

Attachment J-C15-4

Energy Management Control System

DFRC uses a central Energy Management and Control System (EMCS) to control Heating, Ventilation and Air-conditioning (HVAC) in various buildings. The EMCS system maintains interior-building temperatures, controls ventilation, optimizes energy use, tracks and trends data, provides real-time equipment status, and manages back-up systems. The equipment, firmware and software are licensed proprietary technologies of Siemens Building Technologies inc.

The Facilities Maintenance Contractor shall operate the EMCS. The current Facilities Maintenance Contractor subcontracts with Siemens Building Technologies Inc, to provide technical support for the electronics portion of the system at DFRC. The Siemens contract provides:

- Next business day On-Site Response
- Software Upgrades
- Firmware Upgrades
- Software and Firmware Back-ups (4 times per year)
- Contract Management / Quality Assurance
- Automation Controls Analysis and Optimization
- Operator Support and Training
- Field Panel Diagnostics
- Preventive Maintenance (minimum one day per month)
- Documentation of all service

Equipment List of Siemens APOGEE Automation System at Dryden Flight Research Center

Updated 6/9/2006

	4800	4801	4810	4820	4823	4825	4833	4838	4840	4838A	703	T
Controllers												
Modular Building Controller	3	1		1	1			1	3	1	3	
Mechanical Equipment Controller	1			2		1		2	2		5	
Remote Building Controller	2					1						
Unitary Building Controller	9	1			4			1				
York Talk Open Processor	1								1		2	
Terminal Equipment Controllers	120	3		2	8	4		1	68	1	70	
Insight												
APOGEE Insight License	2		1								1	
Sensors												
Duct Temperature	29	1		5	8			6	24	4	18	
Room Temperature	98	5		7	12	8		2	21	1	60	
Immersion Temperature	12			6				5			12	
Air Pressure Transmitter	3	1		4				1	7		8	
Air Pressure Switch	5				4			1	7			
Water Flow Transmitter	1										6	
Duct Humidity	6											
Room Humidity				3								
Actuators												
Damper	92	2			6	6			7	2	8	
Valve	94	2		2	8	2			7		28	

Interfaces											
Trunk Interface II	1		1					1	1	1	1
Fiber Optic Interface	2		1	1	1	1		1	1	1	1