COST PROPOSAL

II. Cost Proposal

It is the intent of this contract obtains unit pricing of product and labor for small and large projects, repair and maintenance services at Georgia Tech.

1. Provide billing labor/services rates to include any transportation and/or travel as they apply for the following job types. Rates should include Site Manager cost in normal overhead. There may be mutable types to cover completely cover the topic.
   A. Engineering required installing all facets of the system.
   B. All installation personnel types
   C. Software personnel types. Software to include application configuration, tuning, software required to install all facets of the system.
   D. Construction management services
2. Unit prices for parts/equipment/components/sensors/software/computers/servers, etc that comprise your proposed system. NOTE: Contractor can provide a composite catalog or listing with unit prices such as GSA catalog. Contractor may also offer a blanket discount of the submitted unit prices. **State discount percentage off list price 57.25% (.4275 multiplier)**
3. Provide unit pricing and lump sum annual pricing as per technical specification.
4. Provide detail pricing of each of the items on the Cost Proposal. The future installation of the configurations as described in Cost Proposal could be one of or may of in any renovation and/or small and/or large projects. Definition of "detail pricing" this shall mean that the pricing per drawing shall list every component separately, labor for installation can be grouped but labor shall be broken out per job function, example, Project Management, system/installation engineering, etc shall be individually priced noting hours, billing rate and total. Should the vendor need the assistance of a sub contactor such as an electrician, the electrician would be considered a separate job junction. Should the vendor require systems from another specialty vendor such as a fume hood air velocity control vendor. The pricing shall include the equipment and labor of the specialty vendor. The total price per drawing

shall be inclusive of all aspects, functions and equipment for a complete and operational system.

DIRECT DIGITAL CONTROL SYSTEM

A. Provide direct digital control (DDC) system component costs, including materials, labor, and subcontractor's overhead and profit for the items below.
B. Pricing must be provided in an itemized list. Itemized list must include detailed information for materials, labor, and subcontractor's overhead and profit for each of the items.
C. When pricing all future work on renovations and/or new buildings Contractor must provide a detailed price list noting each item as per attached specifications with a reference to this quote by the item number. When pricing any future work less than this bid, Contractor must not price any work noted in this contact greater than this bid.

D. Cost Schedule – DDC System:

1. **Total Cost for Labor, Engineering Management, and Materials to Install a Complete DDC Control Panel,** including CPU, chassis, cabinet, memory, power supply and conditioning equipment, battery back-up, communications equipment, and sensor terminations. If more than one type of panel is used to provide various I/O capabilities, provide complete, installed prices, in dollars, for each type of panel. Labor costs must include all labor required for installation necessary to connect the system to the existing FMCS per specifications.

Stand-alone FEC2610 Control Panel: $1,430.52 /panel

Stand-alone FEC1610 Control Panel: $1,285.50 /panel

Stand-alone 2610 w/ IOM 3710 Control Panel: $1,879.30 /panel

Stand-alone 2610 w/ IOM 4710 Control Panel: $1,901.49 /panel

Stand-alone NCE Control Panel: $2,435.2 /panel

	Name	Description	Qty	JCI Mat List	GT Cost	Total
Materials	**FEC2610**					
	FIELD	**Field Mounted Material**	**1**			
	Panel	**FEC 2610**	**1**			
	PAKB00011BC0	PANEL MS-FEU2610-0 24X36X9.25 ENC TB 96VA PWRSP	1	$2,355.60	$1,007.02	$1,007.02
					Mat'ls Total	**$1,007.02**
Installation						
	JCI	Installation Labor & Materials	1	$350.00	$423.50	**$423.50**
					TOTAL	$1,430.52

	Name	Description	Qty	JCI Mat List	GT Cost	Total
Materials	**FEC1610**					
	FIELD	**Field Mounted Material**	**1**			
	Panel	**FEC 1610**	**1**			
	PAKA00011BC0	PANEL MS-FEU1610-0 24X36X9.25 ENC TB 96VA PWRSP	1	$2,016.37	$862.00	$862.00
					Mat'ls Total	**$862.00**
Installation						
	JCI	Installation Labor & Materials	1	$350.00	$423.50	**$423.50**
					TOTAL	$1,285.50

	Name	Description	Qty	JCI Mat List	GT Cost	Total
Materials	**FEC2610 w/ IOM**					
	FIELD	**Field Mounted Material**	**1**			
	Panel	**FEC 2610 + IOM**	**1**			
	PAKBJC012BC0	PANEL MS-FEU2610-0 MS-IOM3710-0 24X36X9.25 ENC TB	1	$3,405.39	$1,455.80	$1,455.80
					Mat'ls Total	**$1,455.80**
Installation						
	JCI	Installation Labor & Materials	1	$350.00	$423.50	**$423.50**
					TOTAL	$1,879.30

	Name	Description	Qty	JCI Mat List	GT Cost	Total
Materials	**FEC2610 w/ IOM**					
	FIELD	**Field Mounted Material**	**1**			
	Panel	**FEC 2610 + IOM**	**1**			
	PAKBJD012BC0	PANEL MS-FEU2610-0 MS-I0U4710-0 24X36X9.25 ENC TB	1	$3,457.28	$1,477.99	$1,477.99
					Mat'ls Total	**$1,477.99**
Installation						
	JCI	Installation Labor & Materials	1	$350.00	$423.50	**$423.50**
					TOTAL	$1,901.49

	Name	Description	Qty	JCI Mat List	GT Cost	Total
Materials	**NCE**					
	FIELD	**Field Mounted Material**	**1**			
	Panel	**NCE**	**1**			
	PARE00001BH4	PANEL, MS-NCE2560-0, 24X36X6.62 ENC, 96VA PWRSP, 5	1	$4,705.73	$2,011.70	$2,011.70
					Mat'ls Total	**$2,011.70**
Installation						
	JCI	Installation Labor & Materials	1	$350.00	$423.50	**$423.50**
					TOTAL	$2,435.20

2. **Total Cost for Labor, Engineering Management and Materials to Provide all Control Points Required for a Typical Chiller Installation,** as outlined in the Input/Output Summary on Drawing CENT-CHIL chiller section and Specification 15900. Material costs

must include all required field sensors, complete with mounting hardware, signal conditioners and transducers, installation wells (if appropriate), and all other components required for a complete, functional installation. Labor costs must include all labor required for installation, system software, and system graphics necessary to connect the system to the existing FMCS per specifications.

DDC $ 83,208/each

	Name	Description	Qty	JCI Mat List	GT Cost	Total
Materials						
	FIELD	**Field Mounted Material**	**1**			
	PCHWR-T	**Primary CHW Return Temp**	**1**			
	TE-631AM-2	WELL TEMP SEN 6" 1K NI	1	$38.23	$16.34	$16.34
	TE-6300W-102	T-WELL 6" SS DIRECT MNT	1	$113.79	$48.65	$48.65
	PCHWS-T	**Primary CHW Supply Temp**	**1**			
	TE-631AM-2	WELL TEMP SEN 6" 1K NI	1	$38.23	$16.34	$16.34
	TE-6300W-102	T-WELL 6" SS DIRECT MNT	1	$113.79	$48.65	$48.65
	CWS-T	**Condenser Water Supply Te**	**1**			
	TE-631AM-2	WELL TEMP SEN 6" 1K NI	1	$38.23	$16.34	$16.34
	TE-6300W-102	T-WELL 6" SS DIRECT MNT	1	$113.79	$48.65	$48.65
	DCPL-F	**Decouple Loop Flow**	**1**			
	DATA LOGGER					
Vendor	SITRANS FUE1010	Siemens Ultrasonic FM	2	$10,100.00	$12,221.00	$24,442.00
Vendor	DX2010-2-4-2/C3/PM1	Yogogawa Datalogger	2	$6,300.00	$7,623.00	$15,246.00
Vendor	HSQ24	Hubbell Cabinet	2	$1,100.00	$1,331.00	$2,662.00
	SCHWR-T	**Secondary CHW Return Temp**	**1**			
	TE-631AM-2	WELL TEMP SEN 6" 1K NI	1	$38.23	$16.34	$16.34
	TE-6300W-102	T-WELL 6" SS DIRECT MNT	1	$113.79	$48.65	$48.65
	SCHWS-T	**Secondary CHW Supply Temp**	**1**			
	TE-631AM-2	WELL TEMP SEN 6" 1K NI	1	$38.23	$16.34	$16.34
	TE-6300W-102	T-WELL 6" SS DIRECT MNT	1	$113.79	$48.65	$48.65
	SCHW-F	**Secondary CHW Flow**	**1**			
	CHW-DP	**Chill Water Differential**	**1**			
	DPT2302-050D	PRESS SENS,DP,0-50 PSI,VD	1	$1,007.40	$430.66	$430.66
	PCHWPx-C,-S	**Primary CHW Pump Command,**	**2**			
	CSD-SA1E1-1	SLD/ADJ LED 1A W/RLY	2	$133.42	$57.04	$114.07
	SCHWPx-C,-S	**Secondary CHW Pump Comman**	**2**			
	CSD-SA1E1-1	SLD/ADJ LED 1A W/RLY	2	$133.42	$57.04	$114.07
	CH1-EN	**Chiller 1 Enable**	**1**			
	RH2B-UAC24-L	DPDT,10A,HC=24 VAC,	1	$19.45	$8.31	$8.31
	SH2B-05	DPDT RELAY BASE FOR RH2B	1	$66.11	$28.26	$28.26
	CWPx-C,-S	**Condenser Water Pump Comm**	**2**			
	CSD-SA1E1-1	SLD/ADJ LED 1A W/RLY	2	$133.42	$57.04	$114.07
	CTxH-C	**Tower HI Command**	**2**			
	RIBU1C	SPDT,10A,HC=10-30 VAC/DC,	2	$35.10	$15.01	$30.01
	CTxL-C	**Tower LO Command**	**2**			
	RIBU1C	SPDT,10A,HC=10-30 VAC/DC,	2	$35.10	$15.01	$30.01
	CTx-S	**Tower Status**	**2**			
	CSD-SA1E0-1	SLD/ADJ LED 1A W/O RELAY	2	$88.62	$37.89	$75.77
	PANEL	**Panel Mounted Material**	**1**			
	CONTROLLER	**Panel Controller**	**1**			
	MS-NCE2560-0	NCE, 33 POINTS, MSTP	1	$3,284.30	$1,404.04	$1,404.04
	MS-IOM2710-0	I/O MODULE 2UI.2UO.2BO	1	$470.87	$201.30	$201.30
	Control Valves					

Tower Isolation	6 IN, 2-WAY BTFLY VLV,FLOATING	1	$3,831.72	$1,638.06	$1,638.06
Tower Bypass	6 IN, 3-WAY BTFLY VLV,PROPORTIONAL	1	$7,734.48	$3,306.49	$3,306.49
Chiller Isolation	6 IN, 2-WAY BTFLY VLV,FLOATING	1	$3,831.72	$1,638.06	$1,638.06
Chiller Head Press	6 IN, 3-WAY BTFLY VLV,PROPORTIONAL	1	$6,968.00	$2,978.82	$2,978.82
OTHER	**Uninterruptable Power Sup**	**1**			
PAN-PWRSP	PANEL POWER SUPPLY 96VA	2	$242.10	$103.50	$207.00
PAN-ENC2436WDP4	24X36X9.25 ENC+NCE DR+PNL	1	$1,043.33	$446.02	$446.02
MS-DIS1710-0	RMT DISPLAY FOR NCE, FEC	1	$385.05	$164.61	$164.61
				Mat'ls Total	**$55,604.59**

Installation

JCI	Installation Labor & Materials	1	$11,500.00	$13,915.00	**$13,915.00**
Vendor (Flowmeter)	CHW FM install and config	1	$5,400.00	$6,534.00	**$6,534.00**
Vendor (Flowmeter)	To mount data logger	1	$1,625.00	$1,966.25	**$1,966.25**

Labor

JCI Technical Labor

	Hrs	Rate		
Project Administration	16	$ 118		$ 1,888
Job Site Coordination	16	$ 118		$ 1,888
Device Verification	24	$ 82		$ 1,968
System Commissioning	28	$ 82		$ 2,296
Commissioning Agent Assist	8	$ 82		$ 656
Hardware Engineering	16	$ 97		$ 1,552
Software Programming	16	$ 97		$ 1,552
Graphics Generation	12	$ 70		$ 840
As-builts & Submittals	4	$ 97		$ 388
Vehicle Trips	12	$ 55		$ 660
			Labor Total	**$13,688**

TOTAL **$83,207.59**

3. **Total Cost for Labor, Engineering Management And Material to Provide all Control Points Required for a Typical Multi-zone Air Handler Installation,** a outlined in the Input/Output Summary on Drawing MZ-AHU and Specification 15900. Material costs must include all required sensors, complete with mounting hardware, signal conditioners and transducers, installation wells (if appropriate), and all other components required for a complete, functional installation. Labor costs must include all labor required for installation, system software, and system graphics necessary to connect the system to the existing FMCS per specifications.

DDC $ 13,130 /each

Materials

Name	Description	Qty	JCI Mat List	GT Cost	Total
FIELD	**Field Mounted Material**	**1**			
D-1	**Outdoor Air Damper**	**1**			

MAD-O	**Exhaust Air Damper**	**1**			
M9220-GGA-3	20NM,SR,DPR ACT,0-10 VDC,	1	$280.64	$119.97	$119.97
D-2	**Return Air Damper**	**1**			
MAD-O	**Outdoor Air Damper**	**1**			
M9220-GGA-3	20NM,SR,DPR ACT,0-10 VDC,	1	$280.64	$119.97	$119.97
D-3	**Exhaust Air Damper**	**1**			
MAD-O	**Return Air Damper**	**1**			
M9220-GGA-3	20NM,SR,DPR ACT,0-10 VDC,	1	$280.64	$119.97	$119.97
CHWL-T	**Chilled Water Leaving Tem**	**1**			
TE-631AM-2	WELL TEMP SEN 6" 1K NI	1	$17.91	$7.66	$7.66
TE-6300W-102	T-WELL 6" SS DIRECT MNT	1	$53.31	$22.79	$22.79
LT-A	**Low Temperature Alarm**	**1**			
A70HA-1C	DUCT,MLT,SP=15-55 F (-9-	1	$143.34	$61.28	$61.28
TE-6001-8	AVERAGING ELEMENT HOLDER	1	$5.35	$2.29	$2.29
MA-T	**Mixed Air Temperature**	**1**			
TE-6316M-1	NICKEL DUCT AVERAGE,17 FE	1	$75.37	$32.22	$32.22
TE-6001-8	AVERAGING ELEMENT HOLDER	1	$5.35	$2.29	$2.29
PFILT-S	**PreFilter Status**	**1**			
P32AC-2C	DIF,0.05 - 5 INWC,DIF=0.0	1	$89.21	$38.14	$38.14
FTG18A-600R	REMOTE MTD PROBE	1	$13.94	$5.96	$5.96
RA-T	**Return Air Temperature**	**1**			
TE-6311M-1	8" 1000 OHM NI DUCT TEMP	1	$15.40	$6.58	$6.58
RHWL-T	**Reheat Leaving Water Temp**	**1**			
TE-631AM-2	WELL TEMP SEN 6" 1K NI	1	$17.91	$7.66	$7.66
TE-6300W-102	T-WELL 6" SS DIRECT MNT	1	$53.31	$22.79	$22.79
SDR-1	**Shut Down Relay 1**	**1**			
RIBU1C	SPDT,10A,HC=10-30 VAC/DC,	1	$30.52	$13.05	$13.05
SF-C,-S	**Supply Fan Command, Statu**	**1**			
CSD-SA1E1-1	SLD/ADJ LED 1A W/RLY	1	$62.50	$26.72	$26.72
CD-T	**Cold Deck Temperature**	**1**			
TE-6311M-1	8" 1000 OHM NI DUCT TEMP	1	$15.40	$6.58	$6.58
HD-T	**Hot Deck Temperature**	**1**			
TE-6311M-1	8" 1000 OHM NI DUCT TEMP	1	$15.40	$6.58	$6.58
ZN1D-O	**Zone1 Damper Output**	**1**			
M9108-GGA-2	ELEC,PROP,NSR,FB=V,TQ=70|	1	$148.62	$63.54	$63.54
ZN2D-O	**Zone2 Damper Output**	**1**			
M9108-GGA-2	ELEC,PROP,NSR,FB=V,TQ=70|	1	$148.62	$63.54	$63.54
ZN3D-O	**Zone3 Damper Output**	**1**			
M9108-GGA-2	ELEC,PROP,NSR,FB=V,TQ=70|	1	$148.62	$63.54	$63.54
ZN4D-O	**Zone4 Damper Output**	**1**			
M9108-GGA-2	ELEC,PROP,NSR,FB=V,TQ=70|	1	$148.62	$63.54	$63.54
ZN5D-O	**Zone5 Damper Output**	**1**			
M9108-GGA-2	ELEC,PROP,NSR,FB=V,TQ=70|	1	$148.62	$63.54	$63.54
ZN6D-O	**Zone6 Damper Output**	**1**			$0.00
M9108-GGA-2	ELEC,PROP,NSR,FB=V,TQ=70|	1	$148.62	$63.54	$63.54
ZN1-T,-SP	**Zone1 Temperature, Setpoi**	**1**			
TE-67NT-2N00	SENSOR,RM,1K NI,TERM BLK,	1	$49.81	$21.29	$21.29
ZN2-T,-SP	**Zone2 Temperature, Setpoi**	**1**			
TE-67NT-2N00	SENSOR,RM,1K NI,TERM BLK,	1	$49.81	$21.29	$21.29
ZN3-T,-SP	**Zone3 Temperature, Setpoi**	**1**			
TE-67NT-2N00	SENSOR,RM,1K NI,TERM BLK,	1	$49.81	$21.29	$21.29
ZN4-T,-SP	**Zone4 Temperature, Setpoi**	**1**			
TE-67NT-2N00	SENSOR,RM,1K NI,TERM BLK,	1	$49.81	$21.29	$21.29
ZN5-T,-SP	**Zone5 Temperature, Setpoi**	**1**			
TE-67NT-2N00	SENSOR,RM,1K NI,TERM BLK,	1	$49.81	$21.29	$21.29
ZN6-T,-SP	**Zone6 Temperature, Setpoi**	**1**			

TE-67NT-2N00	SENSOR,RM,1K NI,TERM BLK,	1	$49.81	$21.29	$21.29
CHW-V	**Chilled Water Valve**	**1**			
VG1241FR+909GGA	2" 2W BALL,29.2CV,0-10V,NSR	1	$591.15	$252.72	$252.72
HW-V	**Hot Water Valve**	**1**			
VG1241FR+909GGA	2" 2W BALL,29.2CV,0-10V,NSR	1	$591.15	$252.72	$252.72
PANEL	**Panel Mounted Material**	**1**			
CONTROLLER	**Panel Controller**	**1**			
MS-FEU2610-0	CTRL 6UI.2BI.3BO.2AO.4CO	1	$397.06	$169.74	$169.74
MS-IOU4710-0	I/O M 6UI.2BI.3BO.2AO.4CO	2	$295.58	$126.36	$252.72
OTHER	**Uninterruptable Power Sup**	**1**			
PAN-PWRSP	PANEL POWER SUPPLY 96VA	1	$113.42	$48.49	$48.49
PAN-ENC2436WDP4	24X36X9.25 ENC+NCE DR+PNL	1	$488.77	$208.95	$208.95
MS-DIS1710-0	RMT DISPLAY FOR NCE, FEC	1	$180.38	$77.11	$77.11
				Mat'ls Total	**$2,393.92**

Installation

JCI	Installation Labor & Materials	1	$4,450.00	$5,384.50	**$5,384.50**

Labor

JCI Technical Labor

	Hrs	Rate		
Project Administration	4	$ 118		$ 472
Job Site Coordination	8	$ 118		$ 944
Device Verification	8	$ 82		$ 656
System Commissioning	12	$ 82		$ 984
Commissioning Agent Assist	4	$ 82		$ 328
Hardware Engineering	6	$ 97		$ 582
Software Programming	6	$ 97		$ 582
Graphics Generation	4	$ 70		$ 280
As-builts & Submittals	2	$ 97		$ 194
Vehicle Trips	6	$ 55		$ 330
			Labor Total	**$5,352**

4. **Total Cost for Labor, Engineering Management and Materials to Provide all Control Points Required for a Typical Constant Volume Air Handler Installation,** as outlined I the Input/Output Summary on Drawing CV-AHU and specification 15900. Material costs must include all required field sensors, complete with mounting hardware, signal conditioners and transducers, installation wells (if appropriate), and all other components required for a complete, functional installation. Labor costs must include all labor required for installation, system software, and system graphics necessary to connect the system to the existing FMCS per specifications.

DDC $10,928 /each

Name	Description	Qty	JCI Mat List	GT Cost	Total

Materials

FIELD	**Field Mounted Material**	**1**			
D-1	**Outdoor Air Damper**	**1**			
OAD-O	**Outdoor Air Damper Output**	**1**			
M9220-GGA-3	20NM,SR,DPR ACT,0-10 VDC,	1	$280.64	$119.97	$119.97
D-2	**Return Air Damper**	**1**			
RAD-O	**Return Air Damper Output**	**1**			
M9220-GGA-3	20NM,SR,DPR ACT,0-10 VDC,	1	$280.64	$119.97	$119.97
D-3	**Exhaust Air Damper**	**1**			
EAD-O	**Exhaust Air Damper Output**	**1**			
M9220-GGA-3	20NM,SR,DPR ACT,0-10 VDC,	1	$280.64	$119.97	$119.97
CLG-O	**Cooling Output**	**1**			
VG1241FR+909GGA	2" 2W BALL,29.2CV,0-10V,N	1	$307.40	$131.41	$131.41
PH-O	**Preheat Output**	**1**			
VG1241FR+92JGGA	2" 2W BALL,29.2CV,0-10V,S	1	$450.45	$192.57	$192.57
DA-T	**Discharge Air Temperature**	**1**			
TE-6311M-1	8" 1000 OHM NI DUCT TEMP	1	$15.40	$6.58	$6.58
LT-A	**Low Temperature Alarm**	**1**			
A70HA-1C	DUCT,MLT,SP=15-55 F (-9-	1	$143.34	$61.28	$61.28
TE-6001-8	AVERAGING ELEMENT HOLDER	1	$5.35	$2.29	$2.29
MA-T	**Mixed Air Temperature**	**1**			
TE-6316M-1	NICKEL DUCT AVERAGE,17 FE	1	$75.37	$32.22	$32.22
TE-6001-8	AVERAGING ELEMENT HOLDER	1	$5.35	$2.29	$2.29
PFILT-S	**PreFilter Status**	**1**			
P32AC-2C	DIF,0.05 - 5 INWC,DIF=0.0	1	$89.21	$38.14	$38.14
FTG18A-600R	REMOTE MTD PROBE	1	$13.94	$5.96	$5.96
PH-T	**Preheat Temperature**	**1**			
TE-6316M-1	NICKEL DUCT AVERAGE,17 FE	1	$75.37	$32.22	$32.22
TE-6001-8	AVERAGING ELEMENT HOLDER	1	$5.35	$2.29	$2.29
RA-T	**Return Air Temperature**	**1**			
TE-6311M-1	8" 1000 OHM NI DUCT TEMP	1	$15.40	$6.58	$6.58
RF-C,-S	**Return Fan Command, Statu**	**1**			
CSD-SA1E1-1	SLD/ADJ LED 1A W/RLY	1	$62.50	$26.72	$26.72
SDR-1	**Shut Down Relay 1**	**1**			
RIBU1C	SPDT,10A,HC=10-30 VAC/DC,	1	$30.52	$13.05	$13.05
SDR-2	**Shut Down Relay 2**	**1**			
RIBU1C	SPDT,10A,HC=10-30 VAC/DC,	1	$30.52	$13.05	$13.05
SF-C,-S	**Supply Fan Command, Statu**	**1**			
CSD-SA1E1-1	SLD/ADJ LED 1A W/RLY	1	$62.50	$26.72	$26.72
ZN-T,-SP	**Zone Temperature, Setpoin**	**1**			
WRZ-TTS0000-0	SENSOR, WIRELSS, DEG F/C	1	$122.85	$52.52	$52.52
ROUTER	**Wireless Router for Mesh**	**1**			
MS-ZFR1811-0	WIRELSS FIELDBUS ROUTER	1	$102.65	$43.88	$43.88
PANEL	**Panel Mounted Material**	**1**			
PANEL	**Panel Item**	**1**			
PAKB00001FH4	CONT PANEL FEU2610 NO TB	1	$1,063.12	$454.48	$454.48
				Mat'ls Total	**$1,504.16**

Installation

JCI	Installation Labor & Materials	1	$4,450.00	$5,384.50	**$5,384.50**

Labor

JCI Technical Labor		Hrs	Rate		
	Project Administration	2	$ 118		$ 236
	Job Site Coordination	6	$ 118		$ 708

	Device Verification	8	$ 82		$ 656
	System Commissioning	8	$ 82		$ 656
	Commissioning Agent Assist	4	$ 82		$ 328
	Hardware Engineering	4	$ 97		$ 388
	Software Programming	4	$ 97		$ 388
	Graphics Generation	3	$ 70		$ 210
	As-builts & Submittals	2	$ 97		$ 194
	Vehicle Trips	5	$ 55		$ 275
				Labor Total	**$4,039**
				TOTAL	**$10,927.66**

5. **Total Cost for Labor, Engineering Management and Materials to Provide all Control Points Required for a Typical Variable Volume Air Handler Installation,** as outlined in the Input/Our Summary on Drawing VAV-AHU and Specification 15900. Material costs must include all required field sensors, complete with mounting hardware, signal conditioners and transducer, installation wells (if appropriate), and all other components required for a complete, functional installation. Labor costs must include all labor required for installation, system software, and system graphics necessary to connect the system to the existing FMCS per specifications.

DDC $ 16,992 /each

Materials

Name	Description	Qty	JCI Mat List	GT Cost	Total
FIELD	**Field Mounted Material**	**1**			
D-1	**Outdoor Air Damper**	**1**			
OAD-O	**Outdoor Air Damper Output**	**1**			
M9220-GGA-3	20NM,SR,DPR ACT,0-10 VDC,	1	$280.64	$119.97	$119.97
D-2	**Return Air Damper**	**1**			
RAD-O	**Return Air Damper Output**	**1**			
M9220-GGA-3	20NM,SR,DPR ACT,0-10 VDC,	1	$280.64	$119.97	$119.97
D-3	**Exhaust Air Damper**	**1**			
EAD-O	**Exhaust Air Damper Output**	**1**			
M9220-GGA-3	20NM,SR,DPR ACT,0-10 VDC,	1	$280.64	$119.97	$119.97
CLG-O	**Cooling Output**	**1**			
VG1241FR+909GGA	2" 2W BALL,29.2CV,0-10V,N	1	$307.40	$131.41	$131.41
DA-F	**Discharge Air Flow**	**1**			
ASTNN-048X048P		1	$3,268.63	$1,397.34	$1,397.34
PH-O	**Preheat Output**	**1**			
VG1241FR+92JGGA	2" 2W BALL,29.2CV,0-10V,S	1	$450.45	$192.57	$192.57
RA-F	**Return Air Flow**	**1**			
ASTNN-048X048P		1	$3,268.63	$1,397.34	$1,397.34
CHWL-T	**Chilled Water Leaving Tem**	**1**			
TE-631AM-2	WELL TEMP SEN 6" 1K NI	1	$17.91	$7.66	$7.66

TE-6300W-102	T-WELL 6" SS DIRECT MNT	1	$53.31	$22.79	$22.79
DA1-P	**Discharge Air Static Pres**	**1**			
DPT2641-005D-1	PRESS SENS,DP,0-5"WC,MA,1	1			
FTG18A-600R	REMOTE MTD PROBE	1	$13.94	$5.96	$5.96
DAPHI-A	**Discharge Air High Duct P**	**1**			
AFS-460	DIF,0.4 - 12 INWC,DIF=MR,	1	$34.40	$14.71	$14.71
FTG18A-600R	REMOTE MTD PROBE	1	$13.94	$5.96	$5.96
DA-T	**Discharge Air Temperature**	**1**			
TE-6311M-1	8" 1000 OHM NI DUCT TEMP	1	$15.40	$6.58	$6.58
LT-A	**Low Temperature Alarm**	**1**			
A70HA-1C	DUCT,MLT,SP=15-55 F (-9-	1	$143.34	$61.28	$61.28
TE-6001-8	AVERAGING ELEMENT HOLDER	1	$5.35	$2.29	$2.29
MA-T	**Mixed Air Temperature**	**1**			
TE-6316M-1	NICKEL DUCT AVERAGE,17 FE	1	$75.37	$32.22	$32.22
TE-6001-8	AVERAGING ELEMENT HOLDER	1	$5.35	$2.29	$2.29
PFILT-S	**PreFilter Status**	**1**			
P32AC-2C	DIF,0.05 - 5 INWC,DIF=0.0	1	$89.21	$38.14	$38.14
FTG18A-600R	REMOTE MTD PROBE	1	$13.94	$5.96	$5.96
PH-T	**Preheat Temperature**	**1**			
TE-6316M-1	NICKEL DUCT AVERAGE,17 FE	1	$75.37	$32.22	$32.22
TE-6001-8	AVERAGING ELEMENT HOLDER	1	$5.35	$2.29	$2.29
PHWL-T	**Preheat Leaving Water Tem**	**1**			
TE-631AM-2	WELL TEMP SEN 6" 1K NI	1	$17.91	$7.66	$7.66
TE-6300W-102	T-WELL 6" SS DIRECT MNT	1	$53.31	$22.79	$22.79
RA-T	**Return Air Temperature**	**1**			
TE-6311M-1	8" 1000 OHM NI DUCT TEMP	1	$15.40	$6.58	$6.58
RF-C,-S	**Return Fan Command, Statu**	**1**			
CSD-SA1E1-1	SLD/ADJ LED 1A W/RLY	1	$62.50	$26.72	$26.72
SDR-1	**Shut Down Relay 1**	**1**			
RIBU1C	SPDT,10A,HC=10-30 VAC/DC,	1	30.52	$13.05	$13.05
SDR-2	**Shut Down Relay 2**	**1**			
RIBU1C	SPDT,10A,HC=10-30 VAC/DC,	1	30.52	$13.05	$13.05
SF-C,-S	**Supply Fan Command, Statu**	**1**			
CSD-SA1E1-1	SLD/ADJ LED 1A W/RLY	1	$62.50	$26.72	$26.72
ROUTER	**Wireless Router for Mesh**	**1**			
MS-ZFR1811-0	WIRELSS FIELDBUS ROUTER	1	$102.65	$43.88	$43.88
PANEL	**Panel Mounted Material**	**1**			
PANEL	**Panel Item**	**1**			
SAKBJD002A00	SUBPANEL FEC/IOM 20X24	1	$1,032.02	$441.19	$441.19
PAN-ENC2024WDF4	20X24X9.25 ENC+NCE DOOR	1	$292.87	$125.20	$125.20
MS-DIS1710-0	RMT DISPLAY FOR NCE, FEC	1	$180.38	$77.11	$77.11
				Mat'ls Total	**$4,522.86**

Installation

JCI	Installation Labor & Materials	1	$5,500.00	$6,655.00	**$6,655.00**

Labor

JCI Technical Labor		Hrs	Rate		
	Project Administration	4	$ 118		$ 472
	Job Site Coordination	8	$ 118		$ 944
	Device Verification	12	$ 82		$ 984
	System Commissioning	12	$ 82		$ 984
	Commissioning Agent Assist	8	$ 82		$ 656
	Hardware Engineering	6	$		$

			97		582
	Software Programming	4	$ 97		$ 388
	Graphics Generation	4	$ 70		$ 280
	As-builts & Submittals	2	$ 97		$ 194
	Vehicle Trips	6	$ 55		$ 330
				Labor Total	**$5,814**
				TOTAL	**$16,991.86**

6. **Total Cost for Labor, Engineering Management and Materials to Provide All Control Points Required for a Typical Variable Air Volume Box with Reheat,** as outlined in the Input/Output Summary on Drawing VAV-1 and Specification 15900. Material costs must include all required field sensors, complete with mounting hardware, signal conditioners and transducer, installation wells (if appropriate), and all other components required for a complete, functional installation. Labor costs must include all labor required for installation, system software, and system graphics necessary to connect the system to the existing FMCS per specifications.

DDC $1,039 /each

	Name	Description	Qty	JCI Mat List	GT Cost	Total
Materials						
	FIELD	**Field Mounted Material**	**1**			
	DA-T	**Discharge Air Temperature**	**1**			
	TE-631GV-2	NICKEL DUCT PROB,4 INCHES	1	$15.39	$6.58	$6.58
	ZN-T,-SP	**Zone Temperature, Setpoin**	**1**			
	WRZ-TTS0000-0	SENSOR, WIRELSS, DEG F/C	1	$122.85	$52.52	$52.52
	ROUTER	**Wireless Router for Mesh**	**1**			
	MS-ZFR1811-0	WIRELSS FIELDBUS ROUTER	1	$102.65	$43.88	$43.88
	HTG-O	**Heating Output**	**1**			
	VG1241AG+9A4GGA	1/2" 2W BALL VALVE 4.7CV	1	$290.75	$124.30	$124.30
	VMA	**VMA Controller**	**1**			
	MS-VMA1620-0	VAV CTRL/ACT/DP.HTG.FAN	1	$295.81	$126.46	$126.46
					Mat'ls Total	**$353.73**
Installation						
	JCI	Installation Labor & Materials	1	$185.00	$223.85	**$223.85**

Labor

JCI Technical Labor		Hrs	Rate		
	Project Administration	0.5	$ 118		$ 59
	Job Site Coordination	1	$ 118		$ 118
	Device Verification	1	$ 82		$ 82
	System Commissioning	1	$ 82		$ 82
	Commissioning Agent Assist	0.25	$ 82		$ 21
	Hardware Engineering	0.25	$ 97		$ 24

	Software Programming	0.25	$ 97		$ 24
	Graphics Generation	0.25	$ 70		$ 18
	As-builts & Submittals	0.25	$ 97		$ 24
	Vehicle Trips	2	$ 5		$ 10
				Labor Total	**$462**
				TOTAL	**$1,039.33**

7. **Total Cost for Labor, Engineering Management and Materials to Provide all Control Points Required for a Typical Outside Air Handling Unit,** as outlined in the Input/Output Summary on Drawing OA-AHU and Specification 15900. Material costs must include all required field sensors, complete with mounting hardware, signal conditioners and transducer, installation wells (if appropriate), and all other components required for a complete, functional installation. Labor costs must include all labor required for installation, system software, and system graphics necessary to connect the system to the existing FMCS per specifications.

DDC $ 12,317 /each

Materials

Name	Description	Qty	JCI Mat List	GT Cost	Total
FIELD	**Field Mounted Material**	**1**			
CLG-O	**Cooling Output**	**1**			
VG1241FR+909GGA	2" 2W BALL,29.2CV,0-10V,N	1	$307.40	$131.41	$131.41
HUM-O	**Humidifier Output**	**1**			
VG1245FR+94JGGA	2" 2W BALL,29.2CV,0-10V,S	1	$496.86	$212.41	$212.41
PH-O	**Preheat Output**	**1**			
VG1241FR+92JGGA	2" 2W BALL,29.2CV,0-10V,S	1	$450.45	$192.57	$192.57
RH-O	**Reheat Output**	**1**			
VG1241FR+909GGA	2" 2W BALL,29.2CV,0-10V,N	1	$307.40	$131.41	$131.41
CHWL-T	**Chilled Water Leaving Tem**	**1**			
TE-631AM-2	WELL TEMP SEN 6" 1K NI	1	$17.91	$7.66	$7.66
TE-6300W-102	T-WELL 6" SS DIRECT MNT	1	$53.31	$22.79	$22.79
DA1-P	**Discharge Air Static Pres**	**1**			
DPT2641-005D-1	PRESS SENS,DP,0-5"WC,MA,1	1	$260.00	$111.15	$111.15
FTG18A-600R	REMOTE MTD PROBE	1	$13.94	$5.96	$5.96
DAPHI-A	**Discharge Air High Duct P**	**1**			
AFS-460	DIF,0.4 - 12 INWC,DIF=MR,	1	$34.40	$14.71	$14.71
FTG18A-600R	REMOTE MTD PROBE	1	$13.94	$5.96	$5.96
DA-T,-H	**Discharge Air Temperature**	**1**			
HE-67N3-0N00P	SENSOR,3%RH & 1K NI TEMP,	1	$197.56	$84.46	$84.46
LT-A	**Low Temperature Alarm**	**1**			
A70HA-1C	DUCT,MLT,SP=15-55 F (-9-	1	$143.34	$61.28	$61.28
TE-6001-8	AVERAGING ELEMENT HOLDER	1	$5.35	$2.29	$2.29
PFILT-S	**PreFilter Status**	**1**			
P32AC-2C	DIF,0.05 - 5 INWC,DIF=0.0	1	$89.21	$38.14	$38.14

FTG18A-600R	REMOTE MTD PROBE	1	$13.94	$5.96	$5.96
PH-T	**Preheat Temperature**	**2**			
TE-6316M-1	NICKEL DUCT AVERAGE,17 FE	2	$75.37	$32.22	$64.44
TE-6001-8	AVERAGING ELEMENT HOLDER	2	$5.35	$2.29	$4.57
PHWL-T	**Preheat Leaving Water Tem**	**1**			
TE-631AM-2	WELL TEMP SEN 6" 1K NI	1	$17.91	$7.66	$7.66
TE-6300W-102	T-WELL 6" SS DIRECT MNT	1	$53.31	$22.79	$22.79
RHWL-T	**Reheat Leaving Water Temp**	**1**			
TE-631AM-2	WELL TEMP SEN 6" 1K NI	1	$17.91	$7.66	$7.66
TE-6300W-102	T-WELL 6" SS DIRECT MNT	1	$53.31	$22.79	$22.79
SDR-1	**Shut Down Relay 1**	**1**			
RIBU1C	SPDT,10A,HC=10-30 VAC/DC,	1	$30.52	$13.05	$13.05
SF-C,-S	**Supply Fan Command, Statu**	**1**			
CSD-SA1E1-1	SLD/ADJ LED 1A W/RLY	1	$62.50	$26.72	$26.72
ZN-T,-H	**Zone Temperature, Humidit**	**1**			
NS-BHB7001-0	3X4.5.T/H.F/C.D.ADJ.PJ.3%	1	$274.94	$117.54	$117.54
DPRs	**Supply Fan Command**	**2**			
M9220-BGC-3	20NM,SR,ACT,24V ON/OFF,2	2	$269.18	$115.07	$230.15
PANEL	**Panel Mounted Material**	**1**			
PANEL	**Panel Item**	**1**			
SAKAJD002A00	SUBPANEL FEC/IOM 20X24	1	$912.95	$390.29	$390.29
PAN-ENC2024WDF4	20X24X9.25 ENC+NCE DOOR	1	$292.87	$125.20	$125.20
MS-DIS1710-0	RMT DISPLAY FOR NCE, FEC	1	$180.38	$77.11	$77.11
				Mat'ls Total	**$2,138.10**

Installation

JCI	Installation Labor & Materials	1	$4,550.00	$5,505.50	**$5,505.50**

Labor

JCI Technical Labor		Hrs	Rate		
	Project Administration	2	$ 118		$ 236
	Job Site Coordination	8	$ 118		$ 944
	Device Verification	8	$ 82		$ 656
	System Commissioning	12	$ 82		$ 984
	Commissioning Agent Assist	4	$ 82		$ 328
	Hardware Engineering	4	$ 97		$ 388
	Software Programming	4	$ 97		$ 388
	Graphics Generation	4	$ 70		$ 280
	As-builts & Submittals	2	$ 97		$ 194
	Vehicle Trips	5	$ 55		$ 275
				Labor Total	**$4,673**
				TOTAL	**$12,316.60**

8. **Total Cost for Labor, Engineering Management and Materials to Provide all Control Points Required for a Typical Hot Water System,** as outline in the Input/Output Summary on Drawing BLR and Specification 15900. Material costs must include all

required field sensors, complete with mounting hardware, signal conditioners and transducer, installation wells (if appropriate), and all other components required for a complete, functional installation. Labor costs must include all labor required for installation, system software, and system graphics necessary to connect the system to the existing FMCS per specifications.

DDC $ 11,127 /each

Materials

Name	Description	Qty	JCI Mat List	GT Cost	Total
FIELD	**Field Mounted Material**	**1**			
BLRxLW-T	**Boiler Leaving Water Temp**	**2**			
TE-631AM-2	WELL TEMP SEN 6" 1K NI	2	$17.91	$7.66	$15.31
TE-6300W-102	T-WELL 6" SS DIRECT MNT	2	$53.31	$22.79	$45.58
SHWR-T	**Secondary HW Return Temp**	**1**			
TE-631AM-2	WELL TEMP SEN 6" 1K NI	1	$17.91	$7.66	$7.66
TE-6300W-102	T-WELL 6" SS DIRECT MNT	1	$53.31	$22.79	$22.79
SHWS-T	**Secondary HW Supply Temp**	**1**			
TE-631AM-2	WELL TEMP SEN 6" 1K NI	1	$17.91	$7.66	$7.66
TE-6300W-102	T-WELL 6" SS DIRECT MNT	1	$53.31	$22.79	$22.79
HW-DP	**Hot Water Differential Pr**	**1**			
DPT2302-050D	PRESS SENS,DP,0-50 PSI,VD	1			
SHWPx-C,-S	**Secondary HW Pump Command**	**2**			
CSD-SA1E1-1	SLD/ADJ LED 1A W/RLY	2	$62.50	$26.72	$53.44
BLRx-EN	**Boiler Enable**	**2**			
RIBU1C	SPDT,10A,HC=10-30 VAC/DC,	2			
MIX-O	**Mixing Valve Output**	**1**			
VG2831VM+916GGA	4", 3W,GLOBE,NSR,PROPORTI	1	$1,644.01	$702.81	$702.81
PANEL	**Panel Mounted Material**	**1**			
PANEL	**Panel Item**	**1**			
SAKBJA001A00	SUBPANEL FEC/IOM 20X24	1	$855.38	$365.67	$365.67
PAN-ENC2024WDF4	20X24X9.25 ENC+NCE DOOR	1	$292.87	$125.20	$125.20
MS-DIS1710-0	RMT DISPLAY FOR NCE, FEC	1	$180.38	$77.11	$77.11
				Mat'ls Total	**$1,446.03**

Installation

JCI	Installation Labor & Materials	1	$3,675.00	$4,446.75	**$4,446.75**

Labor

JCI Technical Labor		Hrs	Rate		
	Project Administration	3	$ 118		$ 354
	Job Site Coordination	8	$ 118		$ 944
	Device Verification	8	$ 82		$ 656
	System Commissioning	8	$ 82		$ 656
	Commissioning Agent Assist	8	$ 82		$ 656
	Hardware Engineering	8	$ 97		$ 776
	Software Programming	4	$ 97		$ 388
	Graphics Generation	4	$ 70		$ 280

	As-builts & Submittals	2	$ 97		$ 194
	Vehicle Trips	6	$ 55		$ 330
				Labor Total	**$5,234**
				TOTAL	**$11,126.78**

9. **Total Cost for Labor, Engineering Management and Materials to Provide all Control Points Required for Steam to Hot Water System,** as outlined in the Input/Output Summary on Drawing STM-CONV and Specifications. Material costs must include all required field sensors, complete with mounting hardware, signal conditioners and transducer, installation wells (if appropriate), and all other components required for a complete, functional installation. Labor costs must include all labor required for installation, system software, and system graphics necessary to connect the system to the existing FMCS per specifications.

DDC $ 10,089 /each

Materials

Name	Description	Qty	JCI Mat List	GT Cost	Total
FIELD	**Field Mounted Material**	**1**			
OA-T	**Outdoor Air Temperature**	**1**			
TE-6313P-1	SENSOR,T-NI,0.1%,3IN OAT	1	$22.25	$9.51	$9.51
PHWS-T	**Primary HW Supply Temp**	**1**			
TE-631AM-2	WELL TEMP SEN 6" 1K NI	1	$17.91	$7.66	$7.66
TE-6300W-102	T-WELL 6" SS DIRECT MNT	1	$53.31	$22.79	$22.79
HW-DP	**Hot Water Differential Pr**	**1**			
DPT2302-050D	PRESS SENS,DP,0-50 PSI,VD	1	$876.00	$374.49	$374.49
PHWPx-C,-S	**Primary HW Pump Command,**	**2**			
CSD-SA1E1-1	SLD/ADJ LED 1A W/RLY	2	$62.50	$26.72	$53.44
HX1EW-T	**HX1 Entering Water Temper**	**1**			
TE-631AM-2	WELL TEMP SEN 6" 1K NI	1	$17.91	$7.66	$7.66
TE-6300W-102	T-WELL 6" SS DIRECT MNT	1	$53.31	$22.79	$22.79
HX1V1-O	**Heat Exchanger 1 Valve 1**	**1**			
VG1245DN+956GGA	1-1/4" 2W BALL,11.7CV,0-1	1	$318.86	$136.31	$136.31
HX1V2-O	**Heat Exchanger 1 Valve 2**	**1**			
VG1245FR+94JGGA	2" 2W BALL,29.2CV,0-10V,S	1	$496.86	$212.41	$212.41
PANEL	**Panel Mounted Material**	**1**			
PANEL	**Panel Item**	**1**			
PAKB00001FH4	CONT PANEL FEU2610 NO TB	1	$1,063.12	$454.48	$454.48
				Mat'ls Total	**$1,301.54**

Installation

JCI	Installation Labor & Materials	1	$3,388.00	$4,099.48	**$4,099.48**

Labor

JCI Technical Labor		Hrs	Rate		
	Project Administration	2	$ 118		$ 236
	Job Site Coordination	6	$ 118		$ 708
	Device Verification	6	$ 82		$ 492
	System Commissioning	12	$ 82		$ 984
	Commissioning Agent Assist	4	$		$

			82		328
	Hardware Engineering	8	$ 97		$ 776
	Software Programming	5	$ 97		$ 485
	Graphics Generation	3	$ 70		$ 210
	As-builts & Submittals	2	$ 97		$ 194
	Vehicle Trips	5	$ 55		$ 275
				Labor Total	**$4,688**
				TOTAL	**$10,089.02**

10. **Total Cost for Labor, Engineering Management and Materials to Provide all Control Points Required for Fume Hood Monitor with Air Volume and Temperature Controls,** as outlined in the Input/Output Summary on Drawing FH-AIRTEM and Specification 15900. Material costs must include all required field sensors, complete with mounting hardware, signal conditioners and transducer, installation wells (if appropriate), and all other components required for a complete functional installation. Labor costs must include all labor required for installation, system software, and system graphics necessary to connect the system to the existing FMCS per specifications.

DDC $ 16,445 /each

	Name	Description	Qty	JCI Mat List	GT Cost	Total
Materials						
	FIELD	**Field Mounted Material**	**1**			
	XFMR	**Transformer**	**1**			
	Y65T42-0	XFMR,120-208-240/24,40VA	1	$64.02	$27.37	$27.37
Vendor						
	Triatek	Room Controls, Dampers, Hood Controls, Etc	1	$9,240.00	$11,180.40	**$11,180.40**
Installation						
	JCI	Installation Labor & Materials	1	$1,550.00	$1,875.50	**$1,875.50**
Labor						
	JCI Technical Labor		Hrs	Rate		
		Project Administration	4	$ 118		$ 472
		Job Site Coordination	6	$ 118		$ 708
		Device Verification	4	$ 82		$ 328
		System Commissioning	4	$ 82		$ 328
		Commissioning Agent Assist	2	$ 82		$ 164
		Hardware Engineering	4	$ 97		$ 388
		Software Programming	4	$ 97		$ 388
		Graphics Generation	2	$ 70		$ 140
		As-builts & Submittals	3	$ 97		$ 291
		Vehicle Trips	3	$ 55		$ 165

Labor Total	**$3,372**
TOTAL	**$16,455.27**

11. **Total Cost for Labor, Engineering Management and Materials to Provide all Control Points Required for Fume Hood Monitor with Air Pressure and Temperature Controls,** as outlined in the Input/Output Summary on Drawing FH-PRESSURE and Specification 15900. Material costs must include all required field sensors, complete with mounting hardware, signal conditioners and transducer, installation wells (if appropriate), and all other components required for a complete, functional installation. Labor costs must include all labor required for installation, system software, and system graphics necessary to connect the system to the existing FMCS per specifications.

DDC $ 16,522/each

	Name	Description	Qty	JCI Mat List	GT Cost	Total
Materials						
	FIELD	**Field Mounted Material**	**1**			
	XFMR	**Transformer**	**1**			
	Y65T42-0	XFMR,120-208-240/24,40VA	1	$64.02	$27.37	$27.37
Vendor						
	Triatek	Room Controls, Dampers, Hood Controls, Etc	1	$9,100.00	$11,011.00	**$11,011.00**
Installation						
	JCI	Installation Labor & Materials	1	$1,550.00	$1,875.50	**$1,875.50**
Labor						
	JCI Technical Labor		Hrs	Rate		
		Project Administration	4	$ 118		$ 472
		Job Site Coordination	8	$ 118		$ 944
		Device Verification	4	$ 82		$ 328
		System Commissioning	4	$ 82		$ 328
		Commissioning Agent Assist	2	$ 82		$ 164
		Hardware Engineering	4	$ 97		$ 388
		Software Programming	4	$ 97		$ 388
		Graphics Generation	2	$ 70		$ 140
		As-builts & Submittals	3	$ 97		$ 291
		Vehicle Trips	3	$ 55		$ 165
					Labor Total	**$3,608**
					TOTAL	**$16,521.87**

12. **Total Cost for Labor, Engineering Management and Materials to Provide all Control Points Required for VAV-CO2 Box Control with Reheat,** as outlined in Sequence of Operation on Drawing VAV-CO2-1. A DCC controller will sense the room temperature and maintain the room temperature setpoints (adjustable) by modulating the vav box

with reheat. On a decrease in room temperature, the damper actuator will modulate between the maximum cooling airflow setpoint to the minimum cooling airflow setpoint. On a further decrease in room temperature, the damper actuator will be modulated to the heating airflow setpoint and the reheat valve will modulate to maintain space temperature.. The reverse sequence will occur on a temperature increase. Set the VAV box cfm minimum to 25% of the box's capacity and set the maximum to the design cfm for the box. Vary the minimum cfm during occupied mode based on the Co2. Co2 setpoint 600 ppm. With the Co2 sensor if the Co2 gets above setpoint then start increasing the minimum air flow until Co2 is below setpoint. If the Co2 is below the setpoint lower the minimum air flow to no less than 25% of box's capacity

DDC $ 1,428 /each

Materials

Name	Description	Qty	JCI Mat List	GT Cost	Total
FIELD	**Field Mounted Material**	**1**			
DA-T	**Discharge Air Temperature**	**1**			
NS-DTN7043-0	NETWORK DAS 4 INCH PROBE	1	$74.26	$31.75	$31.75
ZN-T,-SP	**Zone Temperature, Setpoin**	**1**			
WRZ-TTS0000-0	SENSOR, WIRELSS, DEG F/C	1	$122.85	$52.52	$52.52
ROUTER	**Wireless Router for Mesh**	**1**			
MS-ZFR1811-0	WIRELSS FIELDBUS ROUTER	1	$102.65	$43.88	$43.88
HTG-O	**Heating Output**	**1**			
VG1241AG+9A4GGA	1/2" 2W BALL VALVE 4.7CV	1	$290.75	$124.30	$124.30
ZN-Q	**Space CO2 Sensor**	**1**			
CD-W00-00-1	WALL MOUNT CO2 SENSOR	1	$297.57	$127.21	$127.21
VMA	**VMA Controller**	**1**			
MS-VMA1620-0	VAV CTRL/ACT/DP.HTG.FAN	1	$295.81	$126.46	$126.46
				Mat'ls Total	**$506.11**

Installation

JCI	Installation Labor & Materials	1	$200.00	$242.00	**$242.00**

Labor

JCI Technical Labor		Hrs	Rate		
	Project Administration	0.5	$ 118		$ 59
	Job Site Coordination	2	$ 118		$ 236
	Device Verification	1	$ 82		$ 82
	System Commissioning	1	$ 82		$ 82
	Commissioning Agent Assist	0.25	$ 82		$ 21
	Hardware Engineering	0.25	$ 97		$ 24
	Software Programming	0.25	$ 97		$ 24
	Graphics Generation	0.25	$ 70		$ 18
	As-builts & Submittals	0.25	$ 97		$ 24
	Vehicle Trips	2	$ 55		$ 110
				Labor	**$680**

	Total
TOTAL	$1,427.86

13. **Labor and Material Costs to Provide all other Catalog (Catalog of the proposer) System Components that the Proposer Reasonably Anticipates using in Future System Expansions** (attach a complete list of component costs). Itemize cost or provide discount rate from list catalog pricing.

    The list of materials below will likely be used at some point at GT.

Name	Description	Qty	JCI Mat List	GT Cost	Total
Field Materials					
MS-ZFR1810-0	WIRELESS FIELD BUS	1	$302.48	$129.31	$129.31
MS-ZFRCBL-0	CABLE HARNESS ACCESSORY	1	$15.02	$6.42	$6.42
MS-ZFRRPT-0	REPEATER ACCESSRY FOR USE	1	$52.96	$22.64	$22.64
MS-NCE2566-0	33-PT, NETWORK CONTROL EN	1	$1,708.36	$730.32	$730.32
TEC2003-4+PIR	WIRELESS HOSPITALITY FCU,	1	$365.87	$156.41	$156.41
TEC2004-4+PIR	WIRELESS FCU, 2 ON/OFF/FL	1	$396.54	$169.52	$169.52
MS-IOM1710-0	BACNET MS/TP 4 POINT I/O	1	$176.47	$75.44	$75.44
MS-IOM2710-0	BACNET MS/TP 6 POINT I/O	1	$220.59	$94.30	$94.30
MS-IOM3710-0	BACNET MS/TP 12 POINT I/O	1	$286.76	$122.59	$122.59
MS-IOU4710-0	BACNET MS/TP INPUT OUTPUT	1	$295.58	$126.36	$126.36
MS-FEU1610-0	BACNET MS/TP FIELD EQUIPM	1	$275.73	$117.87	$117.87
SOFWARE					
MS-NXE85SW-6	NXE85 SOFTWARE UPGRADE 1	1	$2,889.57	$1,235.29	$1,235.29
MS-NXE85SW-SCS	MS-NXE85SW-SCS	1	$2,288.62	$978.39	$978.39
MS-ADVGRF-0	METASYS ADVANCED GRAPHICS	1	$1,364.37	$583.27	$583.27
MS-ADX25ONL-SCS	APP&DATA SRVR 25USER 1 YR	1	$1,970.03	$842.19	$842.19
MS-ADXSWO-6	EXT APP&DATA SRV 25 CONCU	1	$8,834.11	$3,776.58	$3,776.58
MS-MULTENG-SCS	NAE35/45/55/NIE SW IMAGES	1	$520.00	$222.30	$222.30

14. **Labor and Materials to Provide Connection Wiring Between DDC Components.**

-Underground Wire $750 /100 feet

-Wiring in Mechanical Rooms $ 575 /100 feet

-Operator's Station via:

Telephone Pair $ 500/each

Ethernet (TCP/IP) Connection 2,742 /each

15. **Labor and Materials to Provide and Install a Stand-alone Pneumatic or Electric Chilled Water Coil Freeze Protection System, Capable of Stopping Air Handling Fan Unit Operation.**

$ 369/ each

16. **Labor and Materials to Provide and Install a Modular Building Control Panel, to Expand the Capacity Of Existing Stand-alone Control Units, Capable of providing any Combination of Control Point Types.**

Stand-alone NAE35 Control Panel: $3,887 /panel

Stand-alone NAE45 Control Panel: $7,067 /panel

Stand-alone NAE55 Control Panel: $9,161 /panel

	Name	Description	Qty	JCI Mat List	GT Cost	Total
NAE 35						
	PANEL		**1**			
	PAGJ00001FC0	PANEL NAE3510 16X20	1	$3,095.92	$1,323.51	$1,323.51
Installation						
	JCI	Installation Labor & Materials	1	$300.00	$363.00	**$363.00**
Labor						
	JCI Technical Labor		Hrs	Rate		
		Project Administration	2	$ 118		$ 236
		Job Site Coordination	8	$ 118		$ 944
		System Commissioning	4	$ 82		$ 328
		Hardware Engineering	2	$ 97		$ 194
		Software Programming	4	$ 97		$ 388
		Vehicle Trips	2	$ 55		$ 110
					Labor	**$ 2,200**
					TOTAL	**$ 3,886.51**
NAE 45						
	PANEL		**1**			
	PAGE00001FC0	PANEL NAE4510 16X20	1	$10,535.10	$4,503.76	$4,503.76
Installation						
	JCI	Installation Labor & Materials	1	$300.00	$363.00	**$363.00**
Labor						
	JCI Technical Labor		Hrs	Rate		
		Project Administration	2	$ 118		$ 236
		Job Site Coordination	8	$ 118		$ 944
		System Commissioning	4	$ 82		$ 328
		Hardware Engineering	2	$ 97		$ 194
		Software Programming	4	$ 97		$ 388
		Vehicle Trips	2	$ 55		$ 110
					Labor Total	**$ 2,200**
					TOTAL	**$ 7,066.76**
NAE 55						
	PANEL		**1**			
	PAGA00001AC0	PANEL NAE5510 16X20	1	$15,432.94	$6,597.58	$6,597.58

Installation

	JCI	Installation Labor & Materials	1	$300.00	$363.00	**$363.00**

Labor

	JCI Technical Labor		Hrs	Rate		
		Project Administration	2	$ 118		$ 236
		Job Site Coordination	8	$ 118		$ 944
		System Commissioning	4	$ 82		$ 328
		Hardware Engineering	2	$ 97		$ 194
		Software Programming	4	$ 97		$ 388
		Vehicle Trips	2	$ 55		$ 110
					Labor Total	**$ 2,200**
					TOTAL	**$ 9,160.58**

17. **Labor and Materials to Provide and Install a Complete DDC System Front-end,** including all hardware, operational software, database definition, graphics generation, communication interface, remote access modem, printer, and color graphic display CRT.

$ 2,355.05 /each

Name	Description	Qty	JCI Mat List	GT Cost	Total
Materials					
PC	**Computer from JCI IT**	**1**			
	Dell Optiplex 380MT, Core 2 Duo 2.93GHz	1	$605.00	$732.05	$732.05
Labor					
JCI Technical Labor		Hrs	Rate		
	Project Administration	2	$ 118		$ 236
	Job Site Coordination	8	$ 118		$ 944
	Hardware Engineering	2	$ 97		$ 194
	Software Programming	2	$ 97		$ 194
	Vehicle Trips	1	$ 55		$ 55
				Labor Total	**$1,623**
				TOTAL	**$2,355.05**

18. **Hourly Labor Rate for Generation Of System Graphics.**

$ 70 /MH

19. **Hourly Labor Rate for System Programming.**

$ 97 /MH

20. **Hourly Labor Rate for Preventative Maintenance.** Provide a complete list and unit price for each level of Technician to be used for preventative maintenance support.

$109/MH for PM rate

$120/MH regular time service rate

21. **Central/Remote Operator's Station Software Maintenance and Update.**

$ 18,785/year

22. **Labor and Materials to Provide and Install Any Catalog Listed Operator's Station Software Module/Feature that is not Included in the Proposal.** Provide a complete list and unit price for each.

See line item #13.

23. **Labor and Materials to Provide and Install Additional Operator's Station Software Packages on Owner Furnished Computers,** to include any and all proprietary hardware components required for proper operation and connection to the campus wide automation system.

$ 1,160/station

24. **Cost Per Student for Each Standard Training Course Offered by System Manufacturer, to include all necessary manuals and training materials.**

$ 4,000/course (for up to ten students) /course at GT

OPTIONAL FUTURE FIELD HARDWARE COMPONENTS AND LABOR REQUIREMENTS

A. Contractor must provide standard publisher price list and Georgia Institute of Technology's discount factor if any must be reflected in the cost proposal, as an attachment to this form.

B. Should construction work be authorized under any contract resulting from this solicitation, the Contractor agrees to perform the extra work at the following unit rates, including overhead and profit, provided such unit prices are accepted by the Owner and incorporated in the unit costs stated below. It must remain in effect throughout the duration of this scope of work. The unit cost must also be used after the completion of this project, with adjustments upward or downward based on the percentage increase or decrease in the Engineering News Record (ENR) Construction cost Index for the Atlanta Area, using the Index at the time of contract award to establish the base cost.

C. **Cost Schedule – Optional Components:**

1. **Control Technician Labor cost, Including overhead, Profit, and Burden, for Estimating Purposes assume minimum 200 hour per year.**

$82/hour

2. **Electrician Labor Cost, Including Overhead, Profit, and Burden for Estimating Purposes assume minimum 200 hour per year.**

$70/hour

3. **System Programmer Labor Cost, Including Overhead, Profit, and Burden for Estimating Purposes assume minimum 100 hour per year.**

   $97/hour

4. **Engineer labor Cost, Including Overhead, Profit and burden for Estimating Purposes assume minimum 200 hour per year.**

   $97/hour

5. **Project Manager Labor Cost, Including Overhead, Profit and Burden for Estimating Purposes assume minimum 100 hour per year**

   $**118/hour**

6. Total Cost For Labor, Engineering Management and Materials to Provide, install, configured/programmed for the following Control Points Required for:

   1. **Temperature sensor**
      a. **Air $ 684**
      b. **Water $ 750**
   2. **Pressure sensor**
      a. **Water $ 1,060**
      b. **Static/Duct $ 916**
      c. **Differential $ 1,627**
   3. **Humidity sensor $ 841**
   4. **Freeze stat $ 793**
   5. **Current transmitter $ 715**
   6. **Airflow station $ 3500**
   7. **Flow switch $ 775**
   8. **Valve actuators $ 900**
   9. **Damper actuators $ 990**
   10. **VAV controller $ 500**
   11. **Unitary controller $ 1,199**
   12. **AHU controller $ 1,876**
   13. **DX9100 controller $ 2,220**
   14. **NCU or network controller $ 5,500**

7. Total Cost for labor, Engineering management and materials to provide building system automation preventive maintenance as per specification 17950 based on the existing equipment list.

Annual cost for all equipment in the existing system list. $984,872

The above price includes all controls equipment specified in the RFP including Facilities, GTRI, Housing, and Athletic Association. Please note that not all of this equipment is currently being serviced.

Note: *Third-party materials and subcontracted services will be provided by JCI with a mark-up of 10% overhead and 10% profit.*