



Management Report



DEDA
AAR - Duluth Airbus Facility
4600 Stebner Rd., Duluth, MN

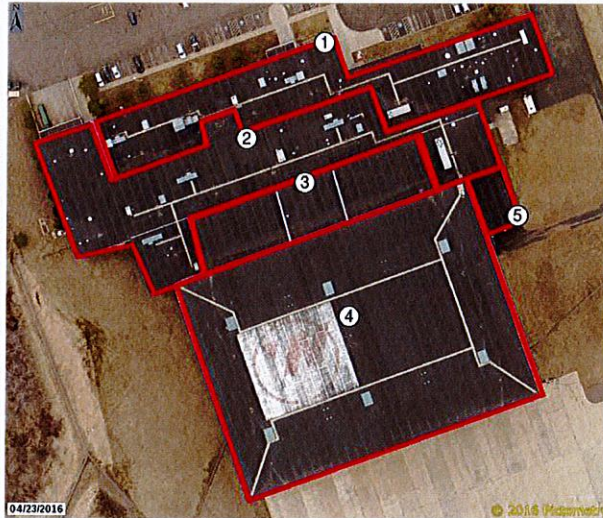
Prepared For
DEDA



DEDA

AAR - Duluth Airbus Facility
4600 Stebner Rd.
Duluth, MN

Site Overview



Total Sections: 5
Total Sq/Ft: 161,612

Map	Name	Sq/Ft	Est Install	Grade
1	Section 1	28,845	1996	C
2	Section 2	38,672	1996	D
3	Section 3	15,045	1996	C
4	Section 4	76,750	1996	D
5	Section 5	2,300	1996	C

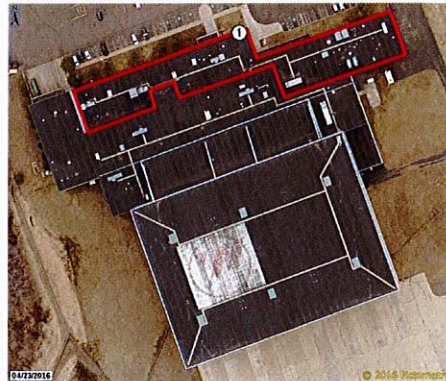
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AAR - Duluth Airbus Facility
4600 Stebner Rd.
Duluth, MN

Observations

Section: Section 1
Size: 28,845
Overall Grade: C

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



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Section Overview

Several areas of siding are still in need of replacement on this level



Section Overview



Observation 3



Observation 4

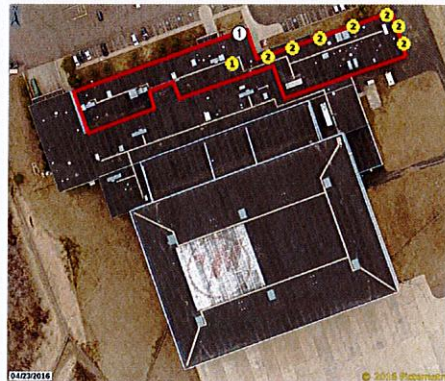
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AAR - Duluth Airbus Facility
4600 Stebner Rd.
Duluth, MN

Deficiencies

Section: Section 1
Size: 28,845
Overall Grade: C

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



- Site Overview
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- Budget Matrix



General - Annual Roof Maintenance & Repairs (Remedial)

Quantity: 28845 SF

Deficiency:

Roof system is in need of general roof maintenance and repair. We recommend yearly inspections and repairs to prolong the life of the roof system.

Corrective Action:

Walk entire roof section. Inspect field seams and penetration flashings. Check and clear all drains & scuppers. Clean roof surface of all natures debris (leaves, branches, dirt). Remove and dispose of any foreign debris (screws, trash, filters, belts, etc.) Check and caulk all vent stacks & storm collars as necessary.



General - Edge Flashing Failure (Remedial)

Quantity: 150 LF

Deficiency:

Roof membrane has separated or deteriorated from the metal edge detail.

Corrective Action:

Clean and prime area as necessary and install new material to ensure water tightness.

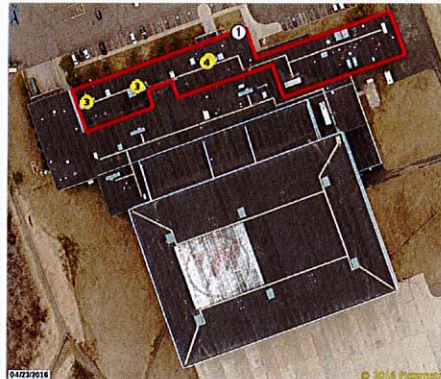
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AAR - Duluth Airbus Facility
4600 Stebner Rd.
Duluth, MN

Deficiencies (continued)

Section: Section 1
Size: 28,845
Overall Grade: C

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



General - Deteriorated Curb Flashing (Remedial)

Quantity: 80 LF

Deficiency:

Flashing details are starting to deteriorate and should be reinforced before they fail completely.

Corrective Action:

Strip in flashing with new pressure sensitive cover tape to ensure a long term watertight condition.



General - New Fluid Applied Membrane Budget (Remedial)

Quantity: 28845 SF

Deficiency:

Roof system is over 20 years old.

Corrective Action:

Furnish and install a new fluid applied membrane

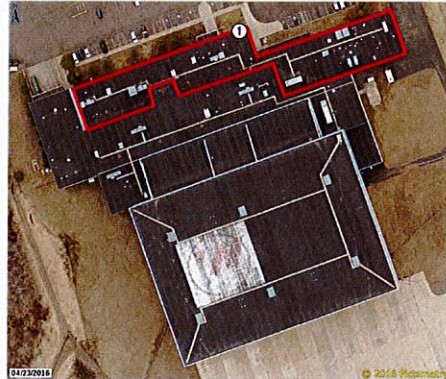
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AAR - Duluth Airbus Facility
4600 Stebner Rd.
Duluth, MN

Summary

Section: Section 1
Size: 28,845
Overall Grade: C

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



Condition Summary

Membrane: C
Flashings: C
Sheet Metal: C

Overall: C

Overall Grade
A = 10 Years or more of service life remaining
B = 8-10 Years of service life remaining
C = 5-7 Years of service life remaining
D = 2-4 Years of service life remaining
F = Less than 1 Year of service life remaining

Estimated Replacement: 2024

Recommendations

We recommend repairing the items noted in this report along with starting a semi annual maintenance agreement. Having the roof serviced in the spring will keep this roof serviceable for several years. Keeping the insulation dry is very important. It allows for a significant savings when it is time for a re-roof by being able to salvage the existing insulation. There are also VE options like a fluid applied membrane which is a seamless system that can be applied over the EPDM membrane. Based on our findings during our inspection, we recommend this roof section be replaced 3rd if all sections cannot be completed at once. Leaking is also present at the siding and windows which is not included in these budgets

Estimated Repair Costs: \$150,250.00

Estimated Replacement Costs: \$288,450.00

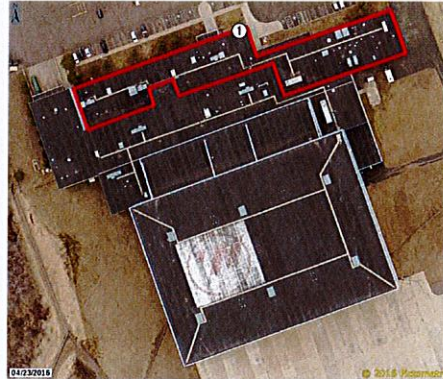
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AAR - Duluth Airbus Facility
4600 Stebner Rd.
Duluth, MN

Summary

Section: Section 1
Size: 28,845
Overall Grade: C

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



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1 - Section 1 (28,845 SF) Grade C

Deficiency	Qty	Emergency	Remedial	Replacement
Annual Roof Maintenance & Repairs	28845 SF		\$3,000.00	
Edge Flashing Failure	150 LF		\$2,250.00	
Deteriorated Curb Flashing	80 LF		\$1,000.00	
New Fluid Applied Membrane Budget	28845 SF		\$144,000.00	
Full Replacement	28,845 SF			\$288,450.00
Total		\$0.00	\$150,250.00	\$288,450.00

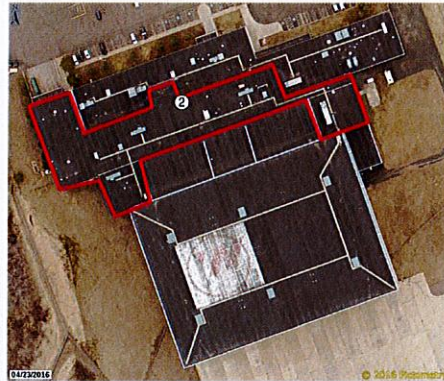
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AAR - Duluth Airbus Facility
4600 Stebner Rd.
Duluth, MN

Observations

Section: Section 2
Size: 38,672
Overall Grade: D

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



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- Observations
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Observation #1
Most of the field seams have been overlaid. There are still quite a few curbs and edge flashing to address



Observation #2
Siding should be installed on these walls to eliminate leaking



Observation #3



Observation #4

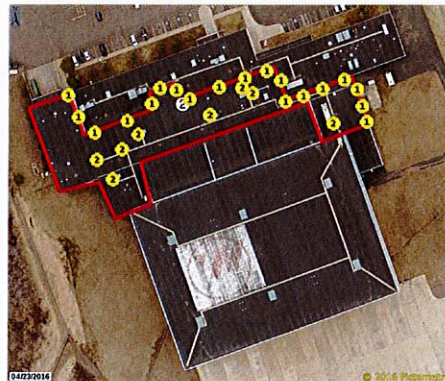
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AAR - Duluth Airbus Facility
4600 Stebner Rd.
Duluth, MN

Deficiencies

Section: Section 2
Size: 38,672
Overall Grade: D

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



General - Deteriorated Edge Flashing (Remedial)

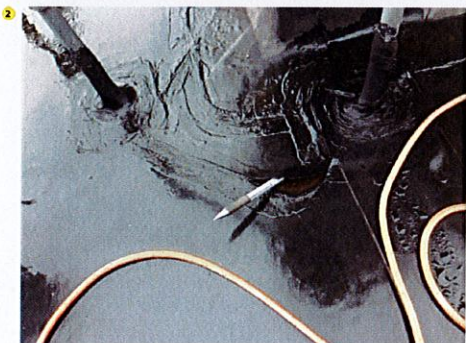
Quantity: 200 LF

Deficiency:

Roof membrane is starting to separate from the metal edge detail.

Corrective Action:

Clean and prime area as necessary and install new material to ensure water tightness.



General - Deteriorated Curb Flashing (Remedial)

Quantity: 400 LF

Deficiency:

Flashing details are starting to deteriorate and should be reinforced before they fail completely.

Corrective Action:

Strip in flashing with new pressure sensitive cover tape to ensure a long term watertight condition.

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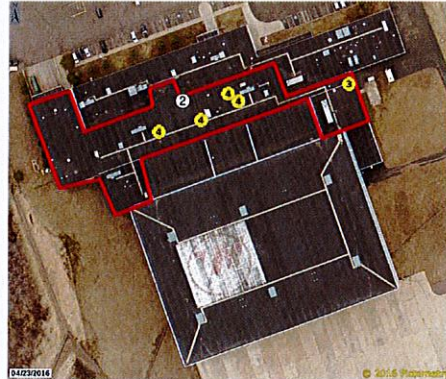
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AAR - Duluth Airbus Facility
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Deficiencies (continued)

Section: Section 2
Size: 38,672
Overall Grade: D

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



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General - Loose Wall Flashing (Remedial)

Quantity: 10 LF

Deficiency:

Wall flashing is no longer adhered to the expansion joint

Corrective Action:

Membrane would be cut and re-adhered to wall. New cover tape will be installed where membrane is cut.



General - Misc. Field Repairs (Remedial)

Quantity: 250 LF

Deficiency:

As a maintenance item, we strongly recommend you strip in field seams that are glued. Installing EPDM cover tape material over seams will greatly extend the service life of your roof system.

Corrective Action:

Clean and prime seam. Install and roll cover tape material to ensure water tight condition.

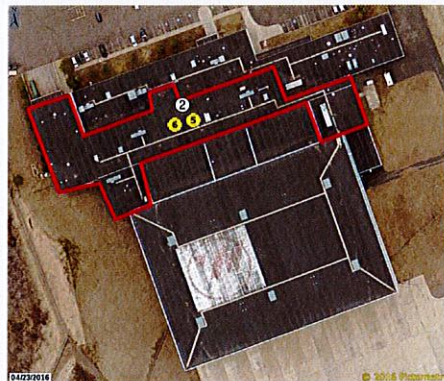
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AAR - Duluth Airbus Facility
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Duluth, MN

Deficiencies (continued)

Section: Section 2
Size: 38,672
Overall Grade: D

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



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General - Annual Roof Maintenance & Repairs (Remedial)

Quantity: 1 EA

Deficiency:

Roof system is in need of general roof maintenance and repair. We recommend yearly inspections and repairs to prolong the life of the roof system.

Corrective Action:

Walk entire roof section. Inspect field seams and penetration flashings. Check and clear all drains & scuppers. Clean roof surface of all nature's debris (leaves, branches, dirt). Remove and dispose of any foreign debris (screws, trash, filters, belts, etc.) Check and caulk all vent stacks & storm collars as necessary.



General - New Fluid Applied Membrane Budget (Remedial)

Quantity: 38672 SF

Deficiency:

Roof system is over 20 years old

Corrective Action:

Furnish and install a new fluid applied membrane

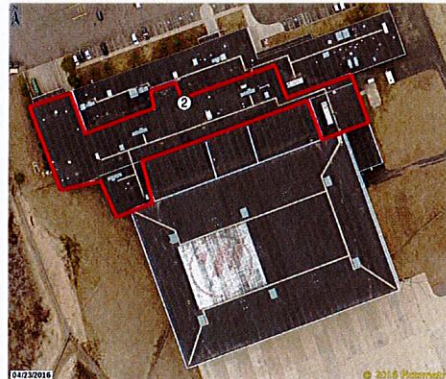
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AAR - Duluth Airbus Facility
4600 Stebner Rd.
Duluth, MN

Summary

Section: Section 2
Size: 38,672
Overall Grade: D

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



Condition Summary

Membrane: C
Flashings: D
Sheet Metal: C

Overall: D

Overall Grade

- A = 10 Years or more of service life remaining
- B = 8-10 Years of service life remaining
- C = 5-7 Years of service life remaining
- D = 2-4 Years of service life remaining
- F = Less than 1 Year of service life remaining

Estimated Replacement: 2022

Recommendations

We recommend continuing with annual maintenance and repairs on this section to prolong the serviceable life. All of the field seams have been addressed but there are still roof curbs, edge flashing, field patches to reinforce, target patches around roof drains, and loose wall flashing to address. We also noted the insulation to be solid at the time of inspection. A fluid applied membrane could be considered if the insulation continues to stay dry. Based on our findings during our inspection, we recommend this roof section be replaced 2nd if all sections cannot be completed at once.

Siding also needs to be addressed on this section. There has been ongoing leaks in the break room and locker rooms that are siding related.

Estimated Repair Costs: \$208,220.00

Estimated Replacement Costs: \$386,720.00

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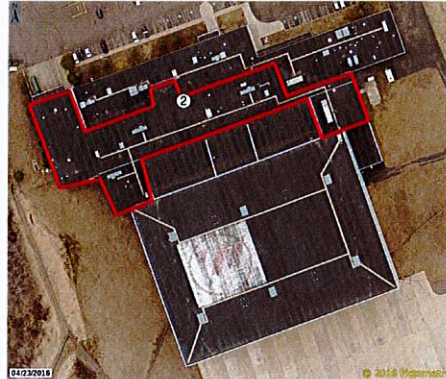
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AAR - Duluth Airbus Facility
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Duluth, MN

Summary

Section: Section 2
Size: 38,672
Overall Grade: D

Inspection Date: 10/10/2018
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2 - Section 2 (38,672 SF) Grade D

Deficiency	Qty	Emergency	Remedial	Replacement
Deteriorated Edge Flashing	200 LF		\$3,000.00	
Deteriorated Curb Flashing	400 LF		\$5,000.00	
Loose Wall Flashing	10 LF		\$220.00	
Misc. Field Repairs	250 LF		\$3,000.00	
Annual Roof Maintenance & Repairs	1 EA		\$4,000.00	
New Fluid Applied Membrane Budget	38672 SF		\$193,000.00	
Full Replacement	38,672 SF			\$386,720.00
Total		\$0.00	\$208,220.00	\$386,720.00

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AAR - Duluth Airbus Facility
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Duluth, MN

Observations

Section: Section 3

Size: 15,045

Overall Grade: C

Inspection Date: 10/10/2018

Inspector: Caleb Blomdahl



Observation #1
All the field seams have been stripped in on this section



Observation #2

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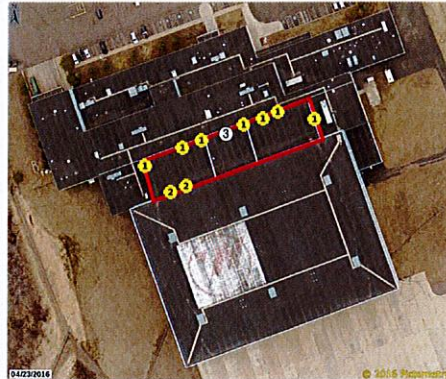
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AAR - Duluth Airbus Facility
4600 Stebner Rd.
Duluth, MN

Deficiencies

Section: Section 3
Size: 15,045
Overall Grade: C

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



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General - Loose Wall Flashing (Remedial)

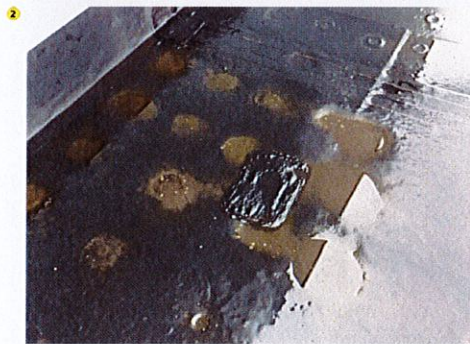
Quantity: 120 LF

Deficiency:

Wall flashing is no longer adhered to the wall.

Corrective Action:

Mechanically fasten new termination bar at parapet. New cover tape will be installed over the term bar.



General - Wet/Deteriorated Insulation (Remedial)

Quantity: 64 SF

Deficiency:

Insulation has become saturated do to water infiltration.

Corrective Action:

Remove entire area of damaged insulation. Install new insulation an waterproofing membrane to maintain a watertight condition.

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AAR - Duluth Airbus Facility
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Deficiencies (continued)

Section: Section 3
Size: 15,045
Overall Grade: C

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



General - New Fluid Applied Membrane Budget (Remedial)

Quantity: 15045 SF

Deficiency:

Roof system is over 20 years old

Corrective Action:

Furnish and install a new fluid applied membrane



General - Annual Roof Maintenance & Repairs (Remedial)

Quantity: 15045 EA

Deficiency:

Roof system is in need of general roof maintenance and repair. We recommend yearly inspections and repairs to prolong the life of the roof system.

Corrective Action:

Walk entire roof section. Inspect field seams and penetration flashings. Check and clear all drains & scuppers. Clean roof surface of all nature's debris (leaves, branches, dirt). Remove and dispose of any foreign debris (screws, trash, filters, belts, etc.) Check and caulk all vent stacks & storm collars as necessary.

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AAR - Duluth Airbus Facility
4600 Stebner Rd.
Duluth, MN

Summary

Section: Section 3
Size: 15,045
Overall Grade: C

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



Condition Summary

Membrane: C
Flashings: D
Sheet Metal: C

Overall: C

Overall Grade

A = 10 Years or more of service life remaining
B = 8-10 Years of service life remaining
C = 5-7 Years of service life remaining
D = 2-4 Years of service life remaining
F = Less than 1 Year of service life remaining

Estimated Replacement: 2025

Recommendations

All of the field seams have been addressed. We noted loose wall flashings around the perimeter and two areas of wet insulation. We recommend taking care of the walls and insulation sooner than later. This roof section does not see a lot of roof traffic and would be a great candidate for a fluid applied membrane. Based on our findings during our inspection, we recommend this roof section be replaced 4th if all sections cannot be completed at once.

Estimated Repair Costs: \$80,930.00

Estimated Replacement Costs: \$180,540.00

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AAR - Duluth Airbus Facility
4600 Stebner Rd.
Duluth, MN

Summary

Section: Section 3
Size: 15,045
Overall Grade: C

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



3 - Section 3 (15,045 SF) Grade C

Deficiency	Qty	Emergency	Remedial	Replacement
Loose Wall Flashing	120 LF		\$2,640.00	
Wet/Deteriorated Insulation	64 SF		\$1,290.00	
New Fluid Applied Membrane Budget	15045 SF		\$75,000.00	
Annual Roof Maintenance & Repairs	15045 EA		\$2,000.00	
Full Replacement	15,045 SF			\$180,540.00
Total		\$0.00	\$80,930.00	\$180,540.00

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AAR - Duluth Airbus Facility
4600 Stebner Rd.
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Observations

Section: Section 4
Size: 76,750
Overall Grade: D

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



Observation #1



Observation #2



Observation #3



Observation #4

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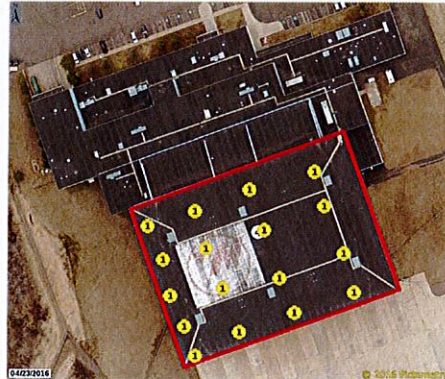
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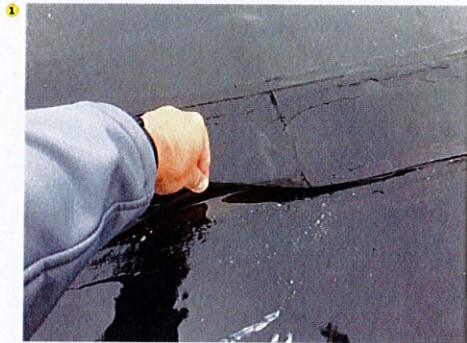
Deficiencies

Section: Section 4
Size: 76,750
Overall Grade: D

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



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1 General - Delaminated Field Seams (Remedial)

Quantity: 8000 LF

Deficiency:

Open seams in the waterproofing membrane are typically caused by failing seam adhesives coupled with membrane shrinkage and stress on the seams. The area where the Logo is painted on the roof has been deducted from the LF

Corrective Action:

The area surrounding the open seam must be cleaned. A new piece of waterproofing membrane would be installed and sealed per industry standards.



2 General - Delaminated field patching (Remedial)

Quantity: All EA

Deficiency:

Previous patchwork is peeling up and needs to be reinforced. This condition is around the roof drains as well

Corrective Action:

We will remove the existing repair, clean and prime area and install new patch to ensure water tightness.

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AAR - Duluth Airbus Facility
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Deficiencies (continued)

Section: Section 4
Size: 76,750
Overall Grade: D

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



General - Window and siding Sealant Failure (Emergency)

Quantity: 1 EA

Deficiency:

Windows and siding sealant has failed and is allowing water into the building.

Corrective Action:

Apply caulk to open window and siding sealant utilizing a manlift on the outside of the building at a cost of \$3500 per day.



General - New Fluid Applied Membrane Budget (Remedial)

Quantity: 76750 SF

Deficiency:

Maintenance has been deferred on this section but the substrate is still dry. We recommend installing a fluid applied membrane

Corrective Action:

Furnish and install a fluid applied membrane

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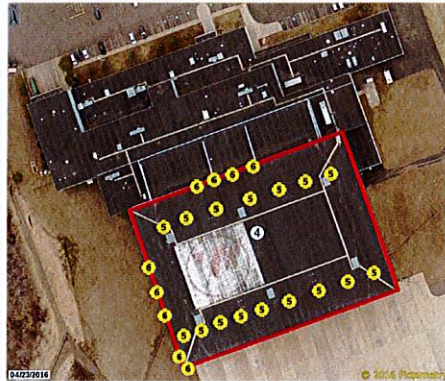
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AAR - Duluth Airbus Facility
4600 Stebner Rd.
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Deficiencies (continued)

Section: Section 4
Size: 76,750
Overall Grade: D

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



General - Open T-Joints (Remedial)

Quantity: 175 EA

Deficiency:

T-Joints are open and letting in water. T-joints are where the two field sheets come together.

Corrective Action:

Furnish and install new roof flashing over open t-joint



General - Loose Wall Flashing (Remedial)

Quantity: 150 LF

Deficiency:

Wall flashing is no longer adhered to the wall. This could have been caused by wind, moisture in the wall, or treated plywood. The base attachment appears to still be in place and functional.

Corrective Action:

Cut loose wall and allow it to relax. Install new termination bar at loose wall details. New cover tape will be installed over the term bar

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AAR - Duluth Airbus Facility
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Deficiencies (continued)

Section: Section 4
Size: 76,750
Overall Grade: D

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



General - Annual Roof Maintenance & Repairs (Remedial)

Quantity: 76750 EA

Deficiency:

Roof system is in need of general roof maintenance and repair. We recommend yearly inspections and repairs to prolong the life of the roof system.

Corrective Action:

Walk entire roof section. Inspect field seams and penetration flashings. Check and clear all drains & scuppers. Clean roof surface of all nature's debris (leaves, branches, dirt). Remove and dispose of any foreign debris (screws, trash, filters, belts, etc.) Check and caulk all vent stacks & storm collars as necessary.

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AAR - Duluth Airbus Facility
4600 Stebner Rd.
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Summary

Section: Section 4
Size: 76,750
Overall Grade: D

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



Condition Summary

Membrane: D
Flashings: D
Sheet Metal: D

Overall: D

Overall Grade

- A = 10 Years or more of service life remaining
- B = 8-10 Years of service life remaining
- C = 5-7 Years of service life remaining
- D = 2-4 Years of service life remaining
- F = Less than 1 Year of service life remaining

Estimated Replacement: 2020

Recommendations

This section is the highest priority to repair due to deferred maintenance. Field seams have not been addressed on this section and are starting to fail. We also noted some areas of loose walls that should be addressed right away to prevent further damage. We recommend addressing the field seams along with repairing the wall flashings. This section would also be a good candidate for a fluid applied membrane. The field seams would not need to be stripped in if you decided to move forward with this option. Based on our findings during our inspection, we recommend this roof section be replaced 1st if all sections cannot be completed at once.

Estimated Repair Costs: \$546,300.00

Estimated Replacement Costs: \$997,750.00

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AAR - Duluth Airbus Facility
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Summary

Section: Section 4
Size: 76,750
Overall Grade: D

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



4 - Section 4 (76,750 SF) Grade D

Deficiency	Qty	Emergency	Remedial	Replacement
Delaminated Field Seams	8000 LF		\$68,000.00	
Delaminated field patching	All EA		\$4,500.00	
Window and siding Sealant Failure	1 EA	\$0.00		
New Fluid Applied Membrane Budget	76750 SF		\$460,000.00	
Open T-Joints	175 EA		\$4,500.00	
Loose Wall Flashing	150 LF		\$3,300.00	
Annual Roof Maintenance & Repairs	76750 EA		\$6,000.00	
Full Replacement	76,750 SF			\$997,750.00
Total		\$0.00	\$546,300.00	\$997,750.00

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DEDA

AAR - Duluth Airbus Facility
4600 Stebner Rd.
Duluth, MN

Observations

Section: Section 5
Size: 2,300
Overall Grade: C

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



Section Overview



New wall panels have been installed

Site Overview
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Section 2
Section 3
Section 4
Section 5
Composition
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Budget Matrix
Deficiencies
Summary

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Deficiencies

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General - Roof Maintenance Program (Remedial)

Quantity: 2250 SF

Deficiency:

We highly recommend starting an annual Roof Maintenance Program. Routine roof maintenance helps prolong the life of the roof system.

Corrective Action:

Visually inspect the entire roof. Repair minor deficiencies as necessary. Check and clear all drains & scuppers. Clean roof surface of all natures debris (leaves, branches, dirt). Remove and dispose of any foreign debris (screws, trash, filters, belts, etc.) Check and caulk all vent stacks & storm collars as necessary. If any major issues are found, we will provide a proposal for repair.

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DEDA

AAR - Duluth Airbus Facility
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Duluth, MN

Summary

Section: Section 5
Size: 2,300
Overall Grade: C

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



Condition Summary

Membrane: C
Flashings: C
Sheet Metal: C

Overall: C

Overall Grade

- A = 10 Years or more of service life remaining
- B = 8-10 Years of service life remaining
- C = 5-7 Years of service life remaining
- D = 2-4 Years of service life remaining
- F = Less than 1 Year of service life remaining

Estimated Replacement: 2023

Recommendations

Field seams have been addressed on this section. Numerous field repairs have been made. We recommend annual inspections and maintenance. This section would be a good candidate for a fluid applied membrane which is a seamless spray or roll applied membrane. Based on our inspection, we recommend this section be replaced 5th if all sections cannot be completed at once.

Estimated Repair Costs: \$1,500.00

Estimated Replacement Costs: \$34,500.00

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DEDA

AAR - Duluth Airbus Facility
 4600 Stebner Rd.
 Duluth, MN

Summary

Section: Section 5
Size: 2,300
Overall Grade: C

Inspection Date: 10/10/2018
Inspector: Caleb Blomdahl



5 - Section 5 (2,300 SF) Grade C

Deficiency	Qty	Emergency	Remedial	Replacement
Roof Maintenance Program	2250 SF		\$1,500.00	
Full Replacement	2,300 SF			\$34,500.00
Total		\$0.00	\$1,500.00	\$34,500.00

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DEDA

AAR - Duluth Airbus Facility
4600 Stebner Rd.
Duluth, MN

Budget Matrix
 AAR - Duluth Airbus Facility
 Duluth, MN
 161,612 Sq/Ft



Overall Grade
 A = 10 Years or more of service life remaining
 B = 8-10 Years of service life remaining
 C = 5-7 Years of service life remaining
 D = 2-4 Years of service life remaining
 F = Less than 1 Year of service life remaining

1 - Section 1 (28,845 SF) Grade C
Projected Replacement: 2024

Deficiency	Qty	Emergency	Remedial	Replacement
Annual Roof Maintenance & Repairs	28845 SF		\$3,000.00	
Edge Flashing Failure	150 LF		\$2,250.00	
Deteriorated Curb Flashing	80 LF		\$1,000.00	
New Fluid Applied Membrane Budget	28845 SF		\$144,000.00	
Full Replacement	28,845 SF			\$288,450.00
Total		\$0.00	\$150,250.00	\$288,450.00

2 - Section 2 (38,672 SF) Grade D
Projected Replacement: 2022

Deficiency	Qty	Emergency	Remedial	Replacement
Deteriorated Edge Flashing	200 LF		\$3,000.00	
Deteriorated Curb Flashing	400 LF		\$5,000.00	
Loose Wall Flashing	10 LF		\$220.00	
Misc. Field Repairs	250 LF		\$3,000.00	
Annual Roof Maintenance & Repairs	1 EA		\$4,000.00	
New Fluid Applied Membrane Budget	38672 SF		\$193,000.00	
Full Replacement	38,672 SF			\$386,720.00
Total		\$0.00	\$208,220.00	\$386,720.00

3 - Section 3 (15,045 SF) Grade C
Projected Replacement: 2025

Deficiency	Qty	Emergency	Remedial	Replacement
Loose Wall Flashing	120 LF		\$2,640.00	
Wet/Deteriorated Insulation	64 SF		\$1,290.00	
New Fluid Applied Membrane Budget	15045 SF		\$75,000.00	
Annual Roof Maintenance & Repairs	15045 EA		\$2,000.00	
Full Replacement	15,045 SF			\$180,540.00
Total		\$0.00	\$80,930.00	\$180,540.00

4 - Section 4 (76,750 SF) Grade D
Projected Replacement: 2020

Deficiency	Qty	Emergency	Remedial	Replacement
Delaminated Field Seams	8000 LF		\$68,000.00	
Delaminated field patching	All EA		\$4,500.00	

Window and siding Sealant Failure	1 EA	\$0.00		
New Fluid Applied Membrane Budget	76750 SF		\$460,000.00	
Open T-Joints	175 EA		\$4,500.00	
Loose Wall Flashing	150 LF		\$3,300.00	
Annual Roof Maintenance & Repairs	76750 EA		\$6,000.00	
Full Replacement	76,750 SF			\$997,750.00
Total		\$0.00	\$546,300.00	\$997,750.00
5 - Section 5 (2,300 SF) Grade C				
Projected Replacement: 2023				
Deficiency	Qty			
Roof Maintenance Program	2250 SF		\$1,500.00	
Full Replacement	2,300 SF			\$34,500.00
Total		\$0.00	\$1,500.00	\$34,500.00
		Emergency	Remedial	Replacement
Budget Totals		\$0.00	\$987,200.00	\$1,887,960.00