing were limited to areas that were previously tested:

a. Recent roof flashing mockup placement on roof laps, west side of roof.
b. Previous roof laps at prior year's mockup work, east side of roof.
c. Original roof lap construction, west side of roof.

Sites spray tested in general were roof seams, roof panel laps and ribs that are adjacent or above interior roof insulation and vapor barrier seams. For ease of access to the underside of the roof panel seam a man lift was used to access the roof panels from below by gently opening the vapor barrier seam to allow visual observation. The spray testing of the panel seams, laps and ribs was performed with a garden hose and spray nozzle which was held at a slight angle and 24"-36" away and sprayed down the roof slope towards the seams, laps and roof panel stitch screws.

The scope of the additional testing outlined from the previous site report was generally followed to eliminate or pinpoint at the test sites the presence of water intrusion. Sealant used as part of the tests was applied to a roof panel lap area outside of the testing area. The test panel lap was wetted and sealant applied to verify the sealants ability to adhere directly to a wetted surfaces. The sealant application revealed that it did not always form a complete seal between the two

surfaces. The onsite test was modified at the test locations in which sealant was applied to the roof panel laps prior to wetting and spray testing to ensure that the applied sealant formed a complete seal between the metal roofing panels. The schedule for performing additional spray testing of the roof assembly's and methodology for the work was modified as follows.

It should be noted that if panel lap joints are not sealed along the lap joint water infiltration can be achieved immediately with the hose spray test.

1. Site 2, 3,4 & 5, spray testing:
   Single component polyacrylic elastomeric sealant was applied to the metal roofing panel laps, vertical seams and all accessible edges of panel lap by nozzle and without removing roof panel stitch screws. Spray test water was directed down the roof slope starting above the roof panel lap and working down the slope towards
   A. Roof panel lap fasteners
   B. Roof panel laps and seams (each side of vertical rib leg) starting above the panel lap continuing down the slop.

   The observations noted the presence or absence of water intrusion during the additional spray tests.

2. Investigation of the eave edge above the concession room and existing gutter flashing. It was determined that application of sealant along this connection would require partial removal of the existing gutters. Sealant was not applied to this edge. Spray tests were not performed to the eave edge due to space limitations. See Site 6 test.

Site 1:

I. Not tested.

Site 2:

I. Roof panel and installed flashing mock-ups were applied in previous site spray test. Roof panel lap joint and vertical edges at ribs were sealed with a bead of sealant. Spay test water was directed down the roof panel as described in item #1.A & B.
   a. Roof panel lap fasteners:
      No sign of water intrusion was detected.

   b. Roof panel laps and seams (each side of vertical leg):
      Water was detected on interior side of roof. Water intrusion did not appear to be from roof panel laps where sealant had been applied, (note these areas previously leaked when sprayed). The water intrusion detected appears to be coming from the panel ribs where the material laps and crimp onto each adjacent panel. Water intrusion appeared to be more prevalent at roof panel clip locations. The clips appear to be holding the panel crimp apart allowing water to enter the interior and travel down the underside of the panel rib.

c. The roofing panel crimps down the length of the roof vary on their tightness of crimp. It appears there are other locations other than crimps at panel clip that may be allowing water to infiltrate during wind and rain events.

Site 3:

I. Roof panel lap is existing and of original construction at this location with no prior repair work performed. Roof panel lap joint and vertical edges were sealed with a bead of sealant. Spay test water was directed down the roof panel as described in item #1.A & B.

a. Roof panel lap fasteners:
No sign of water intrusion was detected.

b. Roof panel laps and seams (each side of vertical leg):
Water was detected on interior side of roof. Water intrusion did not appear to be from roof panel laps where sealant had been applied, (note these areas previously leaked when sprayed). The water intrusion detected appears to be coming from the panel ribs where the material laps and crimp onto each adjacent panel. Water intrusion appeared to be more prevalent at roof panel clip locations. The clips appear to be holding the panel crimp apart allowing water to enter the interior and travel down the underside of the panel rib.

c. The roofing panel crimps down the length of the roof vary on their tightness of crimp. It appears there are other locations other than crimps at panel clip that may be allowing water to infiltrate during wind and rain events.

Site 4:

I. Roof panel lap previously re-butyl and crimped in prior year mockup work. Roof panel lap joint and vertical edges were sealed with a bead of sealant. Spay test water was directed down the roof panel as described in item #1.A & B.

a. Roof panel lap fasteners:
No sign of water intrusion was detected.

b. Roof panel laps and seams (each side of vertical leg):
Water was detected on interior side of roof. Water intrusion did not appear to be from roof panel laps where sealant had been applied, (note these areas previously leaked when sprayed). The water intrusion detected appears to be coming from the panel ribs where the material laps and crimp onto each adjacent panel. Water intrusion appeared to be more prevalent at roof panel clip locations. The clips appear to be holding the panel crimp apart allowing water to enter the interior and travel down the underside of the panel rib.

c. The roofing panel crimps down the length of the roof vary on their tightness of crimp. It appears there are other locations other than crimps at panel clip that may be allowing water to infiltrate during wind and rain events.

Site 5:

I. Roof panel lap previously re-butyl and crimped in prior year mockup work. Roof panel lap joint and vertical edges were sealed with a bead of sealant. Spay test water was directed down the roof panel as described in item #1.A & B.
   a. Roof panel lap fasteners:
      No sign of water intrusion was detected.
   b. Roof panel laps and seams (each side of vertical leg):
      Water was detected on interior side of roof. Water intrusion did not appear to be from roof panel laps where sealant had been applied, (note these areas previously leaked when sprayed). The water intrusion detected appears to be coming from the panel ribs where the material laps and crimp onto each adjacent panel. Water intrusion appeared to be more prevalent at roof panel clip locations. The clips appear to be holding the panel crimp apart allowing water to enter the interior and travel down the underside of the panel rib.
   c. The roofing panel crimps down the length of the roof vary on their tightness of crimp. It appears there are other locations other than crimps at panel clip that may be allowing water to infiltrate during wind and rain events.

Site 6:

I. Eave roof panels and roof rib seams were spray tested above the concession room and below site 4 & 5. Spray test water was directed down the roof slope starting approx 10 feet above the roof eave above the concessions room working down the slope to
   A. Roof panel eave and eave fasteners.
   B. Roof panel rib seams (each side of vertical leg) continuing down the slop to the eave edge.

The observations noted the presence or absence of water intrusion during the additional spray tests.

i. Roof panel laps at rib seams are existing and of original construction at this location with no prior repair work performed. No sealant was applied to panel rib seams. Spay test water was directed down the roof panel as described in item Site 6 I. A & B.
   a. Roof panel eave fasteners:
      No sign of water intrusion was detected.

   b. Roof panel seams (each side of vertical leg):

      Water was detected on interior side of roof. Water intrusion appears to be from roof panel rib seam laps. The water intrusion detected appears to be coming from the panel ribs where the material laps and crimp onto each adjacent panel. Water intrusion appeared to be more prevalent at roof panel clips. The clips appear to be holding the panel crimp apart allowing water to enter the interior and travel down the underside of the panel rib.

c. The roofing panel crimps down the length of the roof vary on their tightness of crimp. It appears there are other locations other than crimps at panel clip that may be allowing water to infiltrate during wind and rain events.

Images from Spray testing 7-6-16

Site 2, West Side, sealant applied, roof panel sprayed.

Site 3, West Side, sealant applied at existing, roof panel sprayed.

Site 4, East Side, sealant applied, northerly re-butyl and re-crimp panel sprayed.

Site 5, East Side, Southerly Re-butyl and re-crimp panel sprayed.

Site 5, panel leak approx 5 feet up from panel splice at purlin roof panel clip.

Typical spraying working down the panel towards panel lap joints, south side.

Typical spraying working down the panel towards panel lap joints, north side.

Roof panel area spray tested above concessions area.

Next Steps:

Previous investigation has identified the leak points on the roof, but effective corrective procedures have not been identified. We recommend that procedures for sealing the leaking standing seam joints be field tested. Once an effective corrective procedure is determined the design team can effectively identify the work for contractors to bid on. The following are investigative steps recommended:

It is recommended that mockup flashing embedded in butyl be placed at the roof panel laps. Once the flashing is inserted a placement of a single component polycarbon/polycarbonate elastoplastic sealant injected into each of the roof panel lap seams is recommended. Hand tool the sealant at each roof panel lap. Hand crimp roofing panel ribs at mockup flashing 24" each side of inserted flashing. At roof panel clip locations, if possible, inject the polycarbon/polycarbonate elastoplastic sealant into and between the upper and lower roof panel sections at each roof panel clip. Sealant should extend 24" each side of roof panel clip. Hand crimp roofing panel ribs approx 24"above and 24" below each roof panel clip along the length of the roof panel rib. The scope of mockup work would be limited to areas described in attached documents. Areas should be observed and monitored regularly for signs of water infiltration during high wind and rain events. Once repairs that eliminate water infiltration are identified a scope of work would be developed for contractor bidding.

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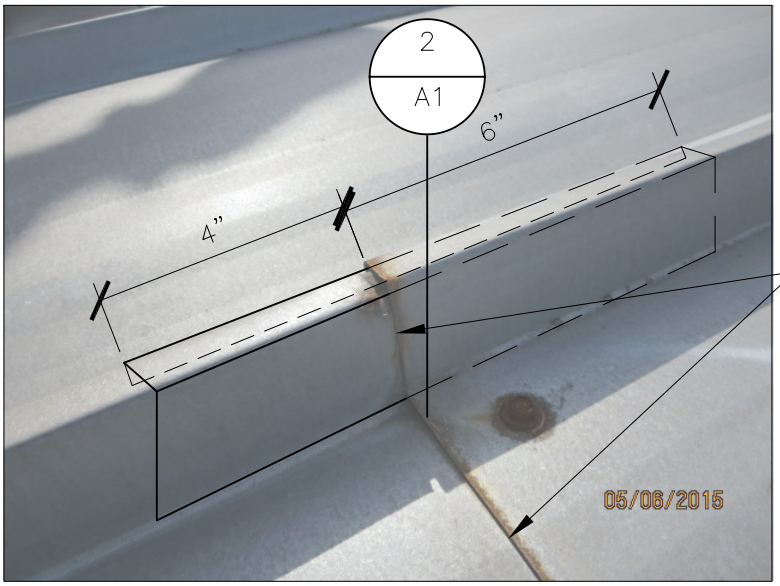
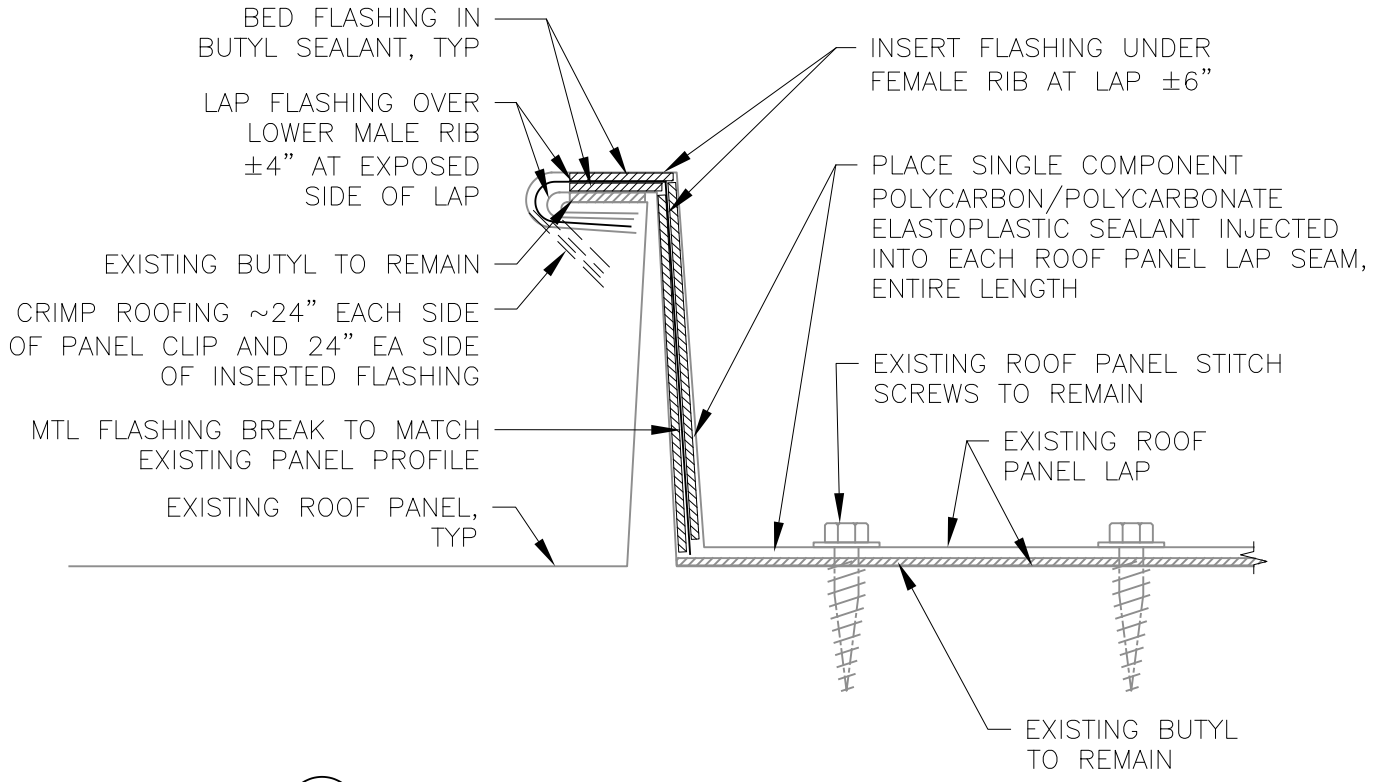


PLACE SINGLE COMPONENT POLYCARBON/POLYCARBONATE ELASTOPLASTIC SEALANT INJECTED INTO EACH ROOF PANEL LAP SEAM, ENTIRE LENGTH, TYP

1 NTS



2 ENDLAP SEAM SECTION

SCALE: 0 1/2” 1”

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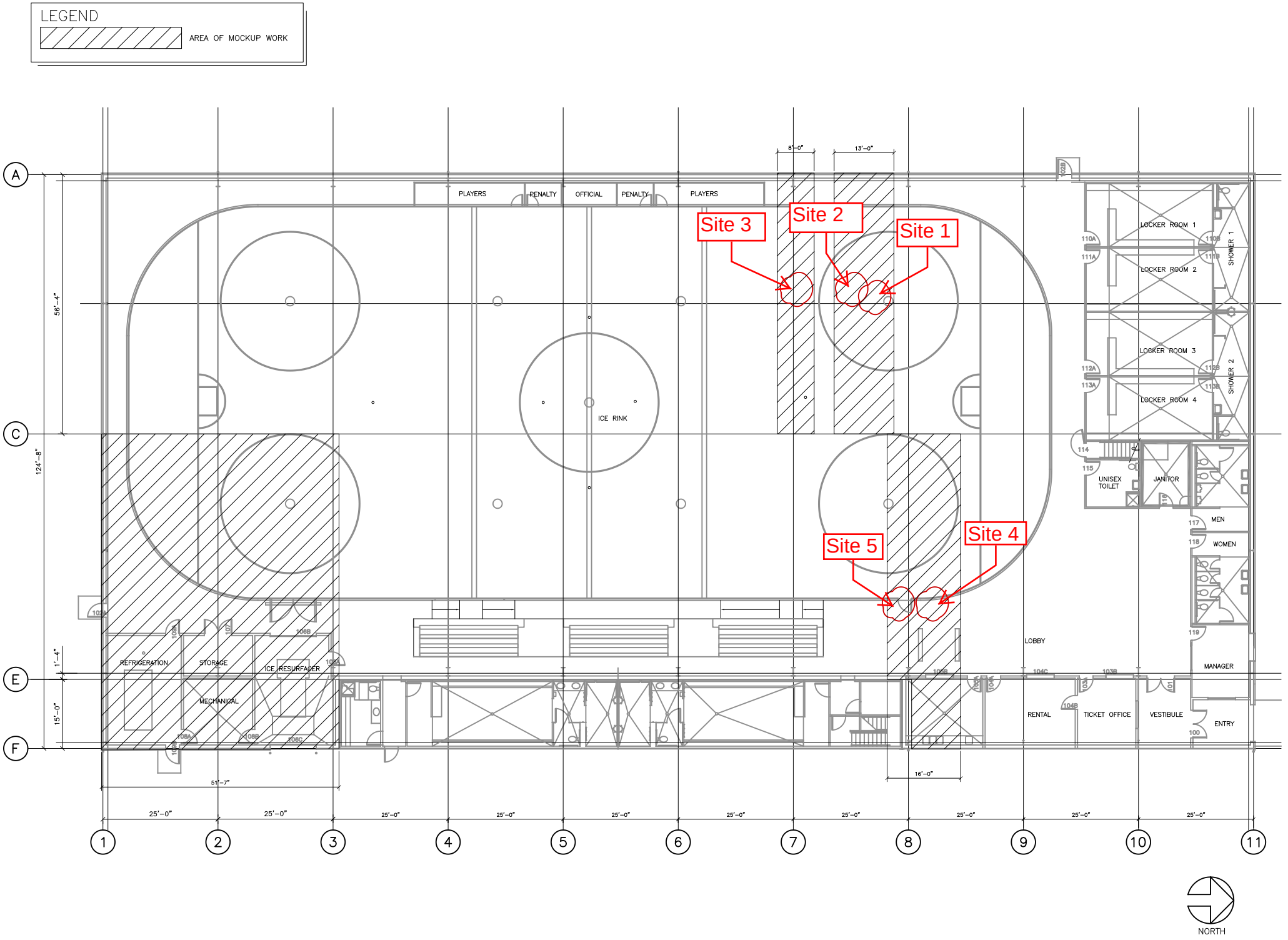
Typical Roof Endlap Flashing Mockup

TREADWELL ICE ARENA
LEAK REPAIRS DESIGN PH I
JUNEAU, ALASKA
8/25/16

A1


LEGEND
AREA OF MOCKUP WORK
Site 1
Site 2
Site 3
Site 4
Site 5
PLAYERS
PENALTY
OFFICIAL
PENALTY
PLAYERS
ICE RINK
LOCKER ROOM 1
LOCKER ROOM 2
LOCKER ROOM 3
LOCKER ROOM 4
SHOWER 1
SHOWER 2
UNISEX TOILET
JANITOR
MEN
WOMEN
MANAGER
LOBBY
RENTAL
TICKET OFFICE
VESTIBULE
ENTRY
REFRIGERATION
STORAGE
ICE RESURFACER
MECHANICAL
56'-4"
124'-8"
1'-4"
15'-0"
51'-7"
16'-0"
8'-0"
13'-0"
25'-0"
A
C
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F
1
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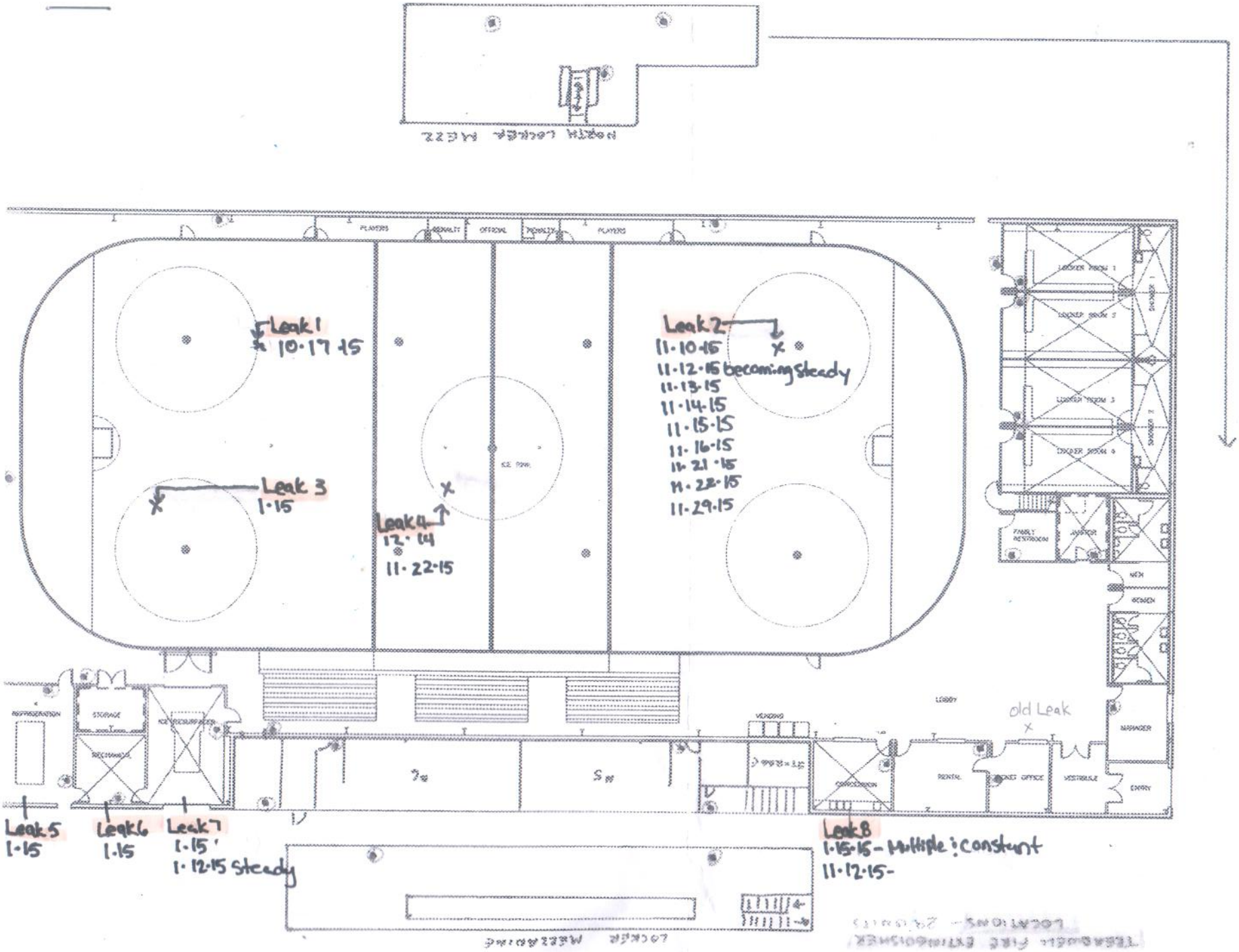
11
NORTH


Leak 1
10·17·15
Leak 2
11·10·15
11·12·15 becoming steady
11·13·15
11·14·15
11·15·15
11·16·15
11·21·15
11·22·15
11·29·15
Leak 3
1·15
Leak 4
12·14
11·22·15
old Leak
Leak 5
1·15
Leak 6
1·15
Leak 7
1·15
1·12·15 steady
Leak 8
1·15·15 - Multiple ; constant
11·12·15-