APPENDIX I
LEVEL 1 ENERGY AUDIT

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ASHRAE Level 1 Energy Audit

November 5, 2010

NEWPORT NEWS-WILLIAMSBURG INTERNATIONAL AIRPORT

Newport News, VA

RS&H Project No. 201-1003-000

Prepared For:

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LIMITATIONS

This energy audit was conducted following standard practices and guidelines. Regardless of the thoroughness of any energy audit, it is possible that some areas containing visible mold growth, water damage, and/or elevated moisture content or other indicators of poor indoor air quality were inaccessible or not evident during the visual inspections.

The findings and recommendations included represent conditions evident at the time of the energy audit. Building conditions related to indoor air quality and energy usage may be subject to change on a daily basis, particularly after catastrophic events. Therefore, the conditions observed and reported herein may not be evident in the future. If additional information becomes available which may affect RS&H's findings and recommendations, we request the opportunity to evaluate the information and modify our findings and recommendations as appropriate.

RS&H has endeavored to meet what it believes is the applicable standard of care ordinarily exercised by others in conducting this energy audit. No other warranty, express or implied, is made regarding the information contained in this report.

This report has been prepared for the sole and exclusive use of the client subject to previously agreed-upon terms and conditions. This report may not be suitable for the needs of others. Therefore, any reliance by other parties on the contents of this report is not granted and any such reliance shall be at the sole risk of the user.

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EXECUTIVE SUMMARY

Newport News-Williamsburg International Airport's existing terminal opened in 1992. Since that time, the airport has experienced strong growth in passenger and airline activity that has far outpaced the national average Excellent facilities, competent management, and strong leadership have combined to make Newport News-Williamsburg International Airport an economic engine for Newport News and the surrounding region. To keep pace with its strong growth, the airport has undertaken a recent expansion. The terminal has been improved to add capacity and maintain a high level of service. In 2010 Concourse A was added to the terminal. This recent airside expansion has provided the necessary capacity to accommodate the airside activities into the foreseeable future.

As part of the Airport's Master Plan update RS&H conducted an ASHRAE Level 1 Energy Audit to identify several energy conservation opportunities at the airport. Upon completion of the inspection, RS&H is confident that the Newport News-Williamsburg International Airport has several no cost and low cost energy conservation opportunities it can pursue. These opportunities will support the Airport's continued growth and economic benefit to the region and are summarized in this report.

From July 2008 through July 2009, the airport spent $426,141 for electricity, $97,140 for gas, and $45,235 for water for a total utility cost of $568,516. From July 2009 through July 2010, the airport spent $298,350 for electricity, $59,585 for gas, and $45,115 for water for a total utility cost of $403,050. This trend suggests that the airport may have implemented certain energy conservation measures that have reduced the utility costs. Never the less, it appears that the potential savings of the no cost/low cost measures identified in this report amount to approximately 25% of the 2009/2010 electric consumption, or approximately $100,000 per year. These savings are based on the current cost of electricity ($0.069/kWh). It is anticipated that the cost of electricity will increase over time. If the cost of electricity increases, these projected savings will increase correspondingly.

These savings could be re-invested in capital improvement projects, such as the replacement of the existing air handling units (AHU) that are nearing the end of their useful life. Based on a replacement cost of approximately $200,000 per AHU, it's expected that the airport could save enough money in two years to replace a unit. Three major units could be replaced over the next six years. Upon the completion of this Capital Improvement it's anticipated that through higher efficiency units, a savings of approximately 10% to 20% could be realized, or $40,000 to $80,000 per year. These savings would be in addition to the savings outlined in the third paragraph of this section.

RS&H recommends that the airport consider conducting retro-commissioning of the existing HVAC, electrical, and plumbing systems. Although the airport is currently installing variable frequency drives on the existing air handling unit supply fans and may replace the existing air handling units, this may not occur for several years. By conducting retro-commissioning it is likely that energy savings of between 10% and 20% can be achieved in the interim.

1. PURPOSE FOR STUDY

The purpose of this ASHRAE Level I Energy Audit is to evaluate utility usage and billing, observe how the energy using systems are operated and maintained, and to develop no cost/low cost recommendations to improve efficiency and reduce utility consumption at the Newport News-Williamsburg International Airport.

1.1. INVESTIGATIVE WORK

RS&H visited the site on 14 September 2010 and on 28 September 2010. The team of RS&H utility survey inspectors included David F. Nafie, AICP, LEED AP, Project Manager and Jim A. McClellan, PE, LEED AP, Certified Energy Manager (CEM). The RS&H utility survey inspection consisted of visual observations, maintenance staff interviews and a survey of existing HVAC equipment and other energy using equipment (such as computers, copy machines, fax machines, refrigerators, light fixtures, and hot water heaters).

1.2. METHODS & OBSERVATIONS

A visual inspection of accessible areas of the terminal, the Aircraft Rescue Fire Fighting station (ARFF), and the maintenance building was conducted. The existing HVAC systems, electrical systems, the lighting, and the domestic water systems were inspected. Although the equipment has been well maintained, it can be upgraded to improve the efficiencies of the HVAC systems and the lighting.

All existing HVAC units appeared to be operating during the visit; however, it was observed that several are not operating in the manner that they were designed.

2. SUMMARY OF POTENTIAL UTILITY CONSERVATION OPPORTUNITIES

Utility Conservation Opportunities (UCO)

UCO Description	Annual Energy or Water Savings	Potential Savings per Year	Replacement Cost*	Simple Payback (years)
Replace T12 lamps with T8 lamps & electronic ballasts	418,180 kWh	$25,100	$40,000	1.60
Reset space temperatures to 65ºF winter and 78ºF summer	669,100 kWh	$40,150	NO COST	IMMEDIATE
De-lamping	278,784 kWh	$16,725	$10,000	0.60
Replace lavatory aerators		$10,000	$2,500	0.30
Totals	1,366,064 kWh	$91,975	$52,500	0.57

*** Costs may vary**

3. UTILITY CONSERVATION OPPORTUNITIES (UCO' s)

3.1. SUMMARY & RECOMMENDATIONS

The following are a summary of the no cost/low cost UCO's for the Newport News-Williamsburg International Airport:

1. Replace the existing T12 lamps and magnetic ballasts with T8 lamps and electronic ballasts.
2. Delamp several areas.
3. Adjust HVAC systems so that they maintain proper temperature and humidity in the ticketing area.
4. Adjust temperature set points to maintain ASHRAE standards in the administrative areas.
5. Reduce the temperature set points in the winter and increase the temperature set points in the summer in the occupied area.
6. Install occupancy sensors and photo cells to control lighting in the office areas.
7. Install low flow aerators on the restroom lavatory faucets.
8. Reduce domestic hot water temperature from 140F to 120F.
9. Change incandescent lamps to CFL's.

(A complete list of No Cost/Low Cost recommendations are listed in Appendix D.)

No Cost, Low Cost and Capital Improvements

Suggested Measures	Type	Complete ♦
Turn HVAC temperatures up at night in the summer and down at night during the winter and during other unoccupied times. The energy use per SF can be high and right now a lot of that is electric. Some of that energy goes to air conditioning and heating for an unoccupied area in the Lower Level of Concourse A. Envelope loads are a focus for long term improvement and are discussed separately in the Strategic Measures section. Until the envelope improvements are done, the options to reduce electric bills are to adjust temperature settings and turn air conditioning systems to a higher setpoint at night during the summer months and a lower setpoint in the winter. Whether through automation or manual control, turning things off is the top recommendation. In many areas the HVAC equipment is left running continuously, with its attendant ventilation. This results in air conditioning energy expended continuously. Ideally, HVAC systems would turn back at night with ventilation dampers closed and exhaust fans turned off. A "night setup" temperature would exist (say, 78ºF in the summer and 65ºF in the winter) and HVAC air conditioning systems would re-start intermittently to keep the temperature from falling below that value (with ventilation dampers closed and exhaust fans still off). An "occupied" mode would exist and equipment would start an hour or two before business hours to cool and or heat the building. Ventilation dampers would open and exhaust fans would start after the morning warm-up/cool-down period when the occupied period begins. Comparing this description of a basic occupancy control strategy to what is currently going on will lead to opportunities for energy savings. ***By adjusting temperatures, energy savings of approximately 20% can be achieved. Based on a total of 5,575,680 kWh, HVAC represents approximately 60% of the total use, or approximately 3,345,410kWh. A 20% savings would represent savings of 669,100 kWh or a savings of $40,150. This would create an immediate payback since they're would not be any installation costs.***	No Cost	

Suggested Measures	Type	Complete ♦
De-lamping Foot candle (FC) measurements throughout the terminal ranged from: 80FC at the TSA exit from Concourse A, 35 FC to 80 FC in offices and 250 FC in the ticketing area. Lighting design guides indicate the following ranges: 25 to 30 FC for circulation, 75 to 85 FC for general and perimeter areas. Consequently, savings of up to 15% to 20% may be realized by de-lamping these areas until their FC measurements fall into the guidelines. ***Delamping in several areas is projected to save about 20% of the total lighting costs. Based on a total of 5,575,680 kWh, lighting represents approximately 25% of the total use, or approximately 1,393,920 kWh. A 20% savings would represent a savings of 278,784 kWh, or a savings of $16,725 per year. Although there wouldn't be any material costs, a small labor cost of $10,000 to remove the lamps was used for the ROI calculation.***	Low Cost	
Replace lavatory aerators with 0.5 gallon per minute (gpm) aerators. Current aerators are rated at 1.5 gpm, so the water/sewer/electric cost associated with hand washing water would be reduced to 25% of current values. ***Approximate savings of 25% of total water costs would yield approximately $10,000 saving per year. Using a replacement cost of approximately $2,500, the ROI would be 3 months.***	Low Cost	
Replace door seals on all exterior doors. For these high traffic doors, seal wear occurs rapidly. Include the door sweep as one of the seals to be replaced. ***With installation of new weather stripping on the doors, infiltration of outdoor air and exfiltration of conditioned air will be controlled. This could result in approximately 5% to 10% savings, or an additional $10,000 in potential savings. Using a replacement cost of approximately $2,500, the ROI would be 3 months.***	Low Cost	
Clean HVAC coils and ensure no filter air bypassing. Dirty air cooling/heating coils impede heat transfer and increase energy use. This applies to all areas with cooling/heating coils. The air handling unit filters should be cleaned and the filters replaced on a regular basis.	Low Cost	
Replace air filters Replace air filters every three months.	Low Cost	

Suggested Measures	Type	Complete ♦
Replace T12 lamps and magnetic ballasts with T8 lamps and electronic ballasts Replace existing T12 lamps and magnetic ballasts with T8 lamps and electronic ballasts. It is anticipated that this will save approximately 30% of the electrical consumption for lighting. ***Lighting represents approximately 25% of the electrical usage. Based on the previous 12 months usage of 5,575,680 kWh, lighting represents approximately 1,393,920 kWh. A 30% savings would represent a savings of 418,180 kWh. A savings of approximately $25,100 could be realized. At an installation cost of approximately $40,000 a simple payback of 1.6 years can be achieved.***	Low Cost	
Replace existing air handling units Replacing the existing air handling units with units with higher efficiency units could potentially save an additional 10% to 20%, or approximately ***$40,000 to $80,000 per year.***	Capital Improvement	

4. BUILDING PROFILE

4.1. GENERAL DESCRIPTION

The Newport News-Williamsburg International Airport Terminal was originally constructed in 1992 with the Airside Concourse A Expansion completed in 2010. The terminal is composed of a two story structure. The airport's weekly operating hours are listed in Table 1.

Table 1. Airport Weekly Operating Hours

Times	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total Hrs.
Business								
Open	0600	0600	0600	0600	0600	0600	0600	112
Closed	2200	2200	2200	2200	2200	2200	2200	
Maintenance								
Start	0500	0500	0500	0500	0500	0500	0500	126
Finish	2300	2300	2300	2300	2300	2300	2300	

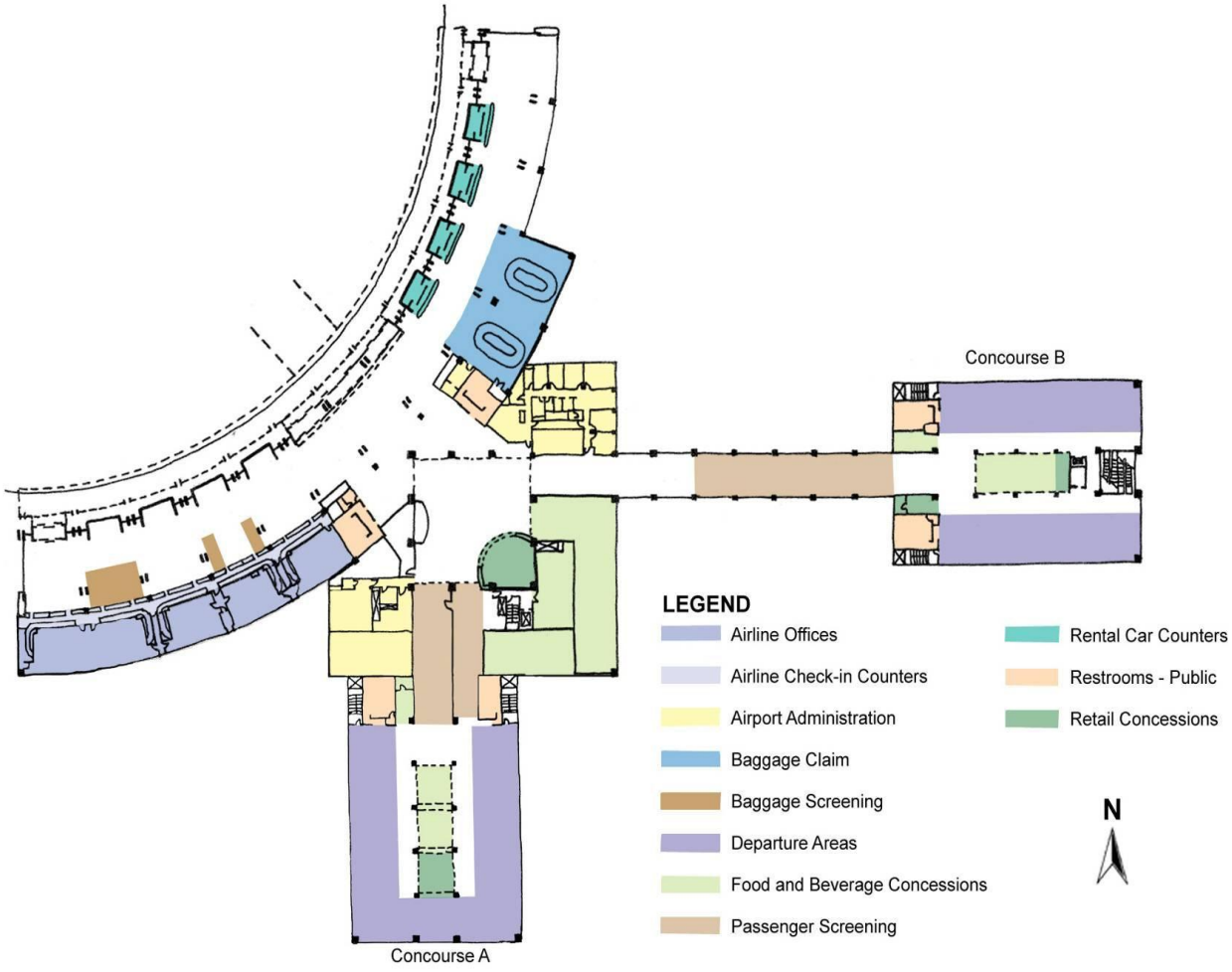
4.2. TERMINAL FLOOR AREA

4.2.1. FLOOR AREA DETAIL

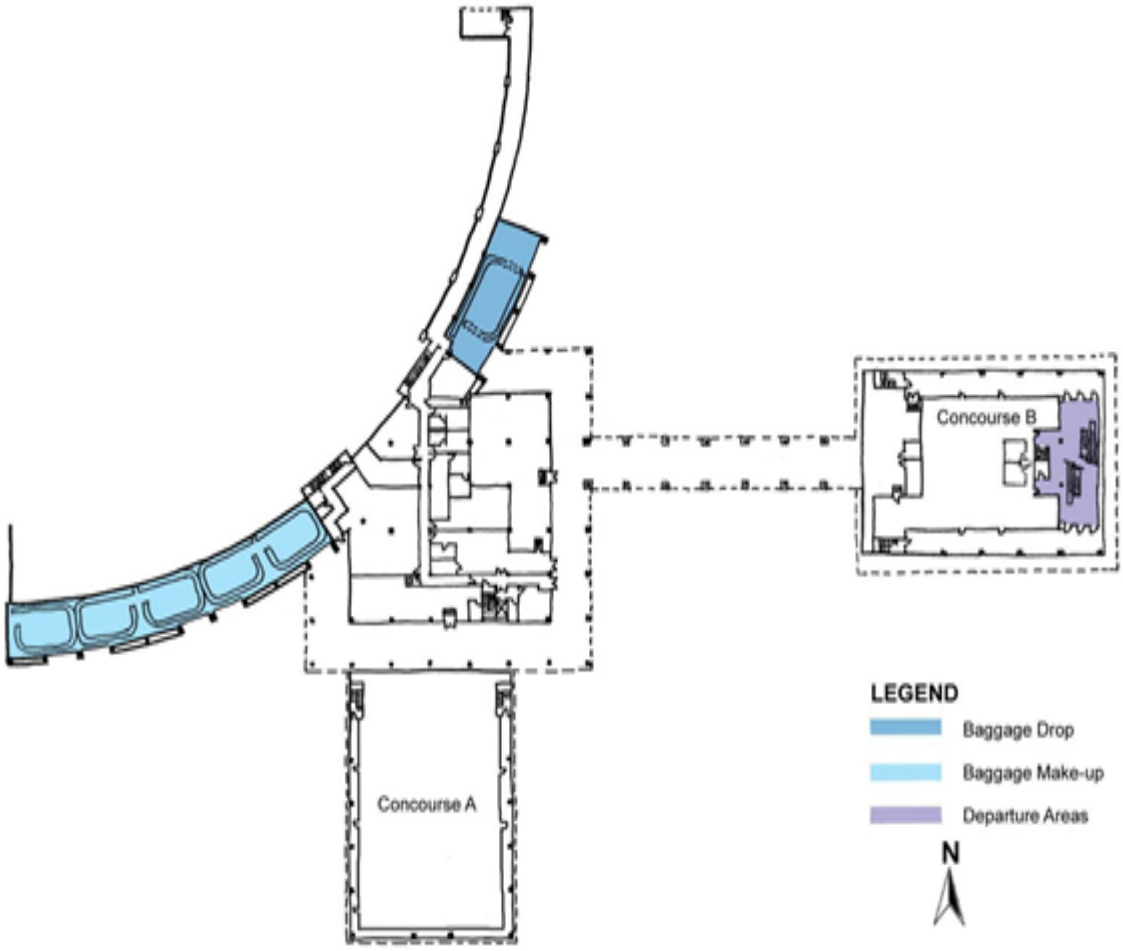
The gross square footage is approximately 144,500 square feet (SF). The buildings and their respective areas are shown in Table 2.

Table 2. Floor Area

Terminal Area	Square Feet
Airline offices	5,375
Airline check-in counters	1,900
Baggage claim	3,820
Baggage make-up	7,050
Baggage claim drop	2,775
Departure areas	10,485
Checked baggage security screening	1,260
Passenger security screening	6,445
Food and beverage concessions	15,135
Retail Other retail concessions	2,690
Rental car counters	1,150
Airport administration	6,515
Restrooms - public	3,145
Circulation, waiting, airline and airport operations, and TSA offices	76,705
Total terminal area	144,450



PASSENGER TERMINAL FLOOR PLAN - GATE LEVEL



PASSENGER TERMINAL FLOOR PLAN – APRON LEVEL

4.3. AIRPORT UTILITY INFORMATION

4.3.1. HISTORICAL UTILITY CONSUMPTION/USE & COST (EUI & ECI)

The energy use and cost history is shown in Table 3 below.

Table 3. Energy Use & Cost History

Year	Electric		Natural Gas		Water		Total Cost
	Use (kWh)	Cost	Use (CCF)	Cost	Use (Gallons)	Cost	
JULY 2008 – JUNE 2009	6,208,640	$426,140	80,090	$97,140	6,461,675	$45,235	$568,515
JULY 2009 – JUNE 2010	5,575,680	$298,350	85,330	$59,585	5,966,700	$45,115	$403,050

4.3.2. ELECTRICITY

Electricity is metered and billed based on the existing electric meter, #0005710829. There are also several sub-meters. The current demand charges of $11/kW are high; consequently, it would be beneficial to look for ways to reduce the peak demand in the terminal. This analysis is beyond the scope of this report; however, there appears to be an opportunity to save additional energy.

The 2009 electrical energy use index (EUI) is approximately 132 kBTU/sf/yr. This is comparable to 124 kBTU/sf/yr for a similar size terminal in Greenville, SC. The slightly higher electrical EUI is likely due to the parking garage electric being included and the square footage is not used in the calculations.

4.3.3. NATURAL GAS

Natural gas is metered and billed based on the meter readings. Newport News-Williamsburg International Airport paid approximately $97,000 in 2008 and $60,000 in 2009 for natural gas.

Natural gas consumption for 2008 was 8,248 MBTU and for 2009 was 8789 MBTU. This results in a thermal EUI of 57 kBTU/sf/yr for 2008 and 61 MBTU for 2009, which is consistent with similar sized terminals.

4.3.4. WATER

There are several water meters; however, the Main Terminal Meter (#60550743) indicated a usage of approximately 6,000,000 gallons per year. Water consumption can be reduced approximately 25% by installing 0.5 gpm aerators on the faucets and using low flow water closets and urinals.

4.4. REFRIGERATION SYSTEMS

All display cases are individual stand alone equipment with dedicated compressors and evaporators. There is no practical option for refrigeration heat reclaim at the Newport News-Williamsburg International Airport. All of the refrigerated storage cases are inside the building.

No adjustable anti-sweat heater controls were noticed throughout the refrigerated cases. It is likely that the stand alone cases have anti-sweat heaters incorporated into them since no condensation or frost was noticed during the audit.

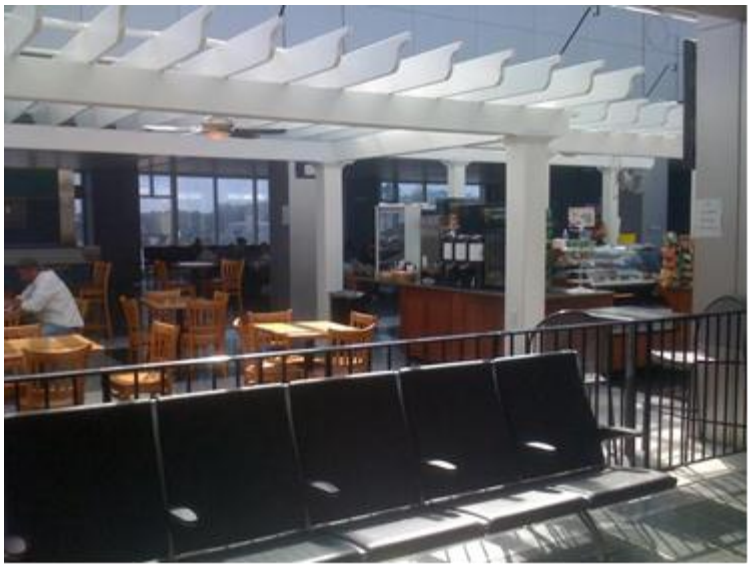


Figure 1: Self-Contained Case - Snack Area Concourse B

4.5. HEATING, VENTILATION AND AIR CONDITIONING (HVAC) SYSTEMS

Existing Heating Hot Water System
The existing Landside Boiler Plant capacity consists of two 100 HP Kewanee Model 168W - 100G gas fired hot water boilers. This system was designed to supply 200 degree Fahrenheit (°F) heating hot water. It has a constant volume primary hot water loop and a constant volume secondary hot water loop. The constant volume primary loop provides heating hot water to the three existing air handling units (AHU-1, AHU-2 & AHU-3) as well as the new air handling unit (AHU-4) that serves the new Concourse A. The secondary hot water loop utilizes water from the primary loop and supplies hot water to heating hot water coils of ventilation units, air handling units, terminal boxes, unit heaters, cabinet heaters and fin tubes.

Existing Chiller System
There are two existing water-cooled Trane Model CVHE 450 ton centrifugal chillers (CH-1 & CH-2) that are utilized to supply chilled water to two Landside Terminal air handling units (AHU-1 & AHU-2) and one Airside air handling unit (AHU-3), as well as the new air handling unit that serves the new Concourse A (AHU-4). CH-1 and CH-2 are located in mechanical room #1, which is located in the lower level of the Main Terminal. Their associated constant volume pumping systems are located inside mechanical room #1. The chillers are served from two

Baltimore Air Coil cooling towers each with a capacity of 1350 gpm and each have 12kW electric basin heaters.

Existing Air Handling Units (Note: The airport is currently installing VFD's on existing AHU's) There are two existing Landside air handling units (AHU-1 & AHU-2) each with a capacity of 45,000 cfm that serve the Main Terminal. They are custom built units with supply fan, return fan, cooling coils, preheat coils, dampers, filters and housing.

AHU-1 serves the following areas: Airport Commission Offices, Blue Sky Café, North half Upper Level Central Terminal, and North Upper Terminal which includes Baggage Claim and Car Rental Counter.

AHU-2 serves the following area: Airport Commission Conference Room, USO space, South half Upper Level Central Terminal, South Upper Terminal which includes the Ticketing Counters and airline ticketing offices, and the Lower Level airline baggage handling offices.

There are two Airside air handling units (AHU-3 & AHU-4). AHU-3 has a capacity of 34,000 cfm and serves the connecting bridge as well as the Upper and Lower levels of Concourse B. It's a custom built unit with supply fan, return fan, cooling coil, preheat coil, dampers, filters and housing.

AHU-4 is a Heat Recovery air handling unit with a capacity of 30,100 cfm and serves the Upper and Lower levels of the new Concourse A. It is a custom built unit with supply fan, exhaust fan, energy wheel, variable frequency drives for supply and exhaust fans, cooling coil, preheat coil, dampers, filters, CO2 sensor and housing.

Existing HVAC Systems Opportunities
Based upon RSH's knowledge of the existing HVAC systems and a conversation with Mr. Mark Falin on September 28th, 2008, we established the following list of HVAC corrective work action items that the Owner may choose to include in the Master Plan update:

1. Building Automation System (BAS): Consider adding CO2 sensors in the air handling units to reduce the amount of outside air during unoccupied times. This will result in additional energy savings.

2. Chilled and hot water pumps: Consider replacing part or all of the existing pumps with high efficiency pumps and variable frequency drives. With these in place, economic savings will be realized by increasing the efficiencies of the pumps as well as reducing energy during system setbacks.

3. Existing air handling units: There is an ongoing project to install variable frequency drives on the supply fans. Consider adding VFD's on the return fans as well and CO2 sensors on AHU-1, AHU-2, and AHU-3. AHU-4 is equipped with CO2 sensors.

Table 4 compares the measured temperature and relative humidity (RH) to the ASHRAE Standard 55.

Table 4. Facility Environmental Conditions (Measured 9-14-2010)

Area	HVAC Oper. Mode	Audit			ASHRAE Standard 55			Comments
		Temp.		RH%	Temperature		RH%	
		F	C		F	C		
Gift Shop	Heating	-	-	-	68-75	20-23	50	RH appears a little low.
	Cooling	75	24	40	73-79	23-26	50	
Admin	Heating	-	-	-	68-75	20-23	50	RH appears a little low.
	Cooling	75	24	40	73-79	23-26	50	
Ticketing	Heating	-	-	-	68-75	20-23	50	RH appears very high.
	Cooling	75	24	79	73-79	23-26	50	
Outside		89	28	31				

Natural Gas is used in two low pressure heating hot water boilers for heating.

Figure 2: Two Hot Water Heating Boilers

Figure 3: Boiler Nameplate

4.6. LIGHTING SYSTEMS

The Terminal lighting types and lighting levels are listed in Table 5.

The lighting levels measured in the Administration area and Ticketing area exceed IES standards. Lighting in the Gift Shop area meets IES standards. Compact Fluorescent Lights are used in the Administration area; however, occupancy sensors should be considered.

Some occupancy sensors were found in the Terminal area and the lighting was not energized in the new Concourse A.

Table 5. Facility Lighting Summary

Area	Lamp Type	Ballast Type	Measured Level (FC)	IES Standard (FC)	Control
Gift Shop	T12 Fl.	Magnetic	85-95	85	Switch
Baggage Claim	T12 Fl.	Magnetic	50	50	Switch
Ticketing	T12 Fl.	Magnetic	65	30	Switch
Admin	T5 Fl.	Electronic	55-80	50	Switch
Exterior	Incand.	-	Not Meas.	1	Photocell

4.7. WATER/PLUMBING SYSTEMS

Water and plumbing systems remain largely as they were when the building was originally constructed in 1992, except for the new concourse A. Restrooms, staff rooms and building cleaning is the primary use of water and no facilities were equipped with low flow fixtures.

Domestic hot water is produced by one gas fired water heater and two electric water heaters near the points of use. The hot water temperature according to the immersion thermometer on the storage tank is about 140°F, which is too high for hand washing. Recommend that the temperature setting be lowered to 120ºF.

Figure 4: Gas fired Hot Water Heater

Figure 5: Hot Water Heater Nameplate

4.8. OPERATION & MAINTENANCE (Non-Utility) OBSERVATIONS

The terminal facility is well maintained; consequently there were no operation and maintenance issues to report. However, the maintenance building has some ceiling insulation that has been compromised and needs replacement.

4.9. ELEVATORS/ESCALATORS

There is a two story passenger elevator from Security to the passenger gates, which is ADA compliant.

The existing escalators can be fitted with Kone eco-start systems as well as motion sensors that would save energy.

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APPENDIX A
Additional Photos

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Figure 6: Main switch gear 4000 amps

Figure 7: Main terminal electric meter

Figure 8: Sub-panels

Figure 9: Sub-panels

Figure 10: Sub-panel

Figure 11: ATS for Terminal & Concourse B

Figure 12: 500 kw Emergency Generator

Figure 13: Trane Chiller #1 – 450 tons

Figure 14: Trane Chiller #2 – 450 tons

Figure 15: Trane Chiller nameplate

Figure 16: Circulating pumps #1 & #2

Figure 17: Pumps #1 & #2 nameplate

Figure 18: Pumps #1 thru #4

Figure 19: Pumps #3 & #4 nameplate

Figure 20: Pumps #5 & #6

Figure 21: Pumps #5 & #6 nameplate

Figure 22: Pumps #7 & #8

Figure 23: Pumps #9 & #10

Figure 24: Pumps #9 & #10 nameplate

Figure 25: Gas fired hot water heater

Figure 26: AC-1 chilled water connections

Figure 27: AC-2 chilled water connections

Figure 28: AC-3 chilled water connections

Figure 29: Chilled water connections – New AC unit Concourse A

Figure 30: Two BAC Cooling Towers

Figure 31: Main gas meter

Figure 32: Gas meter nameplate

Figure 33: Gas sub-meter for Blue Sky Cafe

Figure 34: 900 kw emergency generator – Concourse A

Figure 35: 900 kw generator nameplate

Figure 36: ATS-1

Figure 37: ATS-2

Figure 38: Electric meter 42077472

Figure 39: Electric meter 84862844

Figure 40: Electric meter 84862833

Figure 41: Electric meter 84831091

Figure 42: VFD & supply ductwork AHU-1

Figure 43: VFD AHU-2

Figure 44: Supply ductwork AHU-2

Figure 45: VFD AHU-3

Figure 46: Supply ductwork AHU-3

Figure 47: Motor control center – mechanical room #1

Figure 48: Terminal – Main Entrance

Figure 49: Printers – Commission's Office

Figure 50: Air cleaner – Commission's Office

Figure 51: Floor fan – Commission's Office

Figure 52: Typical office equipment– Commission's Office

Figure 53: Typical office thermostat– Commission's Office

Figure 54: Microwave & toaster oven – Commission's Office

Figure 56: Typical office equipment– Commission's Office

Figure 55: Computer servers – Commission's Office

Figure 57: Typical printer– Commission's Office

Figure 58: Typical power cord– Commission's Office

Figure 59: Mailing equipment– Commission's Office

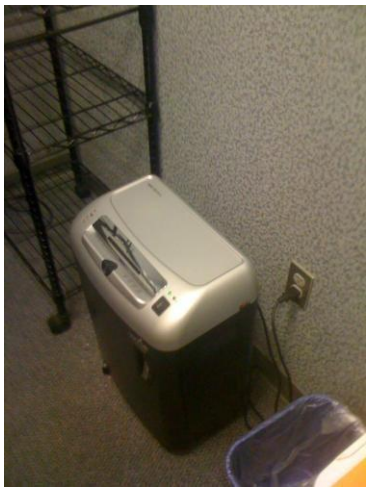

Figure 60: Paper shredder– Commission's Office

Figure 61: Typical light fixtures– Commission's Office

Figure 62: Terminal looking toward ticket counters

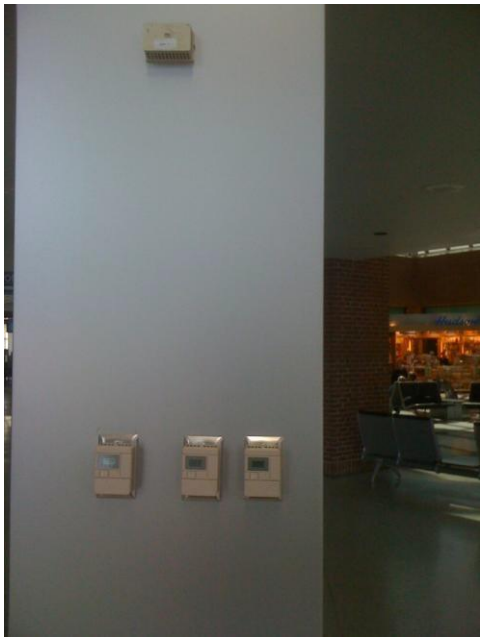

Figure 63: Typical zone t 'stats terminal

Figure 64: Typical zone t 'stats terminal-perimeter

Figure 65: Typical terminal two lamp T12 fixtures

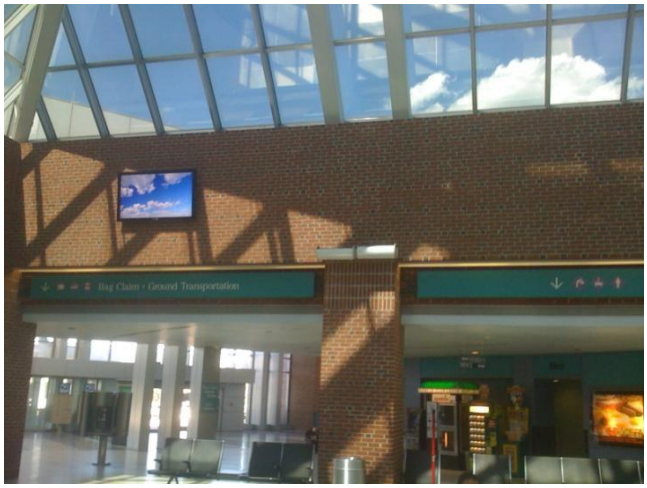

Figure 66: Perimeter T12 fixtures on during daylight

Figure 67: Perimeter T12 fixtures on during daylight

Figure 66: Perimeter T12 fixtures on during daylight

Figure 68: Perimeter T12 fixtures on during daylight

Figure 69: Perimeter T12 fixtures on during daylight

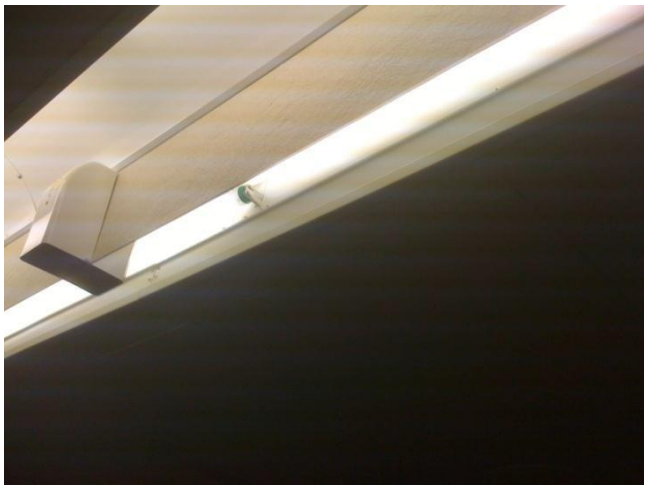

Figure 70: T12 fixtures above sink in Men's Room

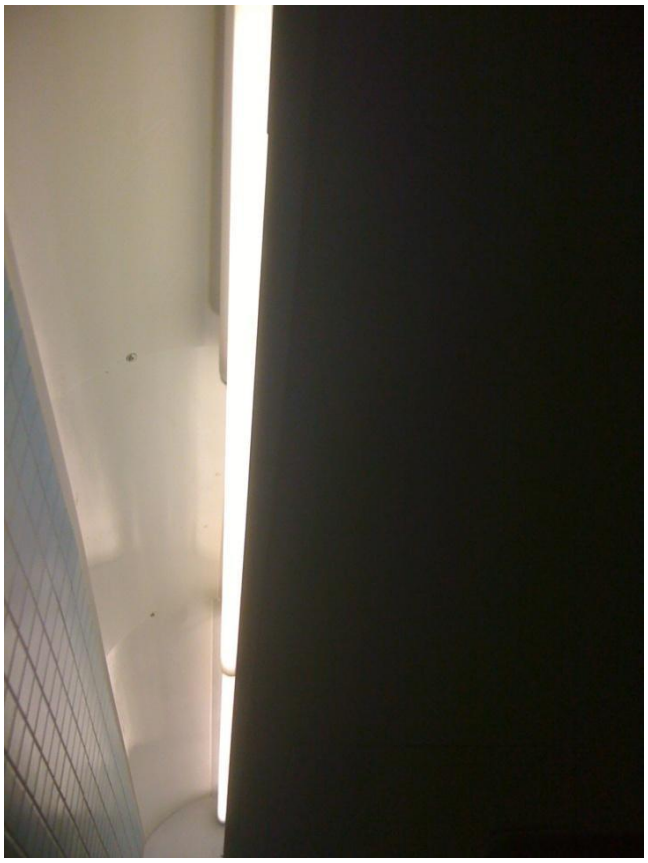

Figure 71: T12 fixtures above urinal in Men's Room

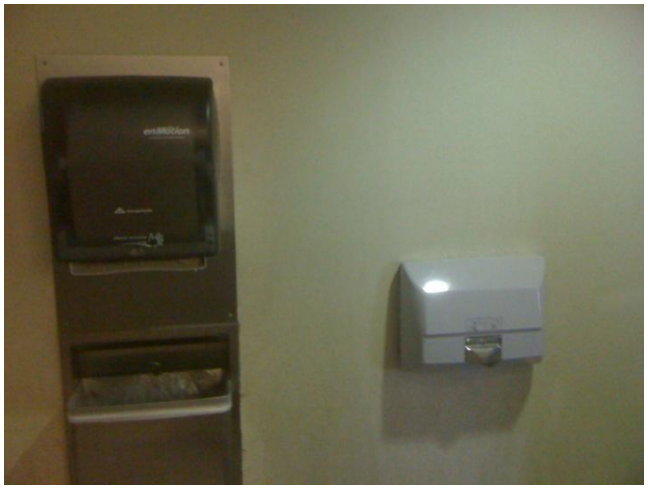

Figure 72: Typical hand drying equipment

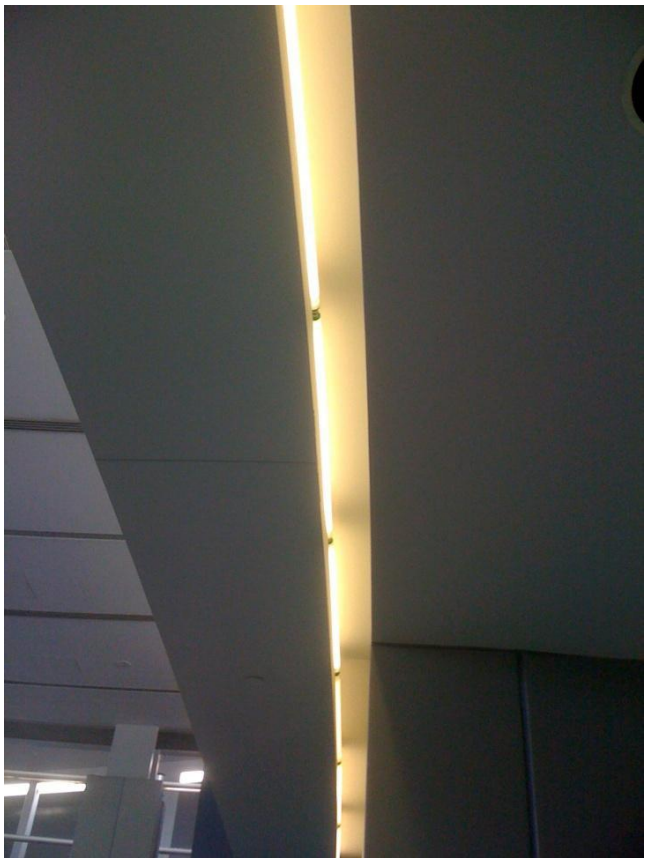

Figure 73: Cove lighting T12 fixtures on during daylight

Figure 74: Typical two lamp T12 fixtures in terminal above ticket counters and rental car area

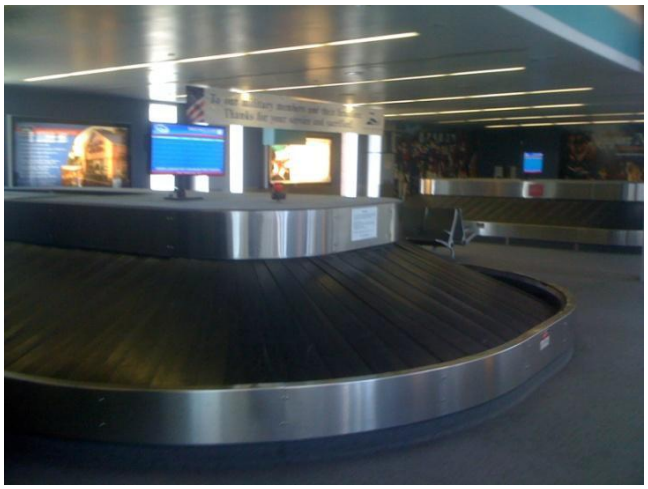

Figure 75: Baggage claim area

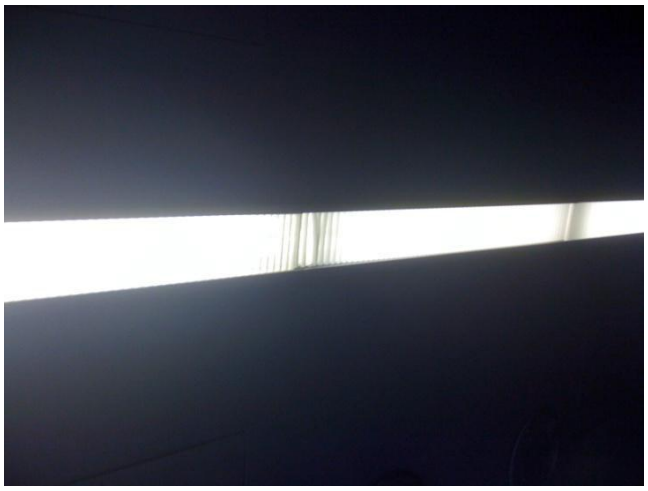

Figure 76: Typical two lamp T12 fixtures in baggage claim area

Figure 77: Hudson News lighting

Figure 78: 75w incandescent lamp

Figure 79: Metal halide fixture in garage

Figure 80: REVEAL CT-80 baggage scanner

Figure 81: REVEAL CT-80 baggage scanner

Figure 82: REVEAL CT-80 baggage scanner

Figure 83: Typical t ‘sat Lower level Concourse A

Figure 84: Lower level Concourse A

Figure 85: Lower level Concourse A

Figure 86: Lower level Concourse A

Figure 87: Upper level Concourse A- typical gate

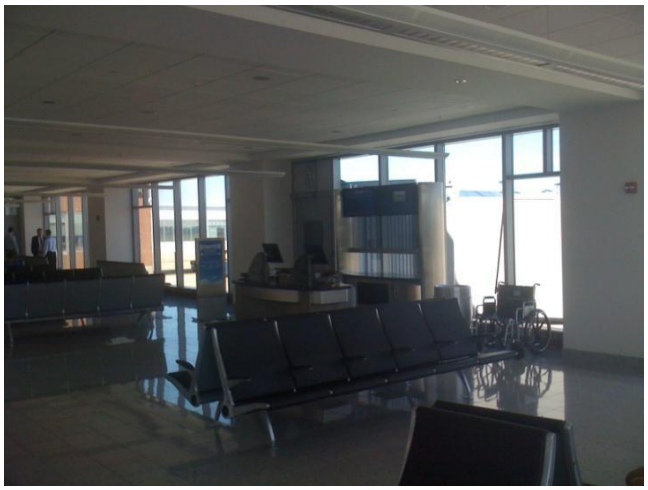

Figure 88: Upper level Concourse A- typical gate – lights off during daylight

Figure 89: Upper level Concourse A- three skylights

Figure 90: Upper level Concourse A- fin tube radiation

Figure 91: Concourse A- incandescent lamps

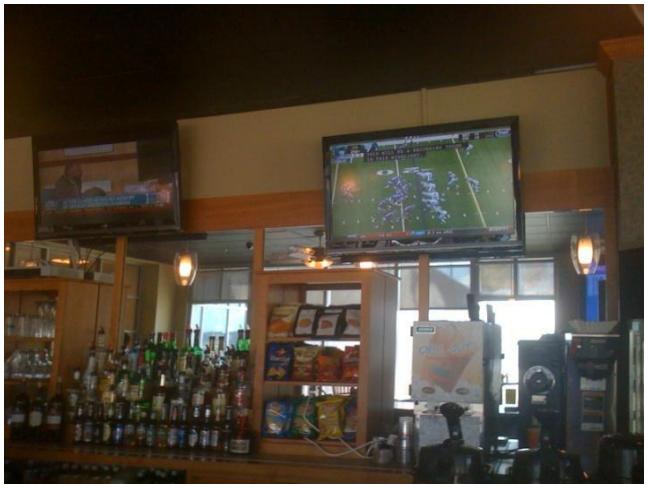

Figure 92: Concourse A- TV's in bar

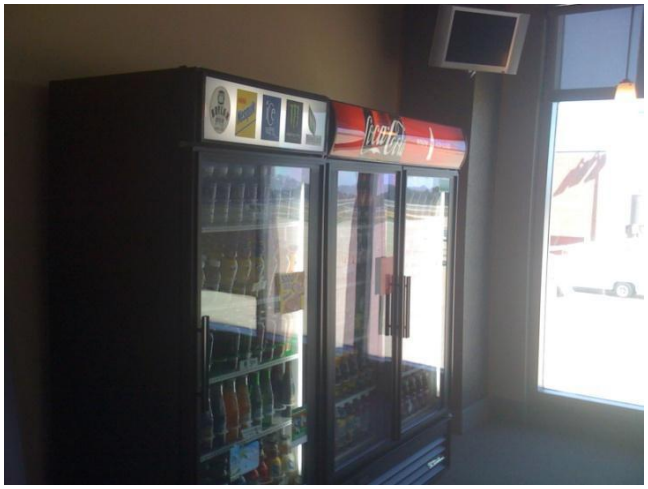

Figure 93: Concourse A- vending machines in restaurant

Figure 94: Concourse A- boarding ramp

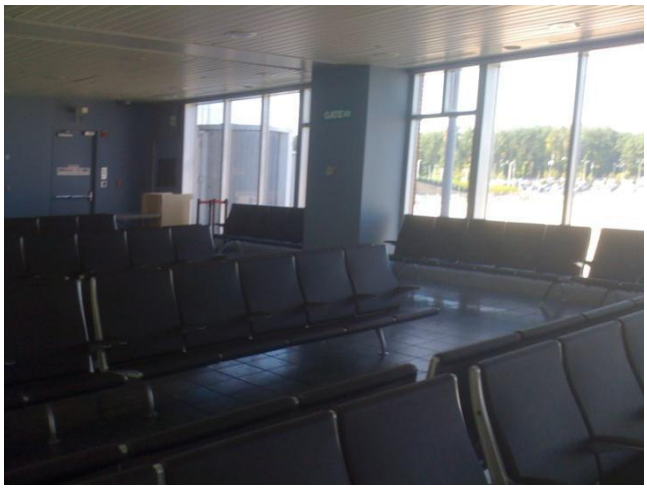

Figure 95: Upper level Concourse B – typical gate

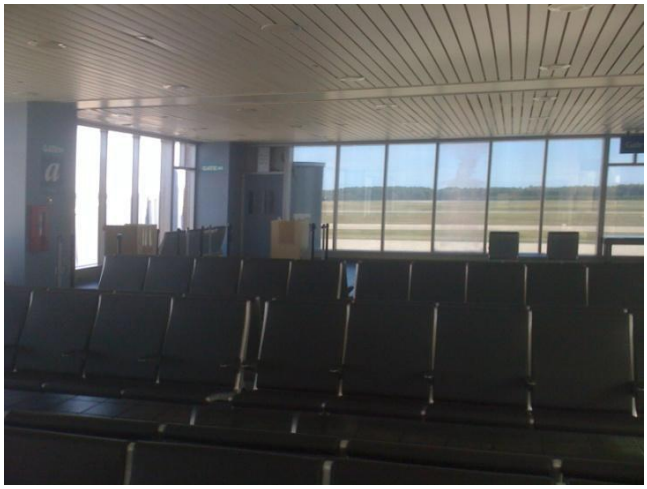

Figure 96: Upper level Concourse B – typical gate

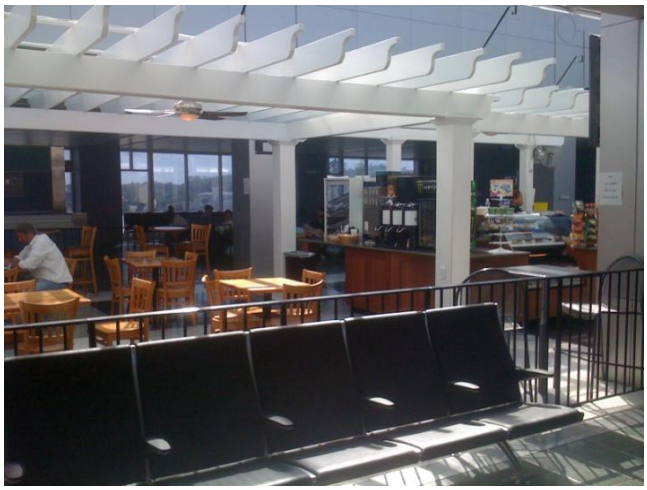

Figure 97: Upper level Concourse B – snack area

Figure 98: Upper level Concourse B – skylight

Figure 99: Upper level Concourse B – typical zone t 'stats

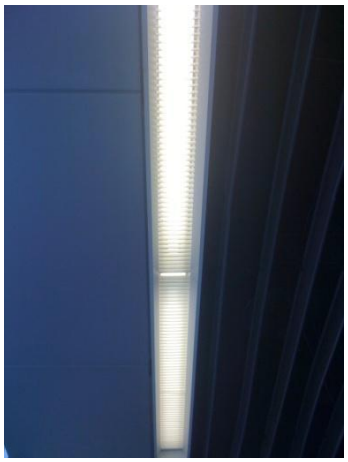

Figure 100: Upper level Concourse B – two lamp T12 fixture

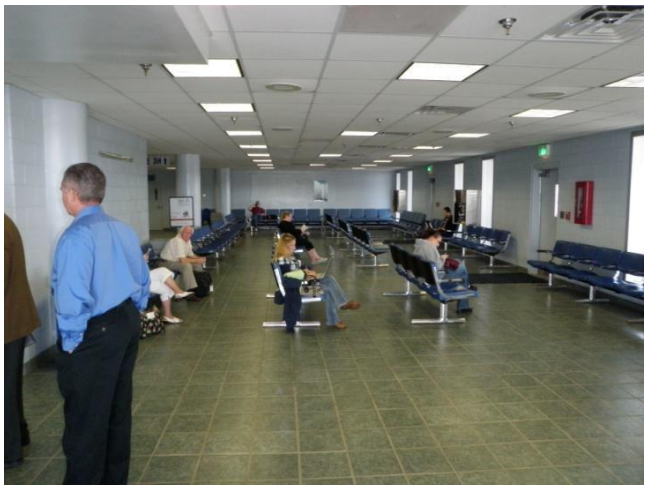

Figure 101: Lower level Concourse B

Figure 102: USO table lamps - incandescent

Figure 103: USO table lamps – flat screen TV

Figure 104: USO - DVD and TV

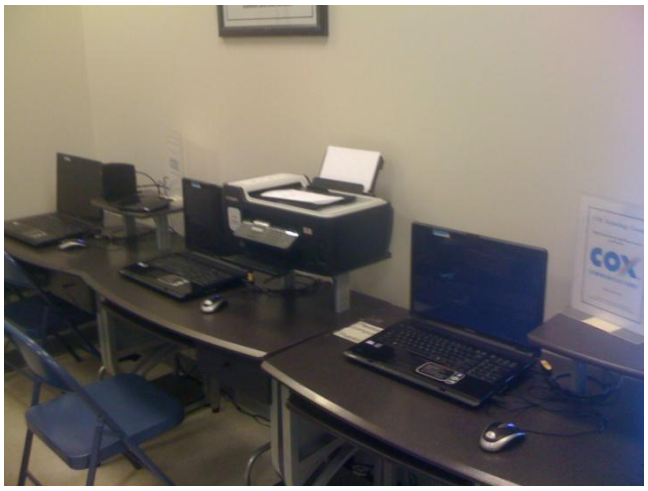

Figure 105: USO – Laptops & printer

Figure 106: USO – workstation with printer

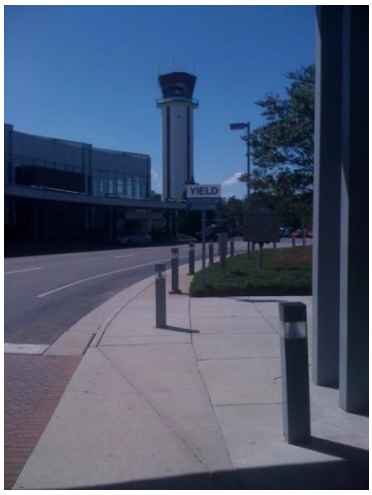

Figure 107: Control Tower

Figure 108: 100 kw Emergency Generator at Garage

Figure 109: Electric meter at Garage

Figure 110: Tug area – baggage belt

Figure 111: Tug area – belt motor

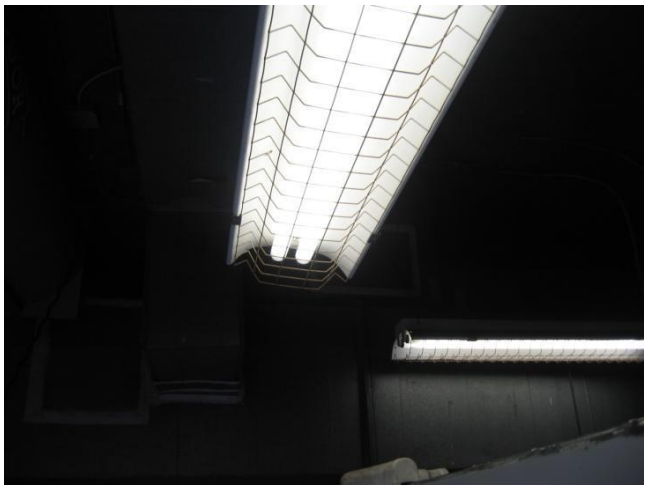

Figure 112: Tug area – two lamp T12 fixture

Figure 113: ARFF Building – gas meter

Figure 114: ARFF Building – 1200 amp switchgear

Figure 115: ARFF Building – 1200 amp switchgear nameplate

Figure 116: ARFF Building – 62 gallon electric water heater

Figure 117: ARFF Building – entrance corridor

Figure 118: ARFF Building – break area ceiling

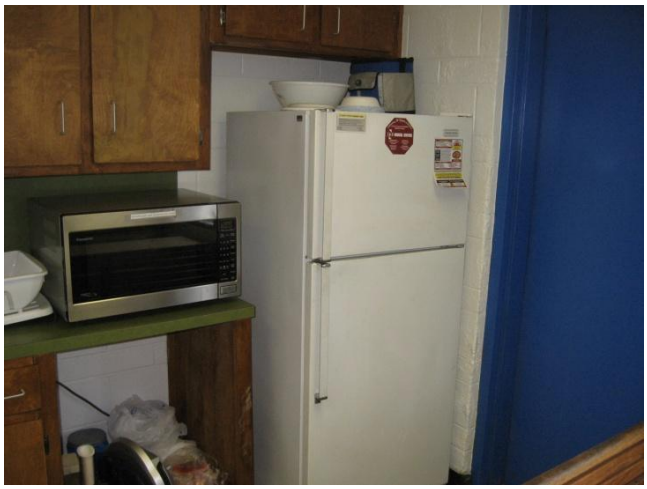

Figure 119: ARFF Building – refrigerator & microwave

Figure 120: ARFF Building – kitchen sink

Figure 121: ARFF Building – electric stove

Figure 122: ARFF Building – lavatories

Figure 123: ARFF Building – urinals

Figure 124: ARFF Building – water closet

Figure 125: Exterior Maintenance Building

Figure 126: Gas fired unit heater - Maintenance Building

Figure 127: Electric panels - Maintenance Building

Figure 128: Compromised ceiling insulation - Maintenance Building

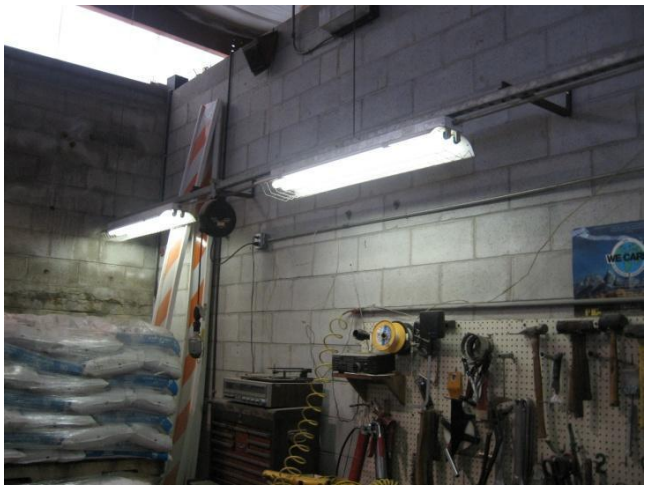

Figure 129: Two lamp T12 fixtures - Maintenance Building

Figure 130: Ceiling - Maintenance Building

Figure 131: Two lamp T12 fixture - US Airways Office

Figure 132: Break Area Ceiling - US Airways Office

Figure 133: Microwave & Refrigerator - US Airways Office

Figure 134: Typical Sinks – Men's Room

Figure 135: Typical Urinals – Men's Room

Figure 136: Typical Water Closet – Men's Room

APPENDIX B
Sample Utility Bill

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Oct 10, 2008 ***Customer Bill***

PENINSULA AIRPORT COMM
900 BLAND BLVD
902 BLAND AIRPORT
NEWPORT NEWS , VA 23602

DOMINION

Billing and Payment Summary

Account # 5666445001 **Due Date: Nov 14, 2008**

Total Amount Due: $ 38,358.77

To avoid a Late Payment Charge of 1.5% please pay by Nov 14, 2008.

Previous Amount Due:	$	40,780.84
Payments as of Oct 10:	$	40,780.84CR

For Dominion Virginia Power service emergencies and power outages, please call 1-888-667-3000. Visit us at www.dom.com.

Meter and Usage

Current Billing Days: 29

Billable Usage	
Schedule 130	*09/08-10/07*
Total kWh	527040
Dist Demand	934.0
Demand	933.0
Measured Usage	
Meter: 0006710829	*09/08-10/07*
Current Reading	10121
Previous Reading	9728
Total KOH	565920
Current Reading	9477
Previous Reading	9111
Total kWh	527040
Multiplier: 1440	
Meter: 00RG001403	*09/08-10/07*
On Pk Usage	193372
Off Pk Dem	933.00
On Pk Dem	894.00
RKVA	576.00

Usage History

Mo	Yr	kWh
Oct	07	563645
Nov	07	493845
Dec	07	493845
Jan	08	505445
Feb	08	460805
Mar	08	488165
Apr	08	469005
May	08	527120
Jun	08	485260
Jul	08	532805
Aug	08	525600
Sep	08	594720
Oct	08	527040

10308-03

Explanation of Bill Detail

Dominion Virginia Power		**1-888-667-3000**
Previous Balance	40,780.84	
Payment Received	40,780.84CR	
Balance Forward		**0.00**
Non-Residential Service (Schedule 130)		*09/08-10/07*
Distribution Service		
Basic Customer Charge		78.80
Distribution Demand		2,559.11
Electricity Supply Svc - Nonfuel		
ESS Adjustment Charge		1,041.11CR
Electricity Supply kWh		4,380.96
ESS Demand Charge		7,802.34
Electricity Supply Svc - Fuel		22,478.26
Sales and Use Surcharge		105.41
Total Current Charges		**38,358.77**
Total Account Balance		**38,358.77**

Visit our website or call our office for rate schedule prices.

PAID

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APPENDIX C
Table of Abbreviations

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Acronym	What it stands for...
AC	Air Conditioning
AC	Alternating Current
ACH	Air Changes per Hour
ACM	Asbestos Containing Material
AEE	Association of Energy Engineers
AFD	Adjustable Frequency Drive
AFUE	Annual Fuel Efficiency Ratio
AHU	Air Handling Unit
AI	Analog Input
AO	Analog Output
ASHRAE	American Society of Heating Refrigeration and Air Conditioning Engineers
B	Boiler
BACnet	A Data Communication Protocol for Building Automation and Control Networks
BAS	Building Automation System
BCA	Building Commissioning Association
BI	Backward Incline
BI	Binary Input
BO	Binary Output
BSLN	Baseline
BTU	British Thermal Unit
BTUH	British Thermal Units / Hour
BY	Base Year
CAV	Constant Air Volume
CD	Cold Deck
CDD	Cooling Degree Days
CEM	Certified Energy Manager
CFC	ChloroFluoroCarbon
CFM	Cubic Feet per Minute
CH	Chiller
CHW	Chilled Water
CHWP	Chilled Water Pump
CHWR	Chilled Water Return

CHWRT	Chilled Water Return Temperature
CHWS	Chilled Water Supply
CHWST	Chilled Water Supply Temperature
CLF	Cooling Load Factor
CLTD	Cooling Load Temperature Difference
COP	Coefficient Of Performance
CRAC	Computer Room Air Conditioner
CT	Cooling Tower
CV	Constant Volume
CVRMSE	Coefficient of Variation of the Root Mean Square of the Error
CWP	Condenser Water Pump
CWR	Condenser Water Return
CWRT	Condenser Water Return Temperature
CWS	Condenser Water Supply
CWST	Condenser Water Supply Temperature
CY	Current Year
DA	Discharge Air
DB	Data Base
DB	Dry Bulb
DC	Direct Current
DCV	Demand Controlled Ventilation
DD	Degree Day
DDC	Direct Digital Control
DH	Duct Heater
DI	Digital Input
DO	Digital Output
DP	Dew Point
DP	Differential Pressure
DX	Direct Expansion
EAT	Entering Air Temperature
ECM	Energy Conservation Measure
ECO	Energy Conservation Opportunity
EDH	Electric Duct Heater
EEM	Energy Efficiency Measure
EER	Energy Efficiency Ratio

EF	Exhaust Fan
EH	Electric Heater
EMS	Energy Management System
ESCO	Energy Service Company
EUH	Electric Unit Heater
EWT	Entering Water Temperature
FC	Forward Curve
FCU	Fan Coil Unit
FIM	Facility Improvement Measure
FLA	Full Load Amps
FMS	Facility Management System
FPM	Feet Per Minute
FW	Feed Water
GPM	Gallons Per Minute
GUI	Graphical User Interface
HCFC	Hydrochlorocfuorocarbon
HD	Hot Deck
HDD	Heating Degree Days
HEPA	High Efficiency Particulate Arresting
HFC	HydroFluoroCarbon
HHV	Higher Heating Value
HHWP	Heating Hot Water Pump
HHWR	Heating Hot Water Return
HHWS	Heating Hot Water Supply
HL	High Limit
HPS	High Pressure Steam
HR	Heat Recovery
HRU	Heat Recovery Unit
HRV	Heat Recovery Ventilator
HSPF	Heating Seasonal Performance Factor
HVAC	Heating Ventilation and Air Conditioning
HWP	Hot Water Pump
HWR	Hot Water Return
HWS	Hot Water Supply
HWRT	Hot Water Return Temperature

HWST	Hot Water Supply Temperature
HX	Heat Exchanger
I/O	Input Output
IAQ	Indoor Air Quality
IPMVP	International Performance Measurement and Verification Protocol
IR	Infra-Red
LAT	Leaving Air Temperature
LHV	Lower Heating Value
LL	Low Limit
LON	Local Operating Network
LP	Low Pressure
LPS	Low Pressure Steam
LRA	Locked Rotor Amps
LWBT	Leaving Wet Bulb Temperature
LWT	Leaving Water Temperature
M&V	Measurement and Verification
MA	Mixed Air
MAT	Mixed Air Temperature
MCC	Motor Control Center
MUA	Make-up Air Unit
MX	Metrix Utility Accounting System
MZ	Multi-Zone
NC	Normally Closed
NEMA	National Electrical Manufacturers Association
NO	Normally Open
NPSH	Net Positive Suction Head
OA	Outside Air
OAP	Outside Air Percentage
OAT	Outside Air Temperature
ODP	Open Drip Proof
OWS	Operator Work Station
PC	Performance Contracting
PE	Professional Engineer
PH	Pre-Heat
PID	Proportional Integral Derivative

PRV	Pressure Relief Valve
PRV	Pressure Reducing Valve
PTAC	Packaged Terminal Air Conditioner
RA	Return Air
RF	Return Fan
RH	Reheat
RH	Relative Humidity
RPM	Revolutions Per Minute
RTD	Resistance Temperature Detector
RTU	Roof Top Unit
SA	Supply Air
SAT	Supply Air Temperature
SC	Shading Coefficient
SEER	Seasonal Energy Efficiency Ratio
SF	Supply Fan
SHFG	Solar Heat Gain Factor
SHR	Sensible Heat Ratio
SP	Set Point
SP	Static Pressure
SWP	Steam Working Pressure
T	Temperature
T	Thermostat
TEV	Thermostatic Expansion Valve
TOD	Time Of Day
TORR	Millimeter of Mercury (mmHg)
TXV	Thermostatic Expansion Valve
UH	Unit Heater
UV	UltraViolet
UV	Unit Ventilator
VAV	Variable Air Volume
VD	Volume Damper
VFD	Variable Frequency Drive
VSD	Variable Speed Drive
VSP	Variable Speed Pump(ing)
WB	Wet Bulb

WC	Water Column
YTD	Year To Date

APPENDIX D
Master List of Recommendations

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Capital Cost UCOs

HVAC

1. AHU-1, AHU-2 and AHU-3: Consider installing CO2 sensors.

2. AHU-1, AHU-2, AHU- 3 and AHU-4: Although the terminal and concourses are not occupies 24/7 the units operate 100% time? Consider set back temperatures and reducing outdoor air quantities during unoccupied time.

3. Chillers 1 & 2 - enabled when OAT is 45°F, should not be required until about 55°F. Check AHU capacities and economizer controls.

4. Use heat recovery from relief/exhaust air to precondition outside air?
Heat recovery systems are always considered, but the exhaust fans are scattered, over too great of distances for capture; consequently, cannot be cycled thru a heat reclaim system.

5. Study - Most efficient type of pre-conditioned air for planes. Use economizer and or heat reclaim?
Typically it's 100% OA w/ no return air.

6. Consider VFD's on cooling tower fans.

Lighting

7. Replace T12s to T8s throughout terminal.

8. Replace fluorescent exit signs with LED exit signs.

9. Use light sensors to turn off some uplights during daytime?

10. Use light sensors to turn off some perimeter downlights during daytime?

11. Install occupancy sensor control in offices, conf rooms, break rooms, etc.

12. Lower gate area Concourse A currently not being used – use occupancy sensor or BAS to turn lights on/off?

13. Consider LED airfield lighting? They are using these at Lansing Airport.

14. Consider LED parking lot lighting?

15. Consider daylighting control in the Hudson News area.

Water / DHW

16. Use existing boiler HHW w/ heat exchanger for DHW?
17. Consider solar hot water heaters?
18. Use sensor operated low flow (0.25 to 0.5 gpf) urinals in the ARFF building?
19. Use sensor operated low flow or dual flush toilets in the ARFF building?

Other

20. Electric rate – Power factor correction to 0.90 for terminal meter.
21. Electric rate – Use existing generator(s) for peak demand control?

22. Escalators & Elevators - Use Kone Eco Start controllers?
23. Conveyor belts – Consider replacing existing baggage conveyor system with energy efficient baggage conveyor systems similar to VanDerLande Industries Greenveyor. Potential energy savings of between 25% and 45% are possible over the existing conveyor system.
24. Use “air jet hand dryers” to replace towels and electric heated hand dryers?
25. Consider replacing all appliances with Energy Star rated appliances?
26. Consider VFD for chilled water and heating hot water pumps?
27. Consider solar photovoltaic?
28. Consider geothermal system?
29. Consider the use of small wind turbine(s)?

Low Cost / No Cost UCOs

HVAC

- All AHUs – verify night setback/setup schedule. Control HVAC with BAS occupancy schedule?
- Chiller sequencing – verify operation.
- Boiler sequencing – verify operation.
- Lower gate area Concourse A currently not being used - setback HVAC, reduce outside air?
- Jetway conditioning? Control based on occupancy or schedule?

Lighting

- Control interior lighting with BAS based on flight and occupancy schedules?
- Turn off Jetway lights when not in use?
- Replace incandescent lamps with compact fluorescent.

Power

- Consider power save settings on PC’s, printers, copiers, etc.
- Consider installation of VendingMiser on all vending machines.

Water / DHW

- Change lavatory aerators from 1.5 gpm to 0.5 gpm

APPENDIX E
Incentives for Renewables & Efficiency

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DSIRE™
Database of State Incentives for Renewables & Efficiency

ENERGY Energy Efficiency & Renewable Energy
North Carolina Solar Center
IREC

9/22/10

Virginia

Incentives/Policies for Renewables & Efficiency

Columbia Gas of Virginia - Business Efficiency Rebate Program

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Last DSIRE Review: 05/06/2010

Program Overview:

State:	Virginia
Incentive Type:	Utility Rebate Program
Eligible Efficiency Technologies:	Clothes Washers, Water Heaters, Furnaces , Boilers, Duct/Air sealing, Building Insulation, Windows, Low Flow Pre-Rinse Spray Valve, Infrared Heater, Outside Air Reset Boiler Controls

Applicable Sectors:	Commercial
Amount:	Low Flow Pre-Rinse Spray Valve (Retrofit): $30 per unit Gas Coin-Operated/Laundromat Clothes Washer: $150 per unit Energy Star Gas Storage Water Heater: $50 Energy Star Gas Tankless Water Heater: $2 per kBtu/hr High Efficiency Gas Furnace: $200 - $400 Energy Star Gas Boiler: $3 per kBtu/hr High Efficiency Gas Water Boiler: $3 per kBtu/hr High Efficiency Gas Steam Boiler: $2 per kBtu/hr Direct Contact Gas Water Heater: $1 per kBtu/hr Infrared Heater: $2 per kBtu/hr Outside Air Reset Boiler Controls: $250 per unit
Equipment Requirements:	Low Flow Pre-Rinse Spray Valve (Retrofit): Less than or equal to 1.6 gpm Gas Coin-Operated/Laundro-mat Clothes Washer: Energy Star; MEF 1.8 minimum; WF less than or equal to 7.5 Energy Star Storage Water Heater: Less than or equal to 75,000 Btu/hr; Energy Star, EF at least 0.62 High Efficiency Gas Storage Water Heater: Less than or equal to 75,000 Btu/hr; Et at least 82% Energy Star Gas Tankless Water Heater: Less than 200,000 Btu/hr; EF at least 0.82 High Efficiency Gas Furnace: Less than 225,000 Btu/hr; AFUE at least 90% Energy Star Gas Boiler: Less than 300,000 Btu/hr; AFUE at least 85% High Efficiency Gas Water Boiler: 300,000 - 2,500,000 Btu/hr; Et at least 90% High Efficiency Gas Steam Boiler: 300,000 - 2,500,000 Btu/hr; Et at least 82% Direct Contact Gas Water Heater: At least 300,000 Btu/hr; Et at least 90%
Web Site:	http://www.columbiagasva.com/en/energy-conser...

Summary:

Columbia Gas of Virginia offers rebates to commercial customers for the purchase and installation of energy efficient equipment. Water heaters, furnaces, boilers and controls, laundro-mat clothes washers and infrared heaters are available for cash rebates. Eligible businesses are on one of the following rate schedules: SGS, SGTS or EDS. All efficiency and performance requirements must be met in order to receive rebate. Some installation requirements also apply to certain equipment. All application and information forms are available on the program web site listed above. Mail rebate applications to contact address provided. Contact Columbia Gas of Virginia for further information on this program.

Contact:

WarmWise Rebates
Columbia Gas of Virginia
916D West Atlantic Street #351
Emporia, VA 23847
Phone: (877) 623-5056
Web Site: http://www.columbiagasva.com/en/energy-conservation/home-savings-program.aspx

VIRGINIA

Incentives/Policies for Renewables & Efficiency

Commonwealth's Energy Leasing Program

Last DSIRE Review: 09/22/2010

State:	Virginia
Incentive Type:	State Loan Program
Eligible Efficiency Technologies:	Lighting, Caulking/Weather-stripping, Duct/Air sealing, Building Insulation, Windows, Doors, Siding, Motors, Custom/Others pending approval
Applicable Sectors:	State Government, Institutional
Amount:	Minimum loan of $100,000
Terms:	Can be repaid in 12 or 15 years
Program Budget:	$40 million
Web Site:	http://www.trs.virginia.gov/debt/Tboard.aspx

Authority 1:

Va. Code § 2.2-2417

Lease financing administered by the Departments of Treasury and Mines, Minerals and Energy provides funding for energy efficiency projects in state facilities operated by agencies or authorities of the Commonwealth of Virginia. The Energy Leasing Program allows for the purchase of services and equipment required to develop, design, and install an energy efficiency project. Agencies can lease or "borrow" at a minimum $100,000 amount and will make repayments over 12 or 15 year contracts.

The funds can be used to finance projects with relevant energy efficient technology, such as lighting and motor efficiency upgrades, building envelope enhancements, distribution system improvements, and energy management controls.

Originally enacted in 2005, the Energy Leasing Program was unfunded for much of 2008 and 2009. In late September 2009 the Commonwealth of Virginia recapitalized the fund with $40 million dollars from ARRA.

Visit the Commonwealth's Energy Leasing Program online for more information.

Contact:

Barbara Simcoe
Virginia Department of Mines, Minerals, and Energy
Virginia Division of Energy
Washington Building
1100 Bank Street, 8th floor
Richmond, VA 23219-3638
Phone: (804) 692-3218
Fax: (804) 692-3238
Web Site: http://www.mme.state.va.us/de

Debora Greene
Virginia Department of the Treasury
101 North 14th Street
Richmond, VA 23219
Phone: ((80) 4) -225-
Phone 2: ((80) 4) -371-
Fax: ((80) 4) -225-

APPENDIX F
Energy Star Statement of Energy Performance

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OMB No. 2060-0347

STATEMENT OF ENERGY PERFORMANCE NEWPORT NEWS-WILLIAMSBURG INTERNATIONAL AIRPORT

Building ID: 2478535
For 12-month Period Ending: June 30, 2010[1]
Date SEP becomes ineligible: N/A
Date SEP Generated: October 11, 2010

Facility
NEWPORT NEWS-WILLIAMSBURG INTERNATIONAL AIRPORT
900 BLAND AVE.
NEWPORT NEWS, VA 23602

Facility Owner
NEWPORT NEWS-WILLIAMSBURG INTERNATIONAL AIRPORT
900 BLAND BLVD SUITE G
NEWPORT NEWS, VA 23602

Primary Contact for this Facility
KEN SPIRITO
900 BLAND BLVD. SUITE G
NEWPORT NEWS, VA 23602

Year Built: 1992
Gross Floor Area (ft²): 159,585

Energy Performance Rating[2] (1-100) N/A

Site Energy Use Summary[3]

Electricity - Grid Purchase(kBtu)	20,169,226
Natural Gas (kBtu)[4]	7,776,947
Total Energy (kBtu)	27,946,173

Energy Intensity[5]

Site (kBtu/ft²/yr)	175
Source (kBtu/ft²/yr)	473

Emissions (based on site energy use)

Greenhouse Gas Emissions ($MtCO_2e$/year)	3,474

Electric Distribution Utility
Dominion - Virginia Electric & Power Co

National Average Comparison

National Average Site EUI	95
National Average Source EUI	265
% Difference from National Average Source EUI	79%
Building Type	Entertainment/Culture

Meets Industry Standards[6] **for Indoor Environmental Conditions:**

Ventilation for Acceptable Indoor Air Quality	**N/A**
Acceptable Thermal Environmental Conditions	**N/A**
Adequate Illumination	**N/A**

COMMONWEALTH OF VIRGINIA
JIM A. McCLELLAN
Lic. No. 025495
PROFESSIONAL ENGINEER

Stamp of Certifying Professional

Based on the conditions observed at the time of my visit to this building, I certify that the information contained within this statement is accurate.

Certifying Professional
JIM A. MCCLELLAN, PE, CEM
10748 DEERWOOD PARK BLVD. SOUTH
JACKSONVILLE, FL 32256

Notes:
1. Application for the ENERGY STAR must be submitted to EPA within 4 months of the Period Ending date. Award of the ENERGY STAR is not final until approval is received from EPA.
2. The EPA Energy Performance Rating is based on total source energy. A rating of 75 is the minimum to be eligible for the ENERGY STAR.
3. Values represent energy consumption, annualized to a 12-month period.
4. Natural Gas values in units of volume (e.g. cubic feet) are converted to kBtu with adjustments made for elevation based on Facility zip code.
5. Values represent energy intensity, annualized to a 12-month period.
6. Based on Meeting ASHRAE Standard 62 for ventilation for acceptable indoor air quality, ASHRAE Standard 55 for thermal comfort, and IESNA Lighting Handbook for lighting quality.

ENERGY STAR® Data Checklist for Commercial Buildings

In order for a building to qualify for the ENERGY STAR, a Professional Engineer (PE) or a Registered Architect (RA) must validate the accuracy of the data underlying the building's energy performance rating. This checklist is designed to provide an at-a-glance summary of a property's physical and operating characteristics, as well as its total energy consumption, to assist the PE or RA in double-checking the information that the building owner or operator has entered into Portfolio Manager.

Please complete and sign this checklist and include it with the stamped, signed Statement of Energy Performance.
NOTE: You must check each box to indicate that each value is correct, OR include a note.

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	☑
Building Name	NEWPORT NEWS-WILLIAMSBURG INTERNATIONAL AIRPORT	Is this the official building name to be displayed in the ENERGY STAR Registry of Labeled Buildings?	NA/ AIRPORT TERMINALS NOT AVAILABLE TO BE BENCHMARKED	✓
Type	Entertainment/Culture	Is this an accurate description of the space in question?	NO - AIRPORT TERMINAL	✓
Location	900 BLAND AVE., NEWPORT NEWS, VA 23602	Is this address accurate and complete? Correct weather normalization requires an accurate zip code.		✓
Single Structure	Single Facility	Does this SEP represent a single structure? SEPs cannot be submitted for multiple-building campuses (with the exception of acute care or children's hospitals) nor can they be submitted as representing only a portion of a building		✓

BLUE SKY CAFE (Other)

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	☑
Gross Floor Area	15,135 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		✓
Number of PCs	2(Optional)	Is this the number of personal computers in the space?		✓
Weekly operating hours	84Hours(Optional)	Is this the total number of hours per week that the space is 75% occupied? This number should exclude hours when the facility is occupied only by maintenance, security, or other support personnel. For facilities with a schedule that varies during the year, "operating hours/week" refers to the total weekly hours for the schedule most often followed.		✓
Workers on Main Shift	6(Optional)	Is this the number of employees present during the main shift? Note this is not the total number of employees or visitors who are in a building during an entire 24 hour period. For example, if there are two daily 8 hour shifts of 100 workers each, the Workers on Main Shift value is 100.		✓

TERMINAL & CONCOURSES A&B (Other)

CRITERION	VALUE AS ENTERED IN PORTFOLIO MANAGER	VERIFICATION QUESTIONS	NOTES	☑
Gross Floor Area	144,450 Sq. Ft.	Does this square footage include all supporting functions such as kitchens and break rooms used by staff, storage areas, administrative areas, elevators, stairwells, atria, vent shafts, etc. Also note that existing atriums should only include the base floor area that it occupies. Interstitial (plenum) space between floors should not be included in the total. Finally gross floor area is not the same as leasable space. Leasable space is a subset of gross floor area.		✓
Number of PCs	20(Optional)	Is this the number of personal computers in the space?		✓

Weekly operating hours	60Hours(Optional)	Is this the total number of hours per week that the space is 75% occupied? This number should exclude hours when the facility is occupied only by maintenance, security, or other support personnel. For facilities with a schedule that varies during the year, "operating hours/week" refers to the total weekly hours for the schedule most often followed.		☑
Workers on Main Shift	50(Optional)	Is this the number of employees present during the main shift? Note this is not the total number of employees or visitors who are in a building during an entire 24 hour period. For example, if there are two daily 8 hour shifts of 100 workers each, the Workers on Main Shift value is 100.		☑
PARKING GARAGE (Parking)				
CRITERION	**VALUE AS ENTERED IN PORTFOLIO MANAGER**	**VERIFICATION QUESTIONS**	**NOTES**	☑
Gross Floor Area	80,000 Sq. Ft.	Is this the total square footage of the entire parking area (enclosed + nonenclosed + open floor area)?		☑
Enclosed Floor Area	40,000 Sq. Ft.	Is this the total square footage of the enclosed garage space? An enclosed garage is defined as having both sides and a roof.		☑
Non-Enclosed Floor Area (w/roof)	30,000 Sq. Ft.	Is this the total square footage of the nonenclosed garage space? This is typically defined as the portion of the garage above ground (contains no sides but is under a roof).		☑
Open Floor Area (w/o roof)	10,000 Sq. Ft.	Is this the total square footage of the nonenclosed parking area without a roof? This is typically defined as open parking lots or the very top level of an above ground parking garage.		☑
Weekly Hours of Access	168 Hours	Is this the total number of hours per week when it is possible for a vehicle to enter or exit?		☑

ENERGY STAR® Data Checklist for Commercial Buildings

Energy Consumption

Power Generation Plant or Distribution Utility: Dominion - Virginia Electric & Power Co

Fuel Type: Electricity

Meter: MAIN TERMINAL - METER #5710829 (kWh (thousand Watt-hours))
Space(s): TERMINAL & CONCOURSES A&B
Generation Method: Grid Purchase

Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
05/14/2010	06/13/2010	475,200.00
04/14/2010	05/13/2010	421,920.00
03/14/2010	04/13/2010	352,800.00
02/14/2010	03/13/2010	411,840.00
01/14/2010	02/13/2010	414,720.00
12/14/2009	01/13/2010	440,640.00
11/14/2009	12/13/2009	417,600.00
10/14/2009	11/13/2009	439,200.00
09/14/2009	10/13/2009	626,400.00
08/14/2009	09/13/2009	525,600.00
07/14/2009	08/13/2009	557,280.00
MAIN TERMINAL - METER #5710829 Consumption (kWh (thousand Watt-hours))		**5,083,200.00**
MAIN TERMINAL - METER #5710829 Consumption (kBtu (thousand Btu))		**17,343,878.40**

Meter: PARKING GARAGE - METER #4685945 (kWh (thousand Watt-hours))
Space(s): PARKING GARAGE
Generation Method: Grid Purchase

Start Date	End Date	Energy Use (kWh (thousand Watt-hours))
05/14/2010	06/13/2010	23,880.00
04/14/2010	05/13/2010	22,500.00
03/14/2010	04/13/2010	23,080.00
02/14/2010	03/13/2010	26,900.00
01/14/2010	02/13/2010	28,460.00
12/14/2009	01/13/2010	33,400.00
11/14/2009	12/13/2009	26,380.00
10/14/2009	11/13/2009	23,540.00
09/14/2009	10/13/2009	26,520.00
08/14/2009	09/13/2009	22,140.00
07/14/2009	08/13/2009	23,460.00
PARKING GARAGE - METER #4685945 Consumption (kWh (thousand Watt-hours))		**280,260.00**
PARKING GARAGE - METER #4685945 Consumption (kBtu (thousand Btu))		**956,247.12**
Total Electricity (Grid Purchase) Consumption (kBtu (thousand Btu))		**18,300,125.52**

Is this the total Electricity (Grid Purchase) consumption at this building including all Electricity meters?	☑

Fuel Type: Natural Gas

Meter: GAS METER - #278166 (ccf (hundred cubic feet))
Space(s): TERMINAL & CONCOURSES A&B

Start Date	End Date	Energy Use (ccf (hundred cubic feet))
05/14/2010	06/13/2010	5,834.00
04/14/2010	05/13/2010	12,883.00
03/14/2010	04/13/2010	13,321.00
02/14/2010	03/13/2010	15,560.00
01/14/2010	02/13/2010	10,227.00
12/14/2009	01/13/2010	6,018.00
11/14/2009	12/13/2009	1,358.00
10/14/2009	11/13/2009	2,229.00
09/14/2009	10/13/2009	723.00
08/14/2009	09/13/2009	785.00
07/14/2009	08/13/2009	745.00
GAS METER - #278166 Consumption (ccf (hundred cubic feet))		**69,683.00**
GAS METER - #278166 Consumption (kBtu (thousand Btu))		**7,170,380.70**

Meter: BLUE SKY CAFE - METER #211706 (ccf (hundred cubic feet))
Space(s): BLUE SKY CAFE

Start Date	End Date	Energy Use (ccf (hundred cubic feet))
05/14/2010	06/13/2010	0.00
04/14/2010	05/13/2010	16.00
03/14/2010	04/13/2010	688.00
02/14/2010	03/13/2010	1,012.00
01/14/2010	02/13/2010	1,234.00
12/14/2009	01/13/2010	152.00
11/14/2009	12/13/2009	1.00
10/14/2009	11/13/2009	0.00
09/14/2009	10/13/2009	0.00
08/14/2009	09/13/2009	0.00
07/14/2009	08/13/2009	0.00
BLUE SKY CAFE - METER #211706 Consumption (ccf (hundred cubic feet))		**3,103.00**
BLUE SKY CAFE - METER #211706 Consumption (kBtu (thousand Btu))		**319,298.70**
Total Natural Gas Consumption (kBtu (thousand Btu))		**7,489,679.40**
Is this the total Natural Gas consumption at this building including all Natural Gas meters?		☑

Additional Fuels	
Do the fuel consumption totals shown above represent the total energy use of this building? Please confirm there are no additional fuels (district energy, generator fuel oil) used in this facility.	NO ADDITIONAL FUELS ☑

On-Site Solar and Wind Energy	
Do the fuel consumption totals shown above include all on-site solar and/or wind power located at your facility? Please confirm that no on-site solar or wind installations have been omitted from this list. All on-site systems must be reported.	NO ON SITE SOLAR OR WIND ☑

Certifying Professional

(When applying for the ENERGY STAR, the Certifying Professional must be the same PE or RA that signed and stamped the SEP.)

Name: JIM A. McCLELLAN Date: 10.13.10

Signature:

Signature is required when applying for the ENERGY STAR.

NOTE: AIRPORT TERMINALS NOT AVAILABLE FOR ENERGY STAR RATINGS.