



MEMORANDUM

To: James Sears
Director, Facilities
Southcentral Foundation
jsears@southcentralfoundation.com

From: George Cvancara, EIT
Designer 1 – Alaska Office
gcvancara@reidmiddleton.com

Date: Thursday, November 30, 2023

Subject: 4320 Diplomacy Dr. – Roof Load Evaluation

Per your request, two staff from Reid Middleton visited 4320 Diplomacy Dr. on Tuesday, November 28, 2023. During the site visit, George Cvancara and Trevor Morton took four snow samples and one water measurement from the main roof.

Snow samples were taken from the roof at locations 1-4:



Figure 1: Aerial view of 4320 Diplomacy Drive and Locations of Measurements

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Table 1. Snow Measurement Values and Loads

Location	Snow Depth	Snow Load	Average Uniform Load
1 – Flat roof	9.5 in	14.0 psf	24.3 psf
2 – Drift against higher south roof	19.0 in	35.3 psf	
3 – Sitting water*	-	5.2 psf	
4 – Drift on parapet	18 in	23.4 psf	

*Load at this location is water weight; this load was not included in the average uniform load.

All locations measured were below the Municipality of Anchorage’s design flat roof snow load of 40 psf.

Location 3 has one inch of sitting water present likely due to melting from an adjacent exhaust fan. Sitting water appears to be widespread (see Figure 2). Other exhaust fans in the area do not appear to have a significant area of water buildup nearby.

One isolated area visually appeared to have snow loading greater than 40 psf (Location 5, see Figure 1). The snow at this location is dense and has iced over; as a result, we could not take a measurement. At this location, the high lobby monoslope roof is shedding snow and ice to the low roof adjacent to the west end of PCC1 (see Figure 3). Per the design drawings circa June 2002, the low roof is designed for drift; however, the west end of PCC1 was not designed for drift per the 1996 drawings.

Recommendations

Ensure roof drains remain free from ice and debris. Multiple roof drains near Location 2 had leaves building up at the drain (see Figure 4). The buildup of water at Location 3 is most likely due to a clogged drain. It is important to ensure that all roof drains remain operatable and should be periodically checked and cleared as needed.

At Location 5, remove the snow down to 2’-0” on PCC1 along its west parapet (see Figure 3 for reference); we suggest periodic checking of this location for snow spillage onto PCC1 and the snow should be removed to a depth of 2’-0”.

Additional snowfall accumulation will increase the snow load. Following a significant snow event, or a prolonged period of accumulation, it is recommended to either have the roof snow depths re-measured or have the snow removed to mitigate potential snow accumulation risks.

Please call if you have any questions.



Figure 2: Sitting Water near Exhaust Fan

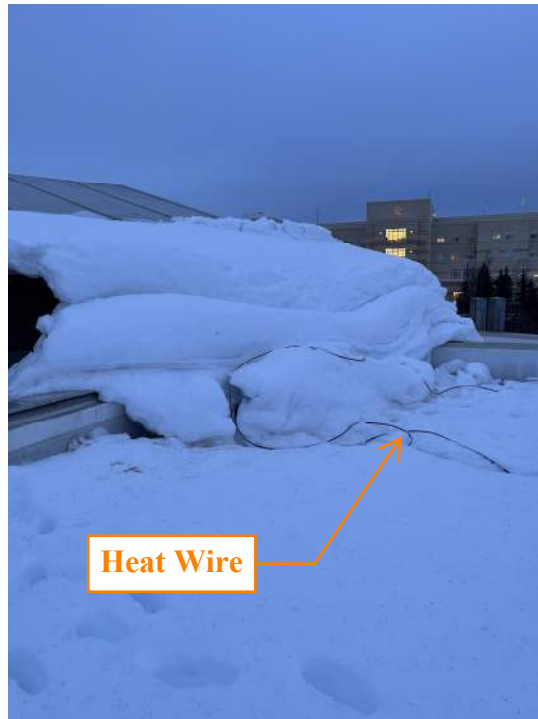


Figure 3: Sliding Snow from High Roof; Heat Wire Visible

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Figure 4: Drain Filled with Debris

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MEMORANDUM

To: James Sears
Director, Facilities
Southcentral Foundation
jsears@southcentralfoundation.com

From: Sean Carlson, EIT
Designer 1 – Alaska Office
smcarlson@reidmiddleton.com

Date: Wednesday, December 27, 2023

Subject: 4320 Diplomacy Dr.– Roof Load Evaluation

Per your request, two staff from Reid Middleton visited 4320 Diplomacy Dr. from 11:00 am to 11:30 am on Wednesday, December 27, 2023. During the site visit, Sean Carlson and George Cvancara took four snow samples from the main roof.

Four snow samples were taken from the roof at the following locations:



Figure 1: Aerial view of 4320 Diplomacy Dr.

Snow measurement values are documented in Table 1 below:

Table 1 – Snow Measurement Locations				
Location	Snow Depth	Snow Density	Snow Load	Average Uniform Load
1 – Flat Roof	19 in	16.7 pcf	31.7 psf	31.1 psf*
2 – Flat Roof	23 in	15.3 pcf	29.3 psf	
3 – Sliding Snow*	44 in	17.8 pcf	65.2 psf	
4- Drift at Parapet	25 in	15.5 pcf	32.3 psf	

*The average uniform snow load does not include the 65.2 psf snow load from location 3 as it is not typical of the rest of the roof

The sliding snow measured at location #3 is greater than the Municipality of Anchorage’s (MOA) minimum design roof snow load of 40 psf. Due to the steep slope of the roof directly above, the snow in this area will likely continue to build up as the year progresses.

Location #5 was not measured during this effort, however the sliding snow from the upper warped roof was being removed at the time of the site visit.

Recommendations

Continue to remove the snow from location #5 as the warped roof continues to shed snow.

At location #3, remove the sliding snow build-up.

Although location #1 and #4 are under design snow load, it is recommended that the roof be cleared of snow as a preventative measure against future snow events that will likely lead to snow accumulation exceeding design snow load.

For all locations, ensure roof drains remain free from ice. No icing of drains was observed at the time of the site visit. Given the heat transfer from the roofing, the drains should be periodically checked to ensure ice has not built up over the drains.

Additional snowfall accumulation will increase snow loads, and localized areas of the roof will approach or exceed the design load for roofs in Anchorage. Following a significant snow event, or a prolonged period of accumulation, it is recommended to either have the roof snow depths re-measured or have the snow removed to mitigate potential snow accumulation risks.

Please call if you have any questions.

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Figure 2: Roof Drain Clear of Ice Build-up.



Figure 3: Sliding Snow at Location #3.

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Figure 4: Sliding snow at Location #5.

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To: James Sears
Director, Facilities
Southcentral Foundation
jsears@southcentralfoundation.com

From: Sean Carlson, EIT
Designer 1 – Alaska Office
smcarlson@reidmiddleton.com

Date: Thursday, February 8, 2024

Subject: 4320 Diplomacy Dr.– Roof Load Evaluation

Per your request, a staff member from Reid Middleton visited 4320 Diplomacy Dr. on Thursday, February 8, 2024. During the site visit, Sean Carlson took twelve snow samples from the PCC1 and PCC2 roofs.

Twelve snow samples were taken from the roof at the following locations:



Figure 1: Aerial view of 4320 Diplomacy Dr.

Snow measurement values are documented in Table 1 below:

Table 1 – Snow Measurement Locations				
Location	Snow Depth	Snow Density	Snow Load	Average Uniform Load (FLAT ROOF ONLY)
1 – Flat Roof	32 in	16.0 pcf	41.0 psf	42 psf
2 – Drift at Parapet	33 in	14.7 pcf	40.5 psf	
3 – Drift at RTU	41 in	14.7 pcf	49.2 psf	
4- Snow Pile at RTU	39 in	14.7 pcf	50.9 psf	
5-Flat Roof	29 in	15.8 pcf	42.2 psf	
6-Flat Roof	29 in	15.3 pcf	42.1 psf	
7-Sliding Snow	51 in	19.6 pcf	83.1 psf	
8-Drifting Snow at Monoslope Skylight	35 in	16.6 pcf	48.8 psf	
9-Snow Pile	Snow pile too dense to take measurement			
10-Drift at Parapet	31 in	14.8 pcf	38.2 psf	
11-Flat Roof	30 in	14.7 pcf	36.7 psf	
12- Flat Roof	36 in	16.4 pcf	49.2 psf	

All locations measured either exceed or are close to exceeding the Municipality of Anchorage’s (MOA) minimum design roof snow load of 40 psf.

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Recommendations

It is recommended that the main roofs of PCC1 and PCC2 be entirely cleared of snow.

Due to the steep slope of the roof directly above, the snow measured at location (7) will likely continue to build up as the year progresses and it is recommended that this area be monitored throughout the rest of the season.

For all locations, ensure roof drains remain free from ice. No icing of drains was observed at the time of the site visit. Given the heat transfer from the roofing, the drains should be periodically checked to ensure ice has not built up over the drains.

Please call if you have any questions.



Image 1: Drifting Snow at RTU (location #3).

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Image 2: Drifting Snow at RTU (location #4).



Image 3: Sliding Snow Accumulation (location #7).

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Image 4: Drifting Snow at Monoslope Skylight Feature (location #8).

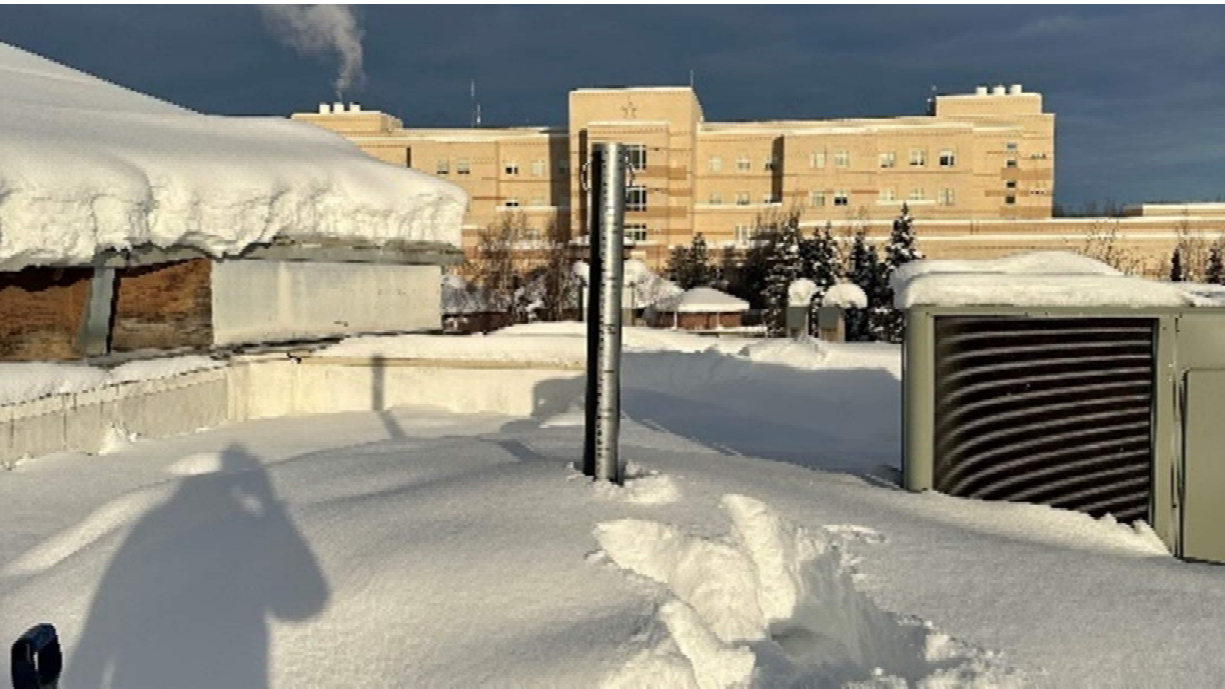


Image 5: Snow Pile Not Measured (location #9).

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