### Pic List



Building: Camera POC:	Date:
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	Extra Pics:
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### **Your Installation**

### Pic List



Pic Notes:

# Inventory



Building: Date:

Inventory POC:

System Name	Equipment Name	Location	Make / Model	Output Capacity	Input Capacity (or Efficiency)	Electrical Info	Notes

# Inventory



System Name	Equipment Name	Location	Make / Model	Output Capacity	Input Capacity (or Efficiency)	Electrical Info	Notes
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## Inventory



System Name	Equipment Name	Location	Make / Model	-	Input Capacity (or Efficiency)	Notes

## System Diagrams



**Building:** Date: System Diagram POC: System Name: V AB T T (P) Ρ 1 AB P -VFDP VFD(F) Temperature Control Diverting Mixing Networked Strap-on Fluid Manual Thermostatic Centrifugal Centrifugal Axial Fan Pre or or Pressure Temp or Sensor Flow Isolation Valve Valve Valve Mixing Pump (w/ or Fan (w/ or (w/ or w/o Final Gauge Valve Valve w/o VFD) w/o VFD) Guide Vanes) Filter Pressure (T) F DSP DP c/ c H/ ~~<del>|</del> /н /c Balancing Duct Static Differential Air Check Triple Pressure Preheat, Cooling, Plate & Frame or Averaging Strainer Supply, Reducing Valve Shell & Tube Sensor Sensor Pressure Flow Valve Duty Heating, or Return, or Valve Valve Reheat Coil Heat Exchangers Exhaust Grills D D >>> В Ch DHW BF AWS EXP T (H) (CO2) ВТ Parallel Steam Pressure Manual Air Automatic Bleed Thermostat, Misc Equipment (Boiler, Chiller, Domestic Opposed Balancing Fire Blade Blade Damper Damper Trap Relief Vent Air Vent Valve Humidistat or Hot Water, Bypass Feeder, Air/Water Separator, Expansion Tank, Buffer Tank, etc) Valve CO2 Detector Damper Damper

**Your Installation** 

# System Diagrams



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# Findings List



Building: This one

Potential					Opport	unity T	ype		
ECM #	System	Brief Description	Energy Savings	Elec Demand	Gas Savings	Water Savings	O&M	Comfort	Notes

# Findings List

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Potential		(	Opport	unity T	ype	for

# Findings List



Potential		Opportunity Type					

### ECM List



Building: This one Date: Today's

Indicate likelihood of ECM viability:  $\mathbf{H}$  (high),  $\mathbf{M}$  (medium),  $\mathbf{L}$  (low),  $\mathbf{!}$  (Exists wth Problems),  $\mathbf{\sim}$  (Exists,/Ignore) or  $\mathbf{N/A}$ :

Scheduling		Oversized Eq	uipment
1.1	Trim Building Schedule	5.1	Pump Optimization (Throttle, VFD, or Trim)
1.2	Holiday HVAC Exceptions	5.2	Fan Resheave
1.3	HVAC Start-Up Optimization	5.3	Thermal Flywheel or Buffer Tank
1.4	HVAC Shut-Down Optimization	5.4	Boiler/Chiller Resizing
1.5	Zone-Level Scheduling	5.5	Reduce Lighting via Fixture/Bulb Replacement
1.6	DHW Return Pump Scheduling	Load Reducti	on
1.7	Interior Lighting Circuit Scheduling	6.1	Remove Air-Side Pressure Drop
1.8	Exterior Lighting Circuit Scheduling	6.2	Remove Water-Side Pressure Drop
1.9	Electrical Equipment Scheduling	6.3	Simultaneous Heating & Cooling Mitigation
Setpoint Value	e Adjustments	6.4	Envelope Entry Improvements
2.1	Adjust zone temperature setpoints	6.5	Decommission Unused Electronic Equipment
2.2	Adjust zone humidity setpoints	Variable Volu	me
2.3	Adjust MAT setpoint	7.1	Constant to VAV AHU Retrofit
2.4	Adjust coil discharge setpoint	7.2	VAV Multizone or Dual Duct Retrofit
2.5	Adjust hydronic supply setpoint	7.3	Return/Relief Fan Optimization
2.6	Adjust pressure discharge setpoint	7.4	Variable Exhaust or Flow Hood Retrofit
2.7	Adjust zone CFM setpoints	7.5	Variable Hydronic (Pump/System DP)
2.8	Adjust lightling levels (delamp)	7.6	Variable Hydronic (OA or Valve-Based)
Automatic Set	point Reset Sequences	7.7	Primary-Secondary Reconfiguration
3.1	<b>Duct Static Pressure Setpoint Reset</b>	BAS Repairs	
3.2	Supply Air Temperature Setpoint Reset	8.1	Correct BAS Communication Errors
3.3	Mixed Air Temperature Setpoint Reset	8.2	Correct BAS Logic Errors
3.4	Min OA Flow Setpoint Reset	8.3	Calibrate Sensors: Temp, Pressure, Occ, or CO2
3.5	Zone Flow Setpoint Reset	8.4	Relocate/Replace Sensors
3.6	Hydronic Storage Temperature Setpoint Reset	8.5	Repair Actuators: Damper, Valve, or Relay
3.7	Hydronic Pressure Setpoint Reset	8.6	Control Loop Tuning
3.10	Hydronic Temperature Setpoint Reset	8.7	BAS Replacements or Upgrades
3.11	Zone Temperature/Humitidty Setback	Equipment E	fficiency
3.12	Low-Use Equipment Standby	9.1	Drive Upgrades: Motor, Pump, Fan, VFD, or Belt
3.13	Daylight Sensors	9.2	Maximized Condensing Boiler Operations
No-Load Disa	ables	9.3	Optimized Chiller Staging
4.1	Time-Delay Hydronic Pump Disable	9.4	Zone-level 1st Stage HVAC
4.2	Outside-Air Boiler/Chiller Lockout	9.5	Economizers: Optimized Enable/Disable
4.3	Valve-Based Boiler/Chiller Lockout	9.6	DHW Heater: Condensing/Instant/Utility Switch
4.4	HVAC Equipment Standby/Override Only	9.7	Lighting Bulb Type Retrofit
4.5	HVAC Occupancy Sensors		
4.6	Lighting Occupancy Sensors or Timers		
4.7	Exterior Lighting Motion Sensors or Timers		
4.8	Electrical Equipment Demand-Only		

### ECM List



Human Benavior & Occupant Comfort	O&M Processes
11.1 Inadequate Signage or Instruction	10.1 Filter Replacements
11.2 Occupant Start-up/Shutdown Procedures	10.2 Equipment Tuning/Treatment/Blowdown
11.3 Occupant Bypass of Facility Systems	10.3 MCC/Controller H-O-A or DDC Overrides
11.4 Missing HVAC/Lighting Override Capabilities	10.4 Gaps in Staffing, Training, or Workflow
11.5 Energy Concervation Incentivization	Misc
11.6 Thermal Comfort Complaints	12.1
Water Savings	12.2
11.1 Utility-Level Leak Detection	12.3
11.2 HVAC Makeup Water Tracking	12.4
11.3 Irrigation Improvements	12.5
11.4 Optimize Non-Potable Water Flows	12.6
11.5 Mitigate Evaporative Cooling Water Losses	12.7
11.6 Process/Cleaning Process Imprvements	12.8

Notes:

**Your Installation** 

# Issues & Resolutions Log



Building: Date:

Issues & Resulutions Log POC:

Issue #	System/ Equipment	Issue	Resolution	POC/Date

# Issues & Resolutions Log

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### **Your Installation**

				for a safer, better wo
Issue #	System/ Equipment	Issue	Resolution	POC/Date

Notes:

### **Your Installation**

## Monitor Plan



Building:
Monitor Plan POC:

T 01 f		T	<b>.</b>	Point Name or	Trend	Trend		Dates		C	<b>N</b> T .
ECM	I System Location 7	Type Location Type Logger ID Interval		Length	Launch Download 1 Download 2			Status	Notes		

### Monitor Plan

# INNOVATIVE SOLUTIONS for a safer, better world

ECM	Systom	Logation	Location Type Point Name or Trend Trend Interval Length					Dates		Status	Notes
ECM	System	Location	Туре	Logger ID	Interval	Length	Launch	Download 1	Download 2	Status	Notes

### Monitor Plan

# INNOVATIVE SOLUTIONS for a safer, better world

ECM	Systom	Logation	Location Type Point Name or Trend Trend Interval Length					Dates		Status	Notes
ECM	System	Location	Туре	Logger ID	Interval	Length	Launch	Download 1	Download 2	Status	Notes

## Monitor Plan

# INNOVATIVE SOLUTIONS for a safer, better work

### **Your Installation**

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ECM	System	Location	Type	Logger ID			Launch	Download 1	Download 2	Status	Notes
				ĺ							

Notes:

**Your Installation** 

### Functional Test List



Building:	Date:
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Monitor Plan POC:

Functional Tests may be necessary to determine system response during RCx. Purpose may be to validate sequence of operation or quantify HVAC parameters needed to assess RCx opportunities. Test templates may be made available by the government or derived from 3rd party sources (ftguide.org), however each Functional Test must be specific to the system being evaluated and at a minimum should include the following sections:

• test purpose	• test instructions •	equipment required	• validation c	riteria (if any)	<ul> <li>precautions</li> </ul>
• references used	• roles & responsibilities	<ul> <li>prerequisites</li> </ul>	<ul> <li>preparation</li> </ul>	<ul> <li>procedures</li> </ul>	<ul> <li>return to normal</li> </ul>

System	FT Name	Monitoring Plan Data Needed?	Purpose	Test Equipment Needed	Additional Instructions
	System	System FT Name	System   FT Name   Plan Data	System   FT Name   Plan Data   Purpose	System FT Name Plan Data Purpose

## Functional Test List



### **Your Installation**

			T		1	for a safer, better worl
ЕСМ	System	FT Name	Monitoring Plan Data Needed?	Purpose	Test Equipment Needed	Additional Instructions

Notes:

### **Your Installation**

### Notes



Building:	Date:
System:	

**Your Installation** 

Notes

# ERDC INNOVATIVE SOLUTIONS for a safer, better world

Building: System:	Date: