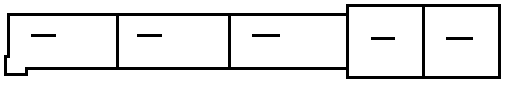
AEGIS Building Sciences, Inc

Roof Condition Report

Prepared for:

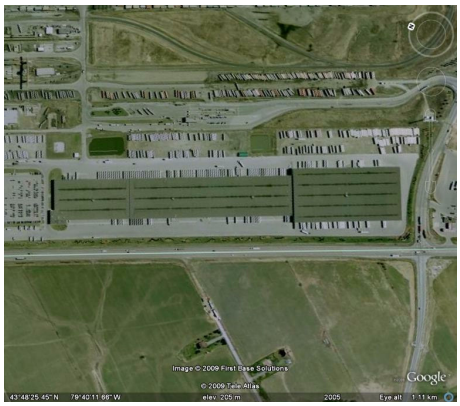
Robert Young
Vaughan Distribution Centre
Highway 50
Vaughan, Ontario

Vaughan Distribution Centre



Date: September 15, 2009

Facility: **Vaughan Distribution Centre**
Highway 50
Vaughan, Ontario



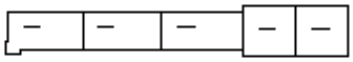
Contact Name: **Robert Young**

Contact Telephone:

Date of Last Inspection: **Sep, 2009**

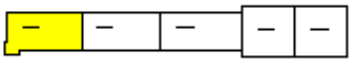
Type of Building: **Distribution Centre**

Type of Neighborhood: **Industrial**



List of Roof Sections						
Photo	Section/ Name/ Year installed	Sq. Ft.	Height	System Type	Condition Index	Estimated Replacement Value
	1.1-1.3 Lower 2000	547,500	35 ft.	Conventional BUR - Hot applied	fair	$6,570,000
	2.1-2.2 Upper Roof 2000	328,000	45 ft.	Conventional BUR - Hot applied	fair	$3,936,000
		875,50				$10,506,000

Designation:	**1.1-1.3**
Roof Name:	**Lower**
Roof Size:	**547,500 sq. ft.**
Est. Replacement Cost:	**$6,570,000**
Existing System Type:	**Conventional BUR - Hot applied**
Year Installed:	**2000**
Height:	**35 feet**
Slope:	**slope to valley**
Interior Sensitivity:	**normal**
Condition Index:	**fair**
Drainage:	**Adequate**
Currently Leaking?	**No**
History of Leaking?	**No**
Roof Condition Summary:	**Sept 2009**



areas of wind scour - bare felts
no indications of failure such as ridges or blister
no reports of membrane leaks
loose membrane flashings at firewall
debris on roof
pest bird population

Overall Core Condition

Roof membrane constructed to industry standards. Solid interply mopping

The ballast material is slag gravel. Slag gravel erodes and puts dirt in the rain water leaders

Core photos		
Photo	**Date**	**Description**
	**Sep 11, 2009**	**Core cut #1**

Existing Roof System Construction		
Layer Type	**Description**	**Method of Attachment**
Deck	**Metal**	
Vapor retarder	**Kraft paper**	**Cold adhesive**
Insulation	**1.5 isocyanurate R 10**	**Hot asphalt**
Cover Board	**1/2 Fibreboard**	**Hot asphalt**
Membrane	**BUR - 4 ply**	**Hot asphalt**
Surfacing	**slag gravel**	

Overall Roof Inspection Assessments			
Date	**Inspection Type**	**Inspecting Company**	**Inspector Name**
Sep, 2009	**Roof Survey**	**Aegis Building Sciences**	**Alistair Wilson B.Sc.**

Introduction

A roof survey of this roof system was performed during the week of Sept 11, 2009 The purpose of this survey was to determine the present condition of the roof systems on this facility. The following diagnostic procedures were employed to determine the condition of the roof system:

1) Visual inspection of the interior of the facility to determine areas of leakage
2) Visual inspection of the roof surface to ascertain membrane anomalies
3) Core cut testing to determine roof system composition
4) Electrical capacitance testing of the roof system to determine areas of wet roof system

Overall Roof Inspection Assessments continued...			
Date	**Inspection Type**	**Inspecting Company**	**Inspector Name**

5) Probe tests of roof system to determine moisture content of roof system.

The roof system is a conventional asphalt built up roof system (BUR) that has been in service for approximately ten years. It was reported that the roof system has leakage at the time of inspection . The roof area has a slight slope to valley where the drains are located. Ponding on the roof membrane was not observed at the time of inspection. There was no report of roof membrane leakage at the time of inspection.

The results of the core cut test, it was observed that the roof system consists of:

-metal deck
-vapour barrier- kraft
-1.5 isocyanurate insulation R 10
-4 ply asphalt BUR utilizing #15 organic felts.
-pea gravel ballast 400 -600lbs/square slag gravel

The roof membrane consists of a convention buuilt up roof membrane utilizing 4 plies of #15 organic felt. The built up roof membrane was constructed to industry standards with a solid interply mopping of asphalt. There is a substanatial pour coat on the roof membrane surface indicating a good membrane application.

Slag gravel was used to ballast the roof. This material is very porous and erodes quickly, as it does so, the debris washes down into the drains and can plug the rainwater leaders. This facility drains to a nearby lake and therefore it is unlikely that the gravel ballast will contribute to blocked rain water leaders.

The results of the visual inspection, it was observed that the roof membrane does not contain indications of failure such as ridges or blisters in any area of the roof. There are several areas of wind scour on the roof. The exposed bitumen in these two areas, if left unattended will quickly fail resulting in leakage. These areas are will require repour and repair.

The roof area uses overflow scuppers which are located along the north wall. These scuppers have exposed bitumen and will eventually fail. These scupper details require the installation of modified bitumen flashings.

The furnace stacks were inspected and all sealants are observed to be sound at the time of inspection. The sealants used on the furnace stacks will require replacement in the future.

Inspection of the flashing membrane used at the firewall between roof areas 1.1 and 1.2, it was observed that the modified bitumen flashings have become separated from the substrate. Left unattended these will be blown off during an extreme weather event. These membrane flashings will require repairs.

Overall Roof Inspection Assessments continued...			
Date	**Inspection Type**	**Inspecting Company**	**Inspector Name**

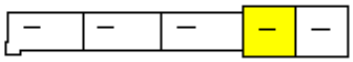
The roof system was scanned using electrical capacitance results of the scan did not reveal the presence of any areas of wet insulation in any area of the roof

Conclusions:

The built up roof membrane system at the the on roof areas 1.1, 1.2 and 1.3 of the Vaughan Distribution Centre are in a sound condition and will provide several years of addtional years of reliable service. The roof system will require the implementation of maintenance procedures and membrane repairs and the locations noted in the report. The roof system is to be inspected in three years time for indications of premature failure such as ridges or blisters.

Recommendations - Details					
Budget Year	**Type of Activity**	**Action Item?**	**Allocation**	**Urgency**	**Budget $**
Details					
2009	**Repair**				**$15,000**
SCOPE OF WORK **1) Clean drain screens** **2) remove debris from roof area** **3) repour wind scoured areas of roof** **4) repair loose membrane flashings at firewall between 1.1 and 1.2** **5) install modified bitumen membrane at all overflow scupper locations.**					
2012	**Inspection**				**$1,000**
Scope of Work **1) Maintenance inspection.**					
					$16,000

Designation:	**2.1-2.2**
Roof Name:	**Upper Roof**
Roof Size:	**328,000 sq. ft.**
Est. Replacement Cost:	**$3,936,000**
Existing System Type:	**Conventional BUR - Hot applied**
Year Installed:	**2000**
Height:	**45 feet**
Slope:	**slope to valley**
Interior Sensitivity:	**normal**
Condition Index:	**fair**
Drainage:	**Adequate**
Currently Leaking?	**No**
History of Leaking?	**No**
Roof Condition Summary:	**Sept 2009** **areas of wind scour - bare felts** **no reports of membrane leakage** **no areas of wet insulation**



Overall Core Condition
The built up roof membrane was constucted to good industry standards. **There is a solid pour coat applied and the interply moppings are to industry standards** **The slag gravel used to ballast the roof will erode quickly**

Core photos		
Photo	**Date**	**Description**
	**Sep, 2009**	**Core Cut Test**

Existing Roof System Construction		
Layer Type	**Description**	**Method of Attachment**
Deck	**Metal**	
Vapor retarder	**Kraft paper**	
Insulation	**1.5 Isocyanurate**	
Cover Board	**1/2 Fibreboard**	
Membrane	**BUR - 4 ply**	
Surfacing	**slag gravel**	

Overall Roof Inspection Assessments			
Date	**Inspection Type**	**Inspecting Company**	**Inspector Name**
Sep, 2009	**Roof Survey**	**Aegis Building Sciences**	**Alistair Wilson B.Sc.**

Introduction

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Overall Roof Inspection Assessments continued...			
Date	**Inspection Type**	**Inspecting Company**	**Inspector Name**

5) Probe tests of roof system to determine moisture content of roof system.

The roof system is a conventional asphalt built up roof system (BUR) that has been in service for approximately ten years. The roof area has a slight slope to valley where the drains are located. Ponding on the roof membrane was not observed at the time of inspection. There was no report of roof membrane leakage at the time of inspection.

The results of the core cut test, it was observed that the roof system consists of:

-metal deck
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Slag gravel was used to ballast the roof. This material is very porous and erodes quickly, as it does so, the debris washes down into the drains and can plug the rainwater leaders. This facility drains to a nearby lake and therefore it is unlikely that the gravel ballast will contribute to blocked rain water leaders.

The results of the visual inspection, it was observed that the roof membrane does not contain indications of failure such as ridges or blisters in any area of the roof.

There are several areas of wind scour on the roof. The exposed bitumen in these two areas, if left unattended will quickly fail resulting in leakage. These areas are will require repour and repair.

The roof system was scanned using electrical capacitance results of the scan did not reveal the presence of any areas of wet insulation in any area of the roof

Debris has been left on the roof from maintenance operations and will require removal.

Conclusions:

The built up roof membrane system on Roof Areas 2.1 and 2.1 at the the Vaughan Distribution Centre are in a sound condition and will provide several years of addtional years of reliable service. The roof system will require the implementation of maintenance procedures and membrane repairs at the locations noted in the report.

Overall Roof Inspection Assessments continued...			
Date	**Inspection Type**	**Inspecting Company**	**Inspector Name**
The roof system is to be inspected in three years time for indications of premature failure such as ridges or blisters.			

Recommendations - Details					
Budget Year	**Type of Activity**	**Action Item?**	**Allocation**	**Urgency**	**Budget $**
Details					
2009	**Repair**				**$5,000**
Scope of Work **1) Repour areas of bare felt** **2) install new sealants at transition wall** **3) remove debris from roof.** **4) install man cage at access ladder**					
2012	**Inspection**				**$1,000**
Scope of Work **1) Maintenace Inspection**					
					$6,000