

Parkrose School District
Price Quote Sheet - Completed by Robyn Stolin 4/7/2021

Site: Parkrose High School
12003 NE Shaver St
Portland, OR 97220

Project Description:

Current: At Parkrose High School there are aspects of the existing HVAC system that are not working correctly including some controllers, and reheat valves failing as well as sensors and damper positioning out of calibration. These circumstances lead to HVAC equipment overheating spaces, simultaneously heating and cooling spaces creating an uncomfortable indoor environment and wasting energy. Reheat valves stuck in open/closed positions, others leaking by or won't close off totally when commanded to do so by the existing control system. Temperature overshoot, controllers dropping offline leaving the HVAC system stuck in heating or cooling modes on an ongoing basis. In addition, the existing HVAC controls do not appear to be operating on scheduled occupied/unoccupied set-point control basis. The results of CO2 monitoring identify that the outside air supply for each unit is not being controlled, so for most of the time and for most of the areas of the building excess amounts of outside air are being introduced when not needed. While at other times not enough outside air is being supplied. This increases energy uses as well as causes discomfort for occupants. Lastly, the two different HVAC management systems are out of date and need software upgrades to function properly. See the attached technical analysis study performed by KFAA Engineering in 2019.

Parkrose High School currently has two different control systems. One is the original Alerton DDC control system serviced by ECC and the other is Delta Connects system serviced by Delta Connects. The HVAC units in other schools throughout the district that have management controls utilize Delta Connects as well.

Proposed: **1. Controls Update:** The existing aged control system will be replaced and upgraded with the full BACnet Delta Controls Building Automation System including all new Delta Controls controllers, new programming of equipment and systems with focus towards enhanced energy conservation sequences. Delta Connects will install and configure enteliWEB software. Delta Controls software maintenance/license fees are included for 5 years in this proposal. **2. Variable Frequency Drives (VFDs):** add qty (8) VFDs. **3. Air handler tune-up/optimization:** All air handlers will receive a cleaning and tuning to maximize effectiveness and operational efficiency including coil cleaning, insulation repair, fire heat testing, belts, refrigerant leaks, motor lubrication, economizers, and misc. small repairs.

Add-on: Provide and install (17) new Belimo RTU economizer damper actuator(s) for the following RTUs including installation, wiring, programming and commissioning included.

Estimate/ scope of work validation: The original scope of work and proposal for this project was presented by Delta Connects since they were the primary provider of HVAC control systems in the district. After receiving several proposal versions, the facilities staff, in consultation with the district energy coach reached out to two other companies. One of these was our other current provider ECC (Alerton) and the other, Clima-tech was recommended by the district Energy Coach. We explained we were not yet going to bid for the project and currently had Delta Connects in the district as well as a proposal from Delta Connects, but if they were interested in discussing the project. Both ECC and Clima-tech agreed to meet and review the project.

Company 1: Delta Connects = \$742,908*

Company 2: ECC = \$705,338**

Company 3: Clima-Tech Corporation = no price provided***

* Proposal recommended by Parkrose Facilities Department. Delta Connects' pricing was based on "piggy-backing" an Intergovernmental Cooperative Procurement used with Jackson County School District No. 6 (January 2020). Also, Delta Connects was preferred for Parkrose School District for single source reasons including lower ongoing software fees rather than multiple software program fees.

** ECC pricing had been provided previously but needed to be revised due to some scope changes and pricing changes. Their scope was less than Delta Connects resulting in the proposal cost being lower than Delta Connects but what they provided was enough info to confirm Delta Connects' pricing was in the correct range and ECC confirmed they had no major scope changes suggested.

*** Clima-Tech Corporation did a site visit. Following that we had a virtual meeting to discuss the project. Clima-Tech was willing to bid the project under certain conditions, however they stated due to the requested completion date and that their in-house techs were already booked so they would have to subcontract, the cost would likely be higher than usual. Using Clima-Tech would also have meant having two HVAC software programs.

**** Pricing:

The money would be allocated from the following funding:

- \$492,446 - SB1149 funds
- \$59,579 - Energy Trust rebates
- \$190,883 - ESSER 2 funds

The Energy Trust calculated the following payback period based on energy savings:

Table 1: EEM Summary Table

Measure	Estimate Electric Savings (kwh)	Estimate Gas Savings (therms)	Estimated Energy Cost Savings \$ *	Estimated Non-Energy Benefits \$ **	Estimated Installation Costs \$	Estimated Simple Payback (yrs) ***	Estimated Return on Investment (ROI) ****
EEM # 1	814,800	24,100	\$ 83,167	\$ -	\$ 814,401	9.8	10%

TECHNICAL ANALYSIS STUDY

Parkrose High School
12003 NE Shaver St., Portland, OR 97220
Project: ETECPS1540746169



SPONSORED BY:
ENERGY TRUST OF OREGON – EXISTING BUILDINGS PROGRAM

SERVING UTILITIES:
Portland General Electric and Northwest Natural Gas

SUBMITTED BY:
KARL FRIESEN AND ASSOCIATES, LLC DBA KFAA ENGINEERING
Draft 09-02-2019
Rev 2

CONTACTS

Site Contact

The following facility personnel assisted with this report:

Tom Dufresne
Parkrose School District, Maintenance Director
12003 NE Shaver St., Portland, OR 97220
Office: (503) 408-2131
E-mail: tom_dufresne@parkrose.k12.or.us

Energy Trust Contact

Christina Skellenger
Account Manager, Existing Buildings
ICF International
615 SW Alder St, Suite 200
Portland, OR 97205
503-320-4617
christina.skellenger@icf.com

ATAC Contact Information

The Allied Technical Assistance Contractor (ATAC) that prepared this report is:

Karl Friesen, PE (and Tony Zagelow)
Karl Friesen and Associates, LLC dba KFAA Engineering
karl@karlfriesen.com
503.686.1176
www.karlfriesen.com

DISCLAIMER

In no event will Energy Trust of Oregon, Inc. or ATAC be liable for (i) the failure of the customer to achieve the estimated energy savings or any other estimated benefits included herein, or (ii) for any damages to customer's site, including but not limited to any incidental or consequential damages of any kind, in connection with this report or the installation of any identified energy efficiency measures. The intent of this energy analysis study is to estimate energy savings associated with recommended energy efficiency upgrades. This report is not intended to serve as a detailed engineering design document, any description of proposed improvements that may be diagrammatic in nature are for documenting the basis of cost and savings estimates for potential energy efficiency measures only. Detailed design efforts may be required by participant to implement potential measures reviewed as part of this energy analysis. While the recommendations in this report have been reviewed for technical accuracy and are believed to be reasonably accurate, all findings listed are estimates only, as actual savings and incentives may vary based on final installed measures and costs, actual operating hours, energy rates and usage.

NEXT STEPS FOR THE PARTICIPANT

APPLY FOR ENERGY TRUST INCENTIVES

Make an implementation decision: Please evaluate the information contained in this report and any potential measures and incentives listed in the Form 110C – Project Detail and Incentive Estimates (produced by ICF). Have your contractors bid for the measure(s) you wish to implement and send ICF a copy of the final bid. ICF will review your contractor's proposed scope to determine compliance with Existing Building's requirements and the energy efficiency measures as described in this report. After it is determined by ICF that the project bid specifications match the studied measure, Form 120C – Incentive Application will be provided for you to review. If you apply for Energy Trust incentives for your project, your signed Form 120 C - Incentive Application must be provided to ICF BEFORE you issue purchase orders or make other financial commitments to begin the project work.

Upon Completion of the Project: ICF must be notified once the project is completed to arrange a post-installation verification for projects that receive incentives greater than \$5,000. The program must receive all required documentation and perform any required post installation verifications before incentives can be issued.

APPLY FOR ENERGY TRUST SOLAR INCENTIVES

Make a solar implementation decision: Please evaluate the solar site evaluation (SSE), if included in this report. Your PMC will arrange a meeting to discuss the results of the evaluation. Or, if you wish to move forward, your PMC will provide you with a list of qualified Trade Ally contractors. Obtain bids on the solar measures you want to implement. When you've selected a solar Trade Ally contractor for the installation, the Trade Ally will provide and submit the necessary incentive application paperwork to Energy Trust on your behalf. The PMC and Energy Trust's solar staff are available to answer all your solar questions.

Upon Completion of the Solar Project: The solar Trade Ally will arrange for the final Energy Trust verifications, and within 30 days of a successful verification you'll receive your solar incentive check from Energy Trust.

EXECUTIVE SUMMARY

This report documents energy efficiency improvements identified via several detailed building walkthroughs with the facility management team and data logging processes to better understand the operation and control of the air handling, and air/hot water distribution systems in this building. This included a review of the existing building mechanical and DDC control systems in the building as well as the original facility design drawings, of the air handler unit(s), boiler(s) and VAV box/other distribution system components. The facility consists of 260,822 sqft of classrooms, a library, cafeteria, kitchen, main gathering/lobby area, offices, gymnasiums, a pool, an auditorium/stage, as well as a separate fine arts classroom building. This campus was constructed in 1999. There are 18 roof-top air handler units with DX cooling and gas furnace heating for morning warm-up.

Hot water is supplied from one primary boiler located in a mechanical room on the lower floor of the larger gymnasium region of the school. One older, original boiler is operated infrequently and serves only as a backup/peak heating needs boiler. These roof-top air handlers serve predominately VAV distribution boxes with hot water reheat via a ducted supply/return system although for larger spaces these are constant volume units.

Projected annual average gas 105,195 Therms and electricity usage 3,012,775 kWhs

Projected current EUI = 75.1

Total % savings for electricity = 28%

Area affected by measures: 98 % of the Bldg. (County Health Clinic on south-east corner of the building is on a separate meter and excluded from this study)

Total % savings for therms = 23%

ENERGY EFFICIENCY MEASURE SUMMARY

EEM 1) Upgrade the building HVAC DDC control system, and VAV operations

EEM 2) Refurbishment of the 20 year old RTUs, which includes new premium efficiency motor replacements.

Table 1: EEM Summary Table

Measure	Estimate Electric Savings (kwh)	Estimate Gas Savings (therms)	Estimated Energy Cost Savings \$ *	Estimated Non-Energy Benefits \$ **	Estimated Installation Costs \$	Estimated Simple Payback (yrs) ***	Estimated Return on Investment (ROI) ****
EEM # 1	814,800	24,100	\$ 83,167	\$ -	\$ 814,401	9.8	10%
EEM # 2	27,400	0	\$ 2,165	\$ -	\$ 285,000	132	0.8%
PRESCRIPTIVE	(Savings From incentive booklet)	(Savings From incentive booklet)					

Notes:

* Cost savings are based on Energy Trust average utility rates of \$0.075/kWh and \$0.755/therm for OR and \$0.802/therm for WA in payback calculations. Actual participant rates may be different.

** Non-energy cost benefits are from items such as avoided maintenance, reduced water costs, or other cost savings.

*** Simple Payback is a measure of how quickly your investment in the measure will pay for itself.

**** Simple ROI is another measure of measure's benefits. This is simply the inverse of the Simple Payback and can be used as a rough comparison to other investment opportunities.

HISTORICAL ENERGY USE
TABLE 2: HISTORICAL BUILDING ENERGY USE

Average Utility Billing Analysis for Parkrose SD - Parkrose HS - DDC and HVAC										
	Electric Use (kWh)					Natural Gas Use (therm)				
	2016	2017	2018	2019	Average	2016	2017	2018	2019	3 yr Average
Jan	248,700	231,000	207,900	188,100	218,925		21,684	14,920	15,432	17,345
Feb	252,300	237,300	206,100		231,900		18,270	13,231	17,393	16,298
Mar	246,300	215,400	180,600		214,100	13,361	13,495	12,784		13,213
Apr	287,700	240,600	193,500		240,600	10,105	10,971	8,469		9,848
May	350,400	279,600	213,300		281,100	8,477	8,505	2,313		6,432
Jun	285,900	281,400	232,800		266,700	4,334	2,510	2,094		2,979
Jul	315,300	321,000	252,300		296,200	1,226	1,263	1,249		1,246
Aug	319,500	337,500	240,900		299,300	1,192	1,080	953		1,075
Sep	267,000	280,500	222,600		256,700	2,077	3,245	2,011		2,444
Oct	251,400	240,300	217,050		236,250	6,470	7,374	5,956		6,600
Nov	280,500	234,000	211,500		242,000	9,117	10,789	10,962		10,289
Dec	249,900	243,000	194,100		229,000	20,567	18,051	13,656		17,425
TOTAL		3,141,600	2,572,650	188,100	3,012,775		117,237	88,598	32,825	105,195
TOTAL AVERAGE ENERGY USE IN KBTU			20,805,147							
ENERGY USE INDEX (KBTU/SQ.FT./YR)			75.1							

FACILITY OVERVIEW

FACILITY DESCRIPTION

Parkrose High School is a 260,822 ft² campus that was originally constructed in 1999.

The seven (7) buildings that make up the campus were all constructed during the same period therefore share similar construction materials and architectural style. All of the buildings are connected except for the Fine Arts building, which sits approximately 200' west of the other buildings.

The seven (7) buildings consist of:

1. **Classroom Wings (Building A)** - The two classrooms wings are large, two-story wings that contain approximately 40 classrooms, 8 labs, 4 learning centers and four large public spaces between the classrooms. Main & upper levels: 62,860 ft²
2. **Community Center & Library (Building B)** - The Community Center & Library (Building B) are supported in partnership with the community and acts as a public library with considerable day traffic from outside the school. Main level only: 20,700 ft²
3. **Student Center (Building C)** - The main entrance is located on the south façade of the Student Center which contains a large lobby, main office, dining area and kitchen. Main & lower levels: 34,980 ft²
4. **Performing Arts & Auditorium (Building D)** - In addition to the performing arts classrooms & auditorium on the main level, building also contains a large storage room on the lower level. Main & upper levels: 33,625 ft²
5. **Gymnasium (Building E)** - The Gymnasium has two levels with an observation area. The gymnasium and the pool are connected by locker rooms on the lower level. Main & lower levels: 46,370 ft²
6. **Pool (Building F)** - The Pool has two levels with an observation area. Main & lower levels: 46,290 ft²
7. **Fine Arts Building** - The one-story fine Arts building was originally constructed as a maintenance shop but was converted to a Fine Arts building a few years after construction was completed - Main level only 15,997 ft²

The building is conditioned by eighteen (18), gas heat & mechanical DX cooling roof-top air handlers most of which are variable flow (inlet guide vanes) that serve approximately 100 VAV boxes with hot water re-heat coils for classrooms and offices throughout the school. The units that serve larger spaces throughout the school (gym, lockers, pool, auditorium, stage and student center) are constant volume.

The hot water loop is supplied by two (2) gas fired boilers and pumped throughout the facility by four (4) hot water site pumps. Domestic hot water is produced by two (2) smaller atmospheric boilers with significantly lowered use over time as student continue to take fewer and fewer showers in schools.

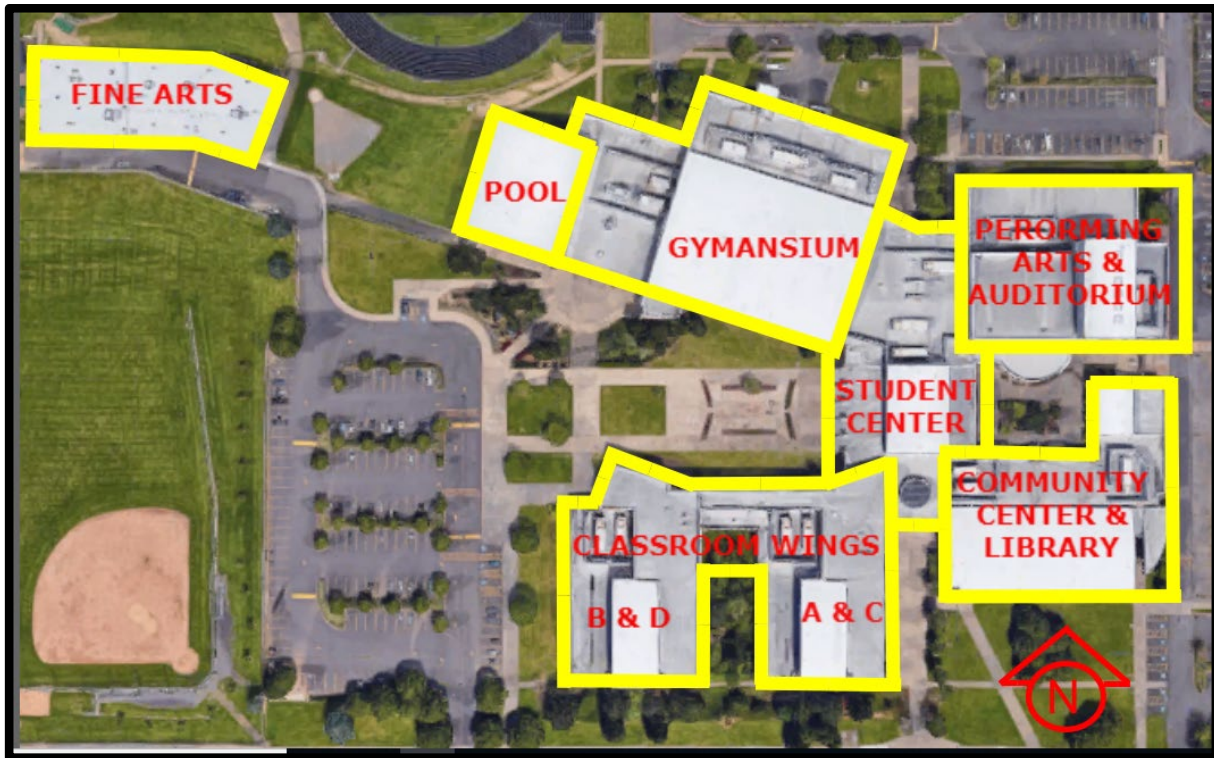


Diagram 1: Overall Campus

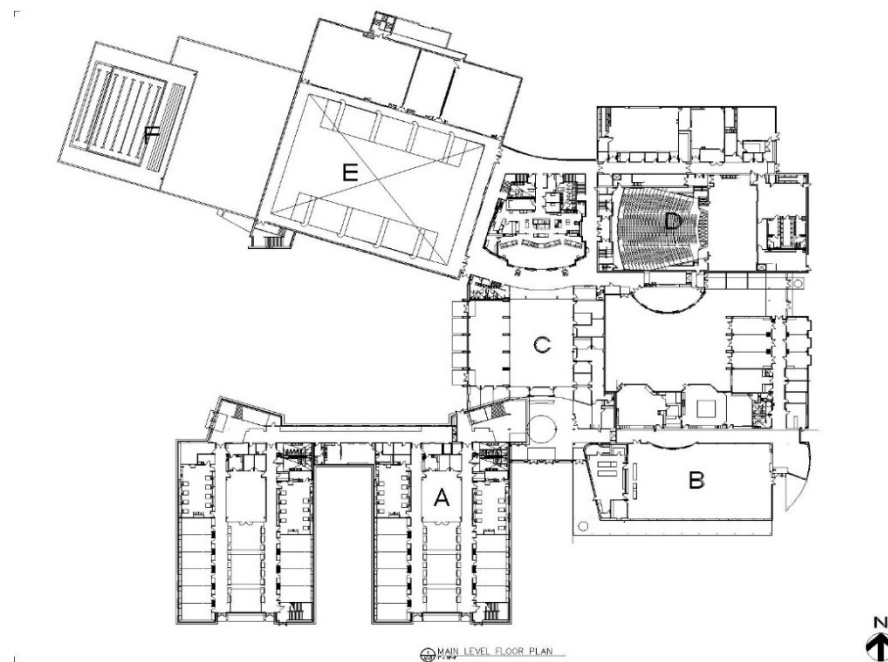


Diagram 2: Main Level (Fine Arts Building Not Shown)

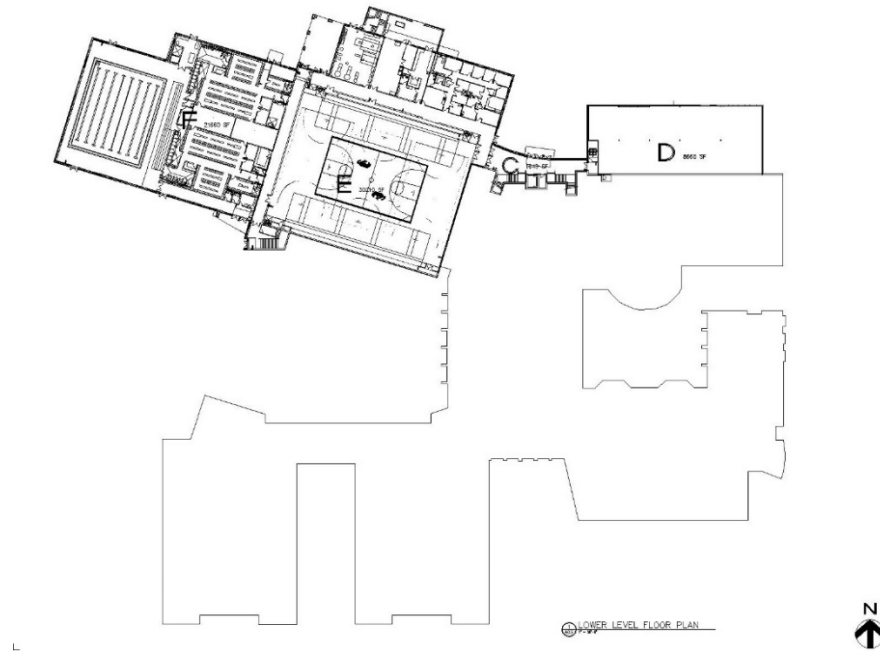


Diagram 3: Lower Level (Fine Arts Building Not Shown)

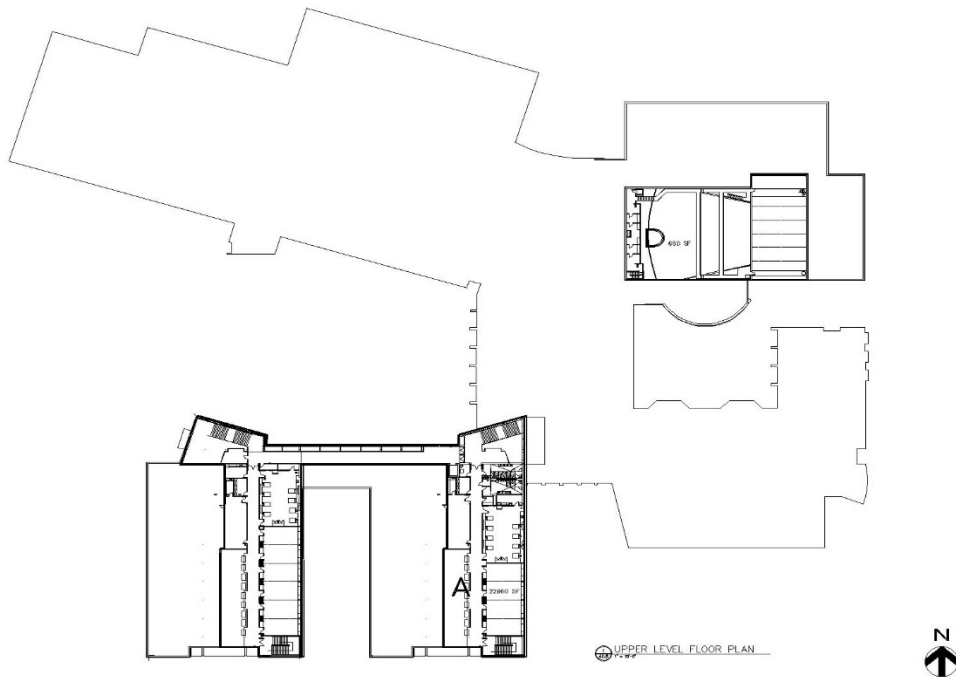


Diagram 4: Upper Level (Fine Arts Building Not Shown)

Walls

The building's external wall construction consists of metal framing with a brick finish over ½" fiber board sheathing (R1.3) with R-19 batt insulation. The overall R-value used is 11.65 for modeling based on typical deterioration over time, U-factor of 0.086.

Roof

The roof is a built-up style construction of 4" polyurethane insulation (R-24) over 6" concrete decking. The overall R-value used for modeling is 26.85 based on the build-up of materials all little/no deterioration of this type of 'hard insulation' so a modeled U-factor of 0.037.

Floors

The floors are 6" concrete slabs with throughout the entire facility.

Doors

1. Classroom Wings (Building A):
Main level: Six (6) sets of double doors on its south façade & two (2) sets on the west façade.
2. Community Center & Library: (Building B):
Main level: Two (2) sets of double doors on its south façade. Three (3) sets of double doors on the west façade and two (2) single doors open into the courtyard between buildings B, C & D.
3. Student Center (Building C):
Main level: Four (4) sets of double doors on its west façade. Two (2) sets of double doors on the west façade and two (2) single doors on its south façade open into the courtyard between buildings B, C & D.
4. Performing Arts & Auditorium (Building D):
Main level: Two (2) sets of double doors and two (2) single doors on its east façade. Two (2) sets of double doors on the west façade and two (2) single doors on its south façade open into the courtyard between buildings B, C & D.
5. Gymnasium (Building E):
Main level: One (1) set of double doors on its south façade and a single door on its north façade.
6. Pool (Building F):
Lower Level: Four (4) sets of double doors on its south façade & three (3) sets on its north façade.
7. Fine Arts building
Main level: Four (4) single doors on its south façade & two (2) single doors on its north façade.

The double door entrances consist of doors that are 60"x80" with all other single doors having an opening of 30"x70".

All are tinted tempered glass (U=1.03, SHGC=0.47) and a frame type of aluminum without break through the facility.

Windows

The windows throughout the facility vary in size but cover approximately between 20% to 30% of all facades. All windows have tempered glass (U=1.03, SHGC=0.47) and an aluminum frame type, without break. All façade experience sun throughout the day. There is one (1), large round skylight approximately 30' in diameter located on the roof of the Student Center centered over the lobby and has an acrylic translucent glazing.

Internal Loads

Lighting

The buildings lighting consists of T-8 fixtures and compact fluorescents throughout the facility as well as a variety of other types for specialized uses/applications in small quantities.

Other Equipment

The equipment throughout the school is typical for equipment found in a school of this type; desktop computers, laptop computers, printers/copiers and fax machines.

Miscellaneous Equipment

The facility contains four vending machines and a break room throughout the school contain refrigerators, and microwaves.

Water Side Systems

The buildings domestic heating water is supplied by two (2) Tjernlund atmospheric style burner boilers and space heating water is produced by two (2) Bryan boilers, gas fired boilers. Space heating water is distributed to the campus via by four (4) heating water pumps.

Hot Water Boilers					
Unit	Area Served	Manufacture	Capacity (MBH)	Burner	
				Qty.	Hp Each
B-1	Space Heating	Bryan	3600	1	5
B-2	Space Heating	Bryan	5600	1	5

Heating Water Pumps				
Unit	Area Served	Type	Motor	
			Qty.	Hp Each
HWP-1	Learning Center. Heating Water	In-line	1	5
HWP-2	Learning Center. Heating Water	In-line	1	5
HWP-3	Heating Water	In-line	1	10
HWP-4	Heating Water	In-line	1	10

Heating, Ventilating, and Air Conditioning (HVAC)

A series of eighteen (18) AHU's condition the campus. The CFM range that each unit delivers range between 7,500 & 30,000 CFM.

Cooling: Five (5) units are cooling only. Eleven (11) of the units have inlet vanes and seven (7) are constant volume.

Heating: Thirteen (13) of the units have natural gas heat for morning warm-up.

Air Handling Units								
Unit	Area Served	VAV or Constant Volume (CV)	Cooling Capacity (MBH)	Heating Capacity (MBH)	Compressor		Condenser Motor	
					Qty.	Hp Each	Qty.	Hp Each
AHU-1	Area A1 - Main Floor	VAV	970	200	2	40	8	1
AHU-2	Area A1 - Upper Floor	VAV	970	200	2	40	8	1
AHU-3	Area A - Main Floor	VAV	970	200	2	40	8	1
AHU-4	Area A1 - Upper Floor	VAV	970	200	2	40	8	1
AHU-5	Area B - library	VAV	327	-	1	30	3	1
AHU-6	Area C1 - Comm. Center	VAV	455	-	2	25	4	1
AHU-7	Area C - Admin	VAV	288	-	1	25	2	1
AHU-8	Area C - Student Center	CV	536	500	1	40	4	1
AHU-9	Area D - Band / Studio	VAV	638	-	2	25	6	1
AHU-10	Area D - Stage	CV	367	400	1	30	3	1
AHU-11	Area D - Auditorium	CV	566	800	2	25	4	1
AHU-12	Area E - Kitchen	VAV	558	200	2	25	4	1
AHU-13	Area F - Offices	VAV	209	-	1	25	2	1
AHU-14	Area G - Lockers	CV	-	1000	-	-	-	-
AHU-15	Area G - Pool	CV	-	2250	-	-	-	-
AHU-16	Area H - East Gym	CV	-	1000	-	-	-	-
AHU-17	Area H - West Gym	CV	-	1000	-	-	-	-
AHU-18	Area H - Fitness	VAV	411	800	2	20	4	1

Fans									
Unit	Area Served	CFM	Motor		Unit	Area Served	CFM	Motor	
			Qty.	Hp Each				Qty.	Hp Each
SF-1	AHU-1 Supply	30,000	1	40	SF-10	AHU-10 Supply	10,000	1	10
RF-1	AHU-1 Return	27,000	1	20	RF-10	AHU-10 Return	10,000	1	7
SF-2	AHU-2 Supply	30,000	1	40	SF-11	AHU-11 Supply	14,000	1	10
RF-2	AHU-2 Return	27,000	1	20	RF-11	AHU-11 Return	14,000	1	10
SF-3	AHU-3 Supply	30,000	1	40	SF-12	AHU-12 Supply	15,000	1	20
RF-3	AHU-3 Return	27,000	1	20	RF-12	AHU-12 Return	12,500	1	5
SF-4	AHU-4 Supply	30,000	1	40	SF-13	AHU-13 Supply	7,500	1	7
RF-4	AHU-4 Return	27,000	1	20	RF-13	AHU-13 Return	6,790	1	5
SF-5	AHU-5 Supply	9,800	1	15	SF-14	AHU-14 Supply	21,000	1	15
RF-5	AHU-5 Return	9,800	1	7	RF-14	AHU-14 Return	14,000	1	7
SF-6	AHU-6 Supply	14,000	1	15	SF-15	AHU-15 Supply	26,000	1	25

RF-6	AHU-6 Return	13,000	1	5	SF-16	AHU-16 Supply	21,000	1	15
SF-7	AHU-7 Supply	8,200	1	10	RF-16	AHU-16 Return	14,000	1	7
RF-7	AHU-7 Return	8,800	1	5	SF-17	AHU-17 Supply	21,000	1	15
SF-8	AHU-8 Supply	12,500	1	10	RF-17	AHU-17 Return	14,000	1	7
RF-8	AHU-8 Return	12,500	1	5	SF-18	AHU-18 Supply	15,000	1	15
SF-9	AHU-9 Supply	18,500	1	20	RF-18	AHU-18 Return	15,000	1	7
RF-9	AHU-9 Return	16,700	1	15	-	-	-	-	-

Make-Up Air & Exhaust Units						
Unit	Area Served	Heating Capacity (MBH)	Supply Fan		Exhaust Fan	
			Qty.	Hp Each	Qty.	Hp Each
MAU-1	Kitchen Hood	160	1	1	1	2
MAU-2	Kitchen Hood	120	1	1	1	2

Exhaust Fans							
Unit	Area Served	Motor		Unit	Area Served	Motor	
		Qty.	Hp Each			Qty.	Hp Each
EF-1	A1 Toilets	1	0.5	EF-12	D Janitor/Trash	1	0.25
EF-2	A1 Wet labs	1	1.5	EF-13	E Toilets	1	0.25
EF-3	A1 Elec/Plotter	1	0.25	EF-14	E Toilets	1	0.25
EF-4	A1 Wet labs	1	0.33	EF-15	E Janitor	1	0.25
EF-5	A Toilets	1	0.25	EF-16	G Men's lockers	1	2
EF-6	A Wet labs	1	1.5	EF-17	G Women's lockers	1	2
EF-7	A Wet lab	1	0.33	EF-18	G Pool	1	10
EF-8	A Special Services	1	0.25	EF-19	H Toilets / lab	1	0.25
EF-9	C1 Toilets	1	0.25	EF-20	E Dishwasher	1	0.25
EF-10	C1 Kiln Hood	1	0.33	EF-21	F Flammable storage	1	0.25
EF-11	D Scene / Toilets	1	0.25	-	-	-	-

Building Automation System (BAS)

The school is controlled by an original Alerton DDC control system.

Solar Opportunities

The buildings on this campus are all excellent candidates for solar, with a good amount of open roof being open and little to no interference from structures, equipment or trees.

MODEL CALIBRATION AND METHODOLOGY

Table 3: Billed/Baseline versus Modeled Energy Use

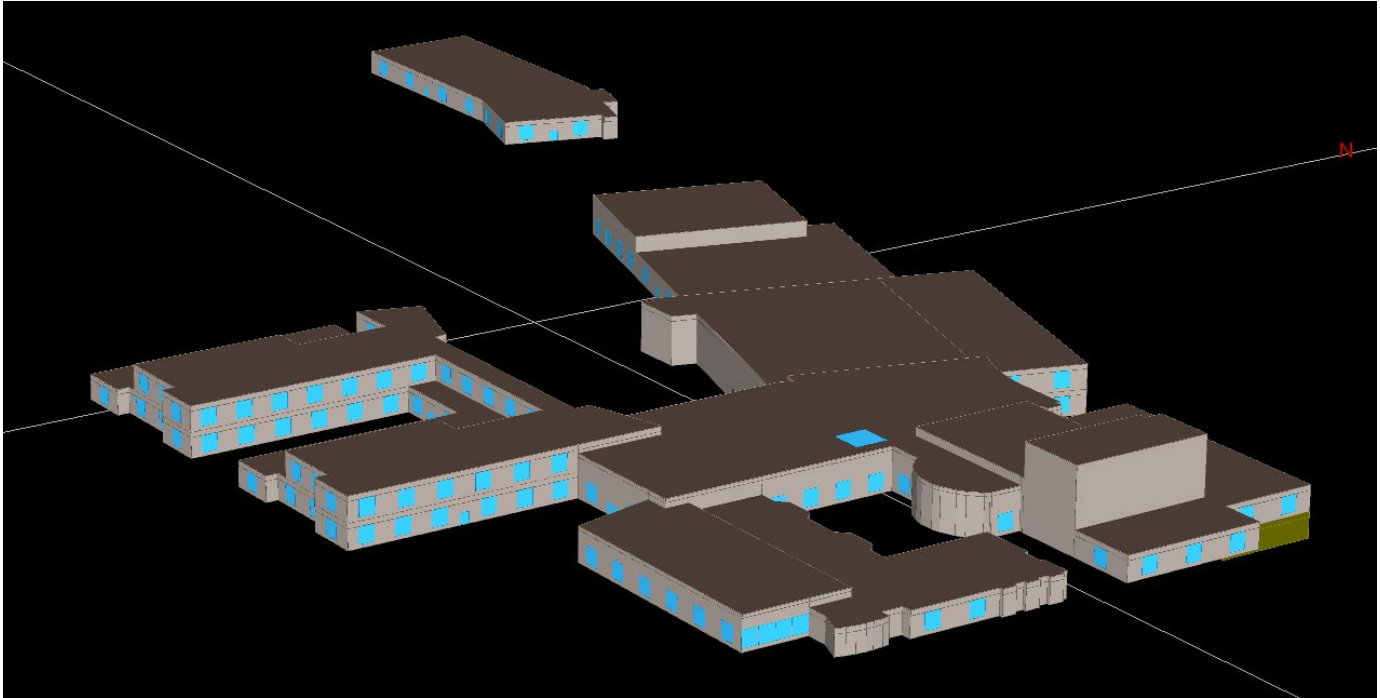
Model versus Utility Data for Parkrose SD - Parkrose HS - DDC and HVAC						
	Electric Use [kWh]			Natural Gas Use [therms]		
	Baseline kWh	Model	% Deviation	Baseline Therms	Model	% Deviation
Jan	218,925	223,700	2.1%	17,345	17,100	-1.4%
Feb	231,900	217,200	-6.8%	16,298	14,200	-14.8%
Mar	214,100	240,900	11.1%	13,213	13,800	4.3%
Apr	240,600	245,300	1.9%	9,848	9,800	-0.5%
May	281,100	275,800	-1.9%	6,432	5,400	-19.1%
Jun	266,700	263,200	-1.3%	2,979	1,800	-65.5%
Jul	296,200	294,500	-0.6%	1,246	1900	34.4%
Aug	299,300	308,600	3.0%	1,075	1900	43.4%
Sep	256,700	270,200	5.0%	2,444	2300	-6.3%
Oct	236,250	265,000	10.8%	6,600	7,600	13.2%
Nov	242,000	214,700	-12.7%	10,289	12,900	20.2%
Dec	229,000	207,700	-10.3%	17,425	16,500	-5.6%
TOTAL	3,012,775	3,026,800	0.5%	105,195	105,200	0.0%

After the project walkthrough and a review of the available building drawings, data loggers were placed throughout the building to get a representative sample of how the building is operated. Temperature, relative humidity, light intensity, and carbon dioxide levels were monitored between May 02, 2019 and May 22, 2019. Building geometry was 'constructed' in CAD for import into the eQuest model. This was followed by construction and system data loaded as extracted from these sources to create the model using the applicable building construction materials, architectural dimensions and the geometry per the below '3D' drawing.

With all these inputs inserted into the model and changes reflected from the data loggers, the results from the energy simulation were compared with the billing data of last 3 years provided by the ETO (both electric and natural gas consumption), so the simulation model could be calibrated- From January 2016 through January 2019 (see below).

The building's EUI is 75.1, 55% greater than the national EUI average of 48.5 for K-12 Schools and 23% higher than ODOE's target EUI for High Schools operating more than 50 hours per week. This is quite high to moderately high based on the index used for comparison. These values make sense with the data logging results which identified very moderate unoccupied setbacks deployed by the existing HVAC control system. In addition, the logs showed that the fix volume of outside air being supplied is excessive throughout the building most of the time. The exception is during peak occupancy times in the classrooms not enough outside air is being introduced. So, both excessive spikes in CO2 in these spaces as well as long periods of low CO2 readings suggest the implementation of a DCV strategy would make sense to save energy as well as improve the classroom learning environment. In addition, during discussions with the operating staff, the current HVAC DDC contractor as well as the identified preferred new HVAC DDC contractor there are many aspect of the existing control system that is not functioning

properly which can be corrected. This report identifies the corrective measures.



All model inputs attempt to reasonably represent the observed conditions and system operation following an effective modeling process. Zones within the building were modeled according to their heating/cooling system components and activity type. The HVAC system was modeled based on the 18 Rooftop Unit with DX cooling and a gas furnace for morning warm-up. (note the Health Clinic on the Southeast corner of the building is on a separate meter and is excluded from the model). Each RTU unit has its own fresh air supply, and economizers. Those RTUs serving smaller spaces such as offices and classrooms serve VAV distribution boxes with HW reheat coils. These units have inlet guide vane variable flow systems. RTUs serving the larger spaces in the school, areas like the gymnasium, pool, student center, auditorium are constant volume systems. The outside air supply dampers on all RTU's are manually set, so there are no automatic outside air adjustments leading to excess outside air supplies per the data logs (as well as periodic spikes in CO2 when a space is loaded up with extra people). When the economizers are operating the outside air flows increase in order to provide free cooling, however, no adjustment to flows beyond fixed minimums or to address high CO2 levels can be made as currently configured.

The investigative work as well as discussions with the Facility Director indicate that on the reheat coils are failing or are in a variety of failed conditions. In certain cases, the valves are leaking by i.e., won't close off totally when commanded to do so by the existing control system. This adds to the simultaneous heating and cooling (see comment below on year around simultaneous heating/cooling from reheat systems) which normally happens in excess per the data logging results i.e., overshoot, mis-calibration of sensors and dampers/valves. In other cases other valves have failed in a stuck position either closed (cold complaints – although in this circumstance the complaint may lead to an investigation and repair), or in other cases the valves may stick in a mid-range position so in a constant re-heat mode, cooling might kick on or economizer might be activated in this case so the issue is left un-noticed/un-detected for an extended period of time similar to the leaking by circumstance above.

It should be noted that reheat systems simultaneously heat and cool air supplied to the spaces in the school, year around. The 5-20 typical spaces being supplied conditioned air, by each air handler/RTU has differing levels of solar

gain, internal loads (differing #s of people, computers or lights turned on). So on a July morning only one or two zones may need cooling, but all zones will be supplied cooled air. All of the other spaces will need to have this just 'cooled air' reheated to maintain comfort. In the afternoon all but one or two zones will be to be cooled while only one or two may need to be reheated. Plus each zone will have it's cooling needs satisfied after different periods of time so at some point each may become too cool moving past a dead band value thus also requiring reheat energy.

We were also told by both the existing HVAC DDC service contractor, and the facility staff that many of the existing controllers sporadically drop offline, so the system remains in heating or cooling mode for an extended period. These sorts of issues can go un-noticed so masked for a period, continuing to waste energy for an extended period as well as continue to create uncomfortable conditions for students or teachers.

All eQuest model inputs attempt to reasonably represent the observed conditions and system operation while allowing for an efficient modeling process. The classrooms are occupied Monday to Friday 8 AM to 4 PM with lower summer use and Saturday to account for lower occupancy. Some common areas like Library, Gymnasium and Pool areas have extended hours until 7 PM and 9 PM. Additionally, most of the building is assumed to be closed on holidays and Sundays. Classroom ventilation air was modeled at 20 cfm/person to account for the relatively high CO2 levels observed in the data logs and all other spaces are modeled at 25 cfm/person to account for excessive outside air being supplied. These levels were established using the 20 cfm/person design criteria at the time of construction and from there elevated to reflect the data logger results. In the case of the classrooms the design levels were maintained due to the excessive CO2 levels observed with the knowledge that class size has extended beyond design levels from 20 years ago.

The heating water plant is modeled with two forced draft hot water boilers with an averaged 80% efficiency. The boiler is modeled to operate in standby mode, meaning that the heating water loop is active whenever the fans are active. The heating water loop pumps are operated at constant volume. Given the age and condition of the RTUs and the high electricity consumption of the building and based on the auditors experience the RTUs are estimated to have a current condition EER of 8.2. This based on the age of the RTUs (deteriorated efficiency levels based on heat exchange surface fouling etc.). The RTU gas furnaces are used for morning warm-up were modeled as HW heat since;

- a) The gas furnace use is for a short period of the day
- b) The gas burn efficiency is very similar, and c) the added time/cost to construct an alternative modeling scenario given the minor impacts such a change would have on the modeling results.

The pool area was not altered from its initial baseline condition since it had some amount of energy upgrades by McKinstry fairly recently (boiler change-out etc) and because changing pool air temperatures from the existing as modeled baseline condition can effect water temperatures, water chemistry and generally is not area for intensive DDC system upgrades. Heat recovery and other approaches tend to be better focuses for these 100% OSA systems. The pool heating energy use was modeled as a constant process load in Baseline and EEM's based on the Mckinstry report and compared it with ENERGYSTAR indoor pool energy use which gives the average pool heating energy use yearly.

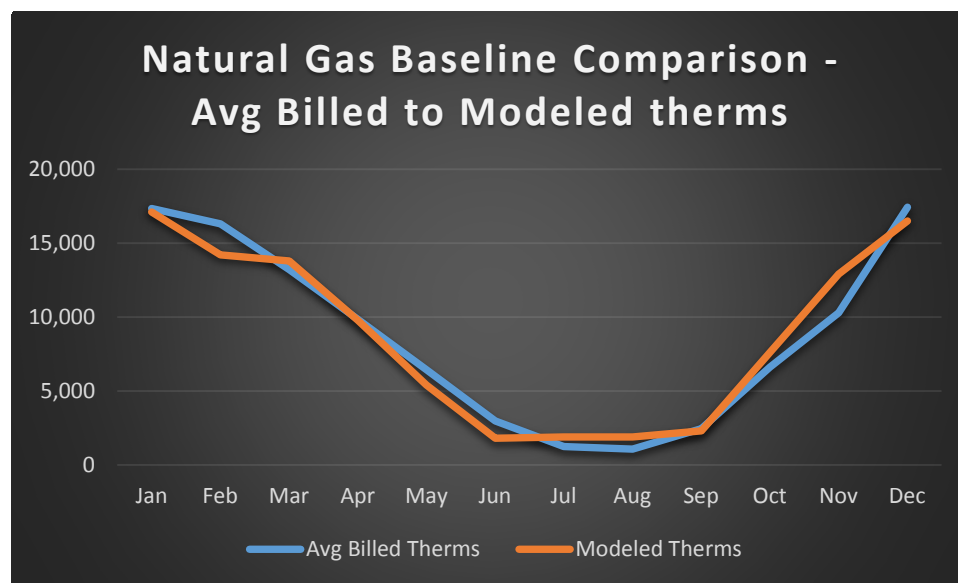
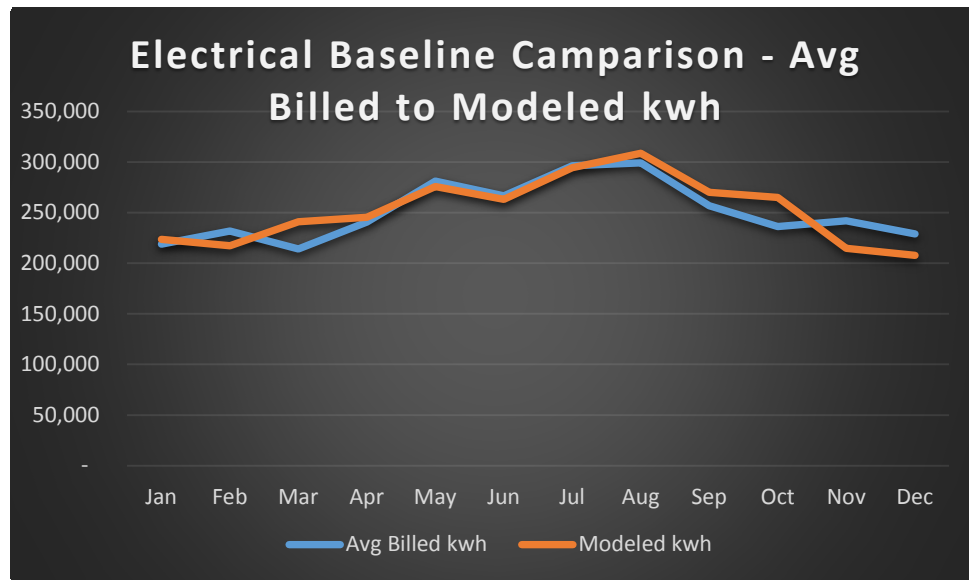
A Summary of the data logging results are as follows (detailed data logs are contained in the appendices for further review – Note the location labeling in the appendices at the top of each chart match the titles/labels listed below).

1. **A Region-A5 Class, 5/2-5/22**, Temperature typically fluctuates between 68°F and 72°F but has some unusual high and lows at 78°F and 62°F during the weekend including Friday and Monday. RH fluctuates between 35% and 60% and appears to be inversely proportional to temperature (i.e., when temperature decreases RH increases) CO2 typically fluctuates between low excessive background levels and highs in the 1000-1200 ppm range suggesting high occupancy and high OSA during unoccupied hours. The rapid CO2 drop off reflects excessive flows after the occupied period ends.
2. **C Region Classroom C3, 5/2-5/22**, Temperature typically fluctuates between 68°F and 74°F but during the first week of data logging there is an upward trend and reached as high as 83°F over the weekend from 3/14-3/15. RH fluctuates between 25% and 40% and appears to be independent of temperature, suggesting a high amount of OSA. CO2 typically fluctuates between 350 and 1000 ppm suggesting a high amount of OSA except for a few occupied short periods.
3. **D region Schiller Classroom, 4/29-5/22**, Temperature typically fluctuates between 65°F and 73°F but goes to 75°F over the weekend. RH fluctuates between 24% and 40% and appears to be independent of space temperature, suggesting a high amount of OSA. Lights appear to operate 7AM to 7PM and turn off intermittently.
4. **B Region Wet lab 3 Classroom, 05/02 to 05/12**, Temperature typically fluctuates between 68°F and 72°. RH fluctuates between 40% and 60% and appears to be independent of the temperature. CO2 typically fluctuates between 400 and 1100 ppm.
5. **Library, 05/02 – 05/12**, Temperature typically fluctuates between 69°F and 71°F including weekends. RH fluctuates between 40% and 60% and appears to be independent of space temperature suggesting high OA. CO2 typically fluctuates between 400 and 800 ppm with high peaks to 1100 ppm.
6. **Auditorium, 05/02 to 05/12**, Temperature typically fluctuates between 70°F and 74°F during the weekdays and goes as high as 77°F during the weekend. An upward trend is observed during the first week which may suggest higher outdoor temperatures in that week. RH appears to be independent of space temperature suggesting high OSA. CO2 typically fluctuates between 400 and 800 ppm with one high peak of 1000 ppm on 5/4 suggesting an event occurred on this day.
7. **Student Center, 05/02 – 05/12**, Temperature typically fluctuates between 70°F and 74°F during the weekdays and goes as high as 82°F during a three-day period. An upward trend is observed during the first week which suggest higher outdoor temperatures in that week. CO2 fluctuates between 400 and 800 ppm despite being a high traffic student area suggesting a high amount of OSA. Light pattern suggests significant outside lighting so a good candidate for daylighting control.
8. **L wing Detention, 05/02 – 05/12** Temperature typically fluctuates between 65°F and 70°F during the weekdays and goes as high as 75°F during the weekend. Some of the days its observed to be having sawtooth like pattern which suggests that the controlled devices are turning on/off or opening and closing frequently (hunting). It appears to be inversely proportional to space temperature, suggesting tighter OSA control.
9. **Dance Studio, 05/02 – 05/12**, Temperature typically fluctuates between 68°F and 84°F. RH appears to be

independent of space temperature, suggesting a high amount of OSA.

10. **Main Office, 05/02 – 05/12**, Temperature typically fluctuates between 67°F and 72°F. RH appears to be independent of space temperature, suggesting a high amount of OSA.
11. **Fine Arts Building, 05/02 – 05/12**, Temperature typically fluctuates between 70°F and 72°F. RH appears to be independent of space temperature, suggesting a high amount of OSA.

The eQuest model simulation was run and compared with the utility billing history per the below charts.



DETAILED DESCRIPTION OF PROPOSED MEASURES

EEM 1 – UPGRADE EXISTING HVAC CONTROL SYSTEM WITH A NEW DDC CONTROL SYSTEM AND NEW VAV BOXES

Baseline Condition

Input from the Facility Director and the existing and preferred future HVAC DDC contractors identified that there are aspects of the existing HVAC system that are not working correctly including some controllers, and reheat valves failing as well as sensors and damper positioning out of calibration. These circumstances lead to HVAC equipment over heating spaces, simultaneously heating and cooling spaces creating an uncomfortable indoor environment and wasting energy. Reheat valves stuck in open/closed positions, others leaking by or won't close off totally when commanded to do so by the existing control system. Temperature overshoot, controllers dropping offline leaving the HVAC system stuck in heating or cooling modes on an ongoing basis.

In addition, the existing HVAC controls do not appear to be operating on scheduled occupied/unoccupied set-point control basis. The results of CO2 monitoring identify that the outside air supply for each unit is not being controlled, so for most of the time and for most of the areas of the building excess amounts of outside air are being introduced when not needed. While at other times not enough outside air is being supplied. This increases energy uses as well as causes discomfort for occupants.

The existing variable flow RTUs control the flow volumes to the VAV boxes via inlet guide vanes. Those serving the larger spaces in the building are constant volume RTUs.

Proposed Condition

The existing HVAC DDC system will be replaced with a new DDC control system. As a result, the building operation will be improved in the following ways:

1. An occupied/unoccupied temperature rest strategy with a more aggressive temperature setback regime will be put into place to reduce heating and cooling energy use as fan cycling during unoccupied periods.
 - a. Setback temperatures will aim towards 58°F for heating and 84°F
 - b. A new and upgraded optimal start/stop routine will be implemented. This upgraded program and systems response capability will make sure the more aggressive setback strategy will be implemented effectively.
 - c. The summertime has low occupancy and the system can be pre-programmed to account for low usage.
2. The DDC system will be set up to reduce the amount of excess outside air being delivered to the building spaces by installation of CO2 sensors in all larger spaces as well as all classroom and office spaces. Additional feedback sensors are needed to allow more dramatic outside air reductions called for to save energy (completely shut off during unoccupied times or when low levels of CO2 are detected and modulated during occupied periods to maintain 800-850 ppm CO2). These added CO2 sensors will allow for accommodating the fluctuating occupancy in certain larger gathering areas in the building (i.e., Auditorium, Gym, Student center). These sensors will allow the system to dynamically adjust the amount of outside air without under-ventilating during specific higher occupancy times.
3. The VAV box reheat valves are to be replaced as a part of this DDC upgrade since it has been identified that these are not operating in a consistent energy savings manner as described above.
4. The new control system will allow for tighter room temperature to set-point deviations based on more accurate sensors and damper/HW valve positioning around the established set-points, reducing wasteful and uncomfortable over/undershooting of set-points.

5. In this EEM the inlet guide vanes are to be removed and VFD's are to be installed on all RTU supply and return fans (except the pool and locker room RTUs which are to remain as constant volume units in order to maintain air quality in these spaces). These VFDs will vary the speed of the fan to maintain design duct static on the VAV served areas adjusting the flow rate RTU flow rates at reduced energy usage levels. This will reduce on an average 10% static pressure all across system but to be conservative we have reduced the static pressure by 7.5% in the model. The constant volume air handlers are to be modulated to meet temperature and CO2 set-point requirements and will be run at minimum flow rates when temperature and CO2 level conditions allow during occupied timeframes. During much of Portland's moderate climate times when neither significant amounts of cooling energy nor heating energy is needed these fans can either be shutoff for periods of time or dropped down to near zero levels of air flow. Care needs to be taken to make sure the air circulates enough periodically to provide adequate fresh air. However, proper location of one or more CO2 sensors (depending on the size of the space) in the space should allow for accommodating this need.
 - The supply and return fan motors are older so may be vulnerable to damage from the VFD electrical harmonics, so in order to accommodate the VFD additions added contingency \$ should be made available to replace any motors that are not able to stand up to these more demanding conditions (VFDs create electrical harmonics that heat up motor windings which can lead to failure because some of these motors may already have compromised windings due to age. A wholesale motor replacement effort is suggested in the EEM 2 - RTU refurbishment. The district should assume over time many of these motors may fail at least due to the idea that the original selections were presumably not VFD rated motors.
 - This contingency should also include funds to cover potential other currently unknown mechanical system failed components. The DDC installation/check out procedures will uncover these items as well as will cover a quick motor condition diagnostic to identify motors more susceptible to harmonic failure.

Non-Energy Savings Description

Implementation of these improvements will result in additional comfort benefits to the occupants and reduced overall system maintenance. These benefits have not been included in this economic evaluation.

Table 5: EEM 1 Summary

	kWh savings	therm savings
Estimated energy savings	814,800	24,100
Age of equipment being replaced	The existing HVAC control system being replaced are is 20 years old.	
Past major rebuilds or main component replacement? What and when?	NA	
Early retrofit or end-of-life replacement	A combination of near end of life replacement, and early retrofit based on some elements over the control system have been replaced/upgraded over time.	

Incremental cost	\$814,401
Notes	EEM 1 savings were calculated by making appropriate adjustments to the set-points, outside air flow rate, and supply fan energy usage via the eQuest model to reflect the improvements mentioned.

Table 6: EEM 1 Conditions

Item	Baseline Condition	Proposed Condition
RTU controllers, sensors as well as VAV box controllers, reheat valves and air flow control dampers	These system sub-components AHU HW valves, the VAV box reheat HW valves and the AHU damper actuators are operating at a sub-optimal level from an energy efficiency standpoint.	New RTU and VAV box controllers (box controllers have integral damper actuators), sensors, and reheat valves are to be replaced.
Schedule	Based on set occupancy schedule	Occupied/Unoccupied Schedule with optimal S/S Propose delayed HVAC startup in summertime because of low occupancy.
Demand Control Ventilation	none	Install CO2 sensors in all spaces to allow for more aggressive outside air management, to meet occupant loadings as varying VAV box cfm flowrates and the temperature set-points are being met.
Occupied Temperature Setpoint	- see chart below	- see chart below
Unoccupied Temperature Setback	Small setback modeled to represent observed conditions	Implement an aggressive setback (58°F heating and 84 DegF cooling) and partial setback through override buttons in spaces with sporadic usage during occupied and unoccupied timeframes.
Economizer	OSA damper actuator will not close limiting the potential economizer operation with economizer temperature limit of 63°F	Full economizer operation with economizer temperature limit of 65°F

The modeled baseline occupied and unoccupied setpoints vary throughout the building based on observation walking from space to space as well as based on the uses of the spaces. Gyms naturally having wider acceptable temperature ranges than say the Library or classrooms/offices. In addition, the data loggers revealed that certain spaces were operating warmer or cooler than others. This is reflected in these ‘modeled’ setpoint values. In addition, these setpoints were pushed up or down based on how the occupants indicated the spaces are being conditioned based on the condition of the existing HVAC controls and the equipment being controlled. As mentioned above excessive hot and cold complaints add to the heating and cooling energy used/wasted in the building. Too warm means pushing up a heating setpoint to reflect the condition, then the action of an occupant to open a window or door to reduce the overheating pushes the setpoint higher to further reflect the heat that will be called for once the space begins to cool off further. The below chart reflects all of these influences on how the model setpoint changes were set throughout the building.

Zone Descriptor	Mode	‘Modeled’ baseline Occupied Setpoint	‘Modeled’ baseline Unoccupied setpoint	‘Modeled’ EEM Upgrade Occupied Setpoint	‘Modeled’ EEM Upgrade Unoccupied setpoint
Much/most of the building zones	Heating	74	68	73	58
Much/most of the building zones	Cooling	72	76	73	84
Gym	Heating	68	66	68	58
Gym	Cooling	76	76	76	84
Library	Heating	74	68	70	58
Library	Cooling	70	76	73	84
Auditorium	Heating	74	68	70	58
Auditorium	Cooling	70	76	73	84
Stage	Heating	72	66	70	58
Stage	Cooling	70	74	73	84
Fitness	Heating	70	68	70	58
Fitness	Cooling	70	76	73	84
AHU6 C-1	Heating	74	66	70	58
AHU6 C-1	Cooling	72	76	73	84
Fine Arts	Heating	71	68	70	58
Fine Arts	Cooling	69	75	73	84
Pool	Heating	74	76	74	76
Pool	Cooling	74	74	74	74

EEM 2 – REFURBISH OLDER RTU’S + NEW MOTORS

BASELINE CONDITION

The existing Roof top units (RTU’s) are old need maintenance and cleaning and the existing motors on AHU are old standard efficiency motors. The building was built in 1999, so these units are 19 years old.

PROPOSED CONDITION

In this proposed EEM all the ductwork is to be cleaned and refurbished as well as the existing inefficient motors are replaced with new efficiency motors.

The outside air dampers are aged and will not seal off 100% when closed, so the replacement of these damper seals would be helpful to achieve optimal energy savings operations.

TABLE 7: SUMMARY OF EEM3

	kWh Savings	Therm Savings
Estimated Total Energy Savings	27,400	0
Age of Equipment Being Replaced	The ductwork and the motors are as old as the building which was built in 1999, so these units are 19 years old.	
Is Existing Equipment Currently Working or Not Working?	Working but not efficiently.	
Cost	\$285,000	
Notes		

TABLE 8: EEM3 CONDITIONS

Item	Baseline Condition	Proposed Condition
Ducts	Dirty/clogged ducts due to build up over time	The air handlers and ducts will be cleaned to improve airflow (reduced static) and indoor air quality
Motors	Aged motors with lower efficiencies based on age and operation	New high efficiency motors are proposed which will improve the overall efficiency of the system

Model Run Input Differences Comparison (pd2 files - Exam-Diff)

Baseline Model Run vs EEM 1 DDC Upgrade

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Diff 80: Change lines 7811 - 7816 (left file) to lines 7825 - 7831 (right file)

Line	Baseline	EEM 1
1	Proj "Parkrose HS_07262019"	1 Proj "EEM 1_DDC Parkrose HS_072619"
7	ModDate = 1567281678	7 ModDate = 1567285265
8	RunDate = 1567281645	8 RunDate = 1567285174
10	ActiveMode = 1	10 ActiveMode = 0
20	NotProjFile = "Parkrose HS_07262019"	20 NotProjFile = "EEM 1_DDC Parkrose HS_072619"
23	PreviousName = "Parkrose HS_07152019"	23 PreviousName = "EEM 1_DDC Parkrose HS_072619"
27	ProjTreeID[2] = 10140055	27 ProjTreeID[2] = 10080006
28	ProjTreeLabel[1] = "Project: 'Parkrose HS_07262019'"	28 ProjTreeLabel[1] = "Project: 'EEM 1_DDC Parkrose HS_072619'"
29	ProjTreeLabel[2] = "E1 Flr (G.W1.U1)"	29 ProjTreeLabel[2] = "E4 Sps (G.1)"
32	MainWiz "Parkrose HS_07262019"	32 MainWiz "EEM 1_DDC Parkrose HS_072619"
37	ScreenIDArrIdx = 0	37 ScreenIDArrIdx = 2
38	ScreenIDArrIdx = 13	38 ScreenIDArrIdx = 18
77	ScreenIDArrIdx = 23	77 ScreenIDArrIdx = 15
78	ScreenIDArrIdx = 98	78 ScreenIDArrIdx = 78
222	DetailsCurrent = (1, 1, 1)	161 CustFPDircCurrent = 1
258	Ventilation[1] = 20	223 DetailsCurrent[3] = 1
259	Ventilation[2] = 20	259 Ventilation[1] = 22
260	Ventilation[3] = 20	260 Ventilation[2] = 22
261	Ventilation[4] = 20	261 Ventilation[3] = 22
634	DetailsCurrent = (1, 1, 1)	574 CustFPDircCurrent = 1
667	Ventilation[1] = 20	635 DetailsCurrent[3] = 1
668	Ventilation[2] = 20	668 Ventilation[1] = 22
669	Ventilation[3] = 20	669 Ventilation[2] = 22
670	Ventilation[4] = 20	670 Ventilation[3] = 22
898	ScreenIDArrIdx = 25	671 Ventilation[4] = 22
899	ScreenIDArrIdx = 87	899 ScreenIDArrIdx = 11
1091	DetailsCurrent = (1, 1, 1)	900 ScreenIDArrIdx = 91
1124	Ventilation[1] = 20	1030 CustFPDircCurrent = 1
1125	Ventilation[2] = 20	1093 DetailsCurrent[3] = 1
1126	Ventilation[3] = 25	1126 Ventilation[1] = 22
1127	Ventilation[4] = 25	1127 Ventilation[2] = 20
1350	ScreenIDArrIdx = 13	1128 Ventilation[3] = 20
1351	ScreenIDArrIdx = 132	1129 Ventilation[4] = 20
1550	DetailsCurrent = (1, 1, 1)	1352 ScreenIDArrIdx = 11
1585	Ventilation[1] = 20	1353 ScreenIDArrIdx = 91
1586	Ventilation[2] = 30	1485 CustFPDircCurrent = 1
1587	Ventilation[3] = 22	1553 DetailsCurrent[3] = 1
1588	Ventilation[4] = 22	1588 Ventilation[1] = 22
1981		1589 Ventilation[2] = 20
		1590 Ventilation[3] = 20
		1591 Ventilation[4] = 20
		1984

Line	Baseline	EEM 1
1981	ScreenIDArrIdx = 13	1984 ScreenIDArrIdx = 11
1982	ScreenIDArrIdx = 132	1985 ScreenIDArrIdx = 91
2163	DetailsCurrent = (1, 1, 1)	2111 CustFPDircCurrent = 1
2198	Ventilation[1] = 25	2201 Ventilation[1] = 20
2413	ScreenIDArrIdx = 13	2416 ScreenIDArrIdx = 11
2414	ScreenIDArrIdx = 132	2417 ScreenIDArrIdx = 91
2560	DetailsCurrent = (1, 1, 1)	2501 CustFPDircCurrent = 1
2595	Ventilation[1] = 25	2564 DetailsCurrent[3] = 1
2596	Ventilation[2] = 25	2599 Ventilation[1] = 20
2834	ScreenIDArrIdx = 13	2600 Ventilation[2] = 20
2835	ScreenIDArrIdx = 132	2838 ScreenIDArrIdx = 11
2977	DetailsCurrent = (1, 1, 1)	2839 ScreenIDArrIdx = 91
3011	Ventilation[1] = 22	2926 CustFPDircCurrent = 1
3012	Ventilation[2] = 22	3015 Ventilation[1] = 20
3241	ScreenIDArrIdx = 15	3016 Ventilation[2] = 20
3242	ScreenIDArrIdx = 78	3245 ScreenIDArrIdx = 11
3385	DetailsCurrent = (1, 1, 1)	3246 ScreenIDArrIdx = 91
3419	Ventilation[1] = 22	3329 CustFPDircCurrent = 1
3420	Ventilation[2] = 22	3390 DetailsCurrent[3] = 1
3646	ScreenIDArrIdx = 15	3424 Ventilation[1] = 20
3647	ScreenIDArrIdx = 78	3425 Ventilation[2] = 20
3797	DetailsCurrent = (1, 1, 1)	3651 ScreenIDArrIdx = 11
3833	Ventilation[1] = 22	3652 ScreenIDArrIdx = 91
3834	Ventilation[2] = 22	3736 CustFPDircCurrent = 1
4064	ScreenIDArrIdx = 25	3803 DetailsCurrent[3] = 1
4065	ScreenIDArrIdx = 87	3839 Ventilation[1] = 20
4212	DetailsCurrent = (1, 1, 1)	3840 Ventilation[2] = 20
4247	Ventilation[1] = 25	4070 ScreenIDArrIdx = 11
4248	Ventilation[2] = 25	4071 ScreenIDArrIdx = 91
4479	ScreenIDArrIdx = 25	4155 CustFPDircCurrent = 1
4480	ScreenIDArrIdx = 87	4219 DetailsCurrent[3] = 1
4626	DetailsCurrent = (1, 1, 1)	4254 Ventilation[1] = 20
4660	Ventilation[1] = 25	4255 Ventilation[2] = 20
4661	Ventilation[2] = 25	4486 ScreenIDArrIdx = 11
4926	ScreenIDArrIdx = 14	4487 ScreenIDArrIdx = 91
4927		4574 CustFPDircCurrent = 1
		4634 DetailsCurrent[3] = 1
		4668 Ventilation[1] = 20
		4669 Ventilation[2] = 20
		4934 ScreenIDArrIdx = 11
		4935

186 differences found

Ln 7814, Col 25 Added lines Deleted lines Changed lines ExamDiff Pro

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Files View Navigation Search Info

Diff 80: Change lines 7811 - 7816 (left file) to lines 7825 - 7831 (right file)

M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\Baseline\Parkrose HS_07262019.pd2	M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\EE... \EEM 1_DDC Parkrose HS_072619.pd2
4927 ScreenIDArrID = 77	4935 ScreenIDArrID = 91
5075 DetailsCurrent = (1, 1, 1)	5021 CustFFDrsCurrent = 1
5365 ScreenIDArrIdx = 13	5084 DetailsCurrent[3] = 1
5366 ScreenIDArrID = 132	5374 ScreenIDArrIdx = 12
	5375 ScreenIDArrID = 71
5515 DetailsCurrent = (1, 1, 1)	5458 CustFFDrsCurrent = 1
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	5775 ScreenIDArrID = 91
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6216 ScreenIDArrIdx = 15	5925 DetailsCurrent[3] = 1
6217 ScreenIDArrID = 78	6227 ScreenIDArrIdx = 11
	6228 ScreenIDArrID = 91
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6447 Ventilation[1] = 25	6421 DetailsCurrent[3] = 1
6448 Ventilation[2] = 25	6459 Ventilation[1] = 20
6449 Ventilation[3] = 25	6460 Ventilation[2] = 20
6450 Ventilation[4] = 25	6461 Ventilation[3] = 20
6672 ScreenIDArrIdx = 0	6462 Ventilation[4] = 20
6673 ScreenIDArrID = 15	6684 ScreenIDArrIdx = 11
	6685 ScreenIDArrID = 91
6822 DetailsCurrent = (1, 1, 1)	6771 CustFFDrsCurrent = 1
7087 ScreenIDArrIdx = 25	6835 DetailsCurrent[3] = 1
7088 ScreenIDArrID = 87	7100 ScreenIDArrIdx = 11
	7101 ScreenIDArrID = 91
7237 DetailsCurrent = (1, 1, 1)	7187 CustFFDrsCurrent = 1
7272 Ventilation[1] = 22	7251 DetailsCurrent[3] = 1
7273 Ventilation[2] = 22	7286 Ventilation[1] = 20
7787 ScreenIDArrIdx = 5	7287 Ventilation[2] = 20
7788 ScreenIDArrID = 170	7801 ScreenIDArrIdx = 4
7793 SFanPower[1] = 3.5	7802 ScreenIDArrID = 151
7796 SFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	7807 SFanPower[1] = 3.24
7798 RFanPower[1] = 2.4	7810 SFanType[1] = "Variable Speed Drive"
7801 RFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	7812 RFanPower[1] = 2.22
7804 EconHighLimit[1] = 63	7815 RFanType[1] = "Variable Speed Drive"
7806 BDLEconMinDevPtt[1] = 60	7818 EconHighLimit[1] = 65
7811 CoolOccTemp[1] = 72	7820 BDLEconMinDevPtt[1] = 55
7812 CoolUnoccTemp[1] = 76	7825 CoolOccTemp[1] = 73
7813	7826 CoolUnoccTemp[1] = 84

186 differences found

Ln 7814, Col 25 Added lines Deleted lines Changed lines ExamDiff Pro

ExamDiff - M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\Baseline\Parkrose HS_07262019.pd2 | M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\EE... \EEM 1_DDC Parkrose HS_072619.pd2

Files View Navigation Search Info

Diff 80: Change lines 7811 - 7816 (left file) to lines 7825 - 7831 (right file)

M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\Baseline\Parkrose HS_07262019.pd2	M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\EE... \EEM 1_DDC Parkrose HS_072619.pd2
7813 HeatOccTemp[1] = 74	7827 HeatOccTemp[1] = 70
7814 HeatUnoccTemp[1] = 68	7828 HeatUnoccTemp[1] = 58
7815 MinAllowedAirflow[1] = 1.5	7829 DesignCoolTemp[1] = 75
7816 CoreVAVMinFlow[1] = 60	7830 MinAllowedAirflow[1] = 0.3
	7831 CoreVAVMinFlow[1] = 20
7820 SysSchedShift[1] = 1	7835 SysSchedShift[1] = 0
7821 SysSchedShift[2] = 1	7836 SysSchedShift[2] = 0
	7842 SysMinOAMethod[1] = "DCV Sensor in Zone"
7830 ScreenIDArrIdx = 5	7846 ScreenIDArrIdx = 4
7831 ScreenIDArrID = 170	7847 ScreenIDArrID = 151
7839 SFanPower[1] = 2.8	7855 SFanPower[1] = 2.59
7842 SFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	7858 SFanType[1] = "Variable Speed Drive"
7844 RFanPower[1] = 2	7860 RFanPower[1] = 1.85
7847 RFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	7863 RFanType[1] = "Variable Speed Drive"
7850 EconHighLimit[1] = 63	7866 EconHighLimit[1] = 65
7852 BDLEconMinDevPtt[1] = 60	7868 BDLEconMinDevPtt[1] = 55
7857 CoolOccTemp[1] = 72	7873 CoolOccTemp[1] = 73
7858 CoolUnoccTemp[1] = 76	7874 CoolUnoccTemp[1] = 84
7859 HeatOccTemp[1] = 74	7875 HeatOccTemp[1] = 70
7860 HeatUnoccTemp[1] = 68	7876 HeatUnoccTemp[1] = 58
7861 MinAllowedAirflow[1] = 1.5	7877 DesignCoolTemp[1] = 75
7862 CoreVAVMinFlow[1] = 60	7878 MinAllowedAirflow[1] = 0.5
	7879 CoreVAVMinFlow[1] = 20
7866 SysSchedShift[1] = 1	7883 SysSchedShift[1] = 0
7867 SysSchedShift[2] = 1	7884 SysSchedShift[2] = 0
	7888 SysMinOAMethod[1] = "DCV Sensor in Zone"
7874 ScreenIDArrIdx = 5	7892 ScreenIDArrIdx = 4
7875 ScreenIDArrID = 170	7893 ScreenIDArrID = 151
7882 SFanPower[1] = 3.9	7900 SFanPower[1] = 3.61
7885 SFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	7903 SFanType[1] = "Variable Speed Drive"
7887 RFanPower[1] = 2.5	7905 RFanPower[1] = 2.3
7890 RFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	7908 RFanType[1] = "Variable Speed Drive"
7893 EconHighLimit[1] = 63	7911 EconHighLimit[1] = 65
7895 BDLEconMinDevPtt[1] = 60	7913 BDLEconMinDevPtt[1] = 55
7898 DesCoolCapacitv[1] = 27.25	7916 DesCoolCapacitv[1] = 27
7900 CoolOccTemp[1] = 70	7918 CoolOccTemp[1] = 73
7901 CoolUnoccTemp[1] = 76	7919 CoolUnoccTemp[1] = 84
7902 HeatOccTemp[1] = 74	7920 HeatOccTemp[1] = 70
7903 HeatUnoccTemp[1] = 68	7921 HeatUnoccTemp[1] = 58
7904 MinAllowedAirflow[1] = 1	7922 DesignCoolTemp[1] = 75
7905 CoreVAVMinFlow[1] = 60	7923 MinAllowedAirflow[1] = 0.3
	7924 CoreVAVMinFlow[1] = 20

186 differences found

Ln 7814, Col 25 Added lines Deleted lines Changed lines ExamDiff Pro

ExamDiff - M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\Baseline\Parkrose HS_07262019.pd2 | M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\EE... \EEM_1_DDC Parkrose HS_072619.pd2

Files View Navigation Search Info

Diff 80: Change lines 7811 - 7816 (left file) to lines 7825 - 7831 (right file)

M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\Baseline\Parkrose HS_07262019.pd2	M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\EE... \EEM_1_DDC Parkrose HS_072619.pd2
7904 MinAllowedAirflow[1] = 1	7922 DesignCoolTemp[1] = 75
7905 CoreVAVMinFlow[1] = 60	7923 MinAllowedAirflow[1] = 0.3
	7924 CoreVAVMinFlow[1] = 20
7909 SysSchedShift[1] = 1	7928 SysSchedShift[1] = 0
7910 SysSchedShift[2] = 1	7929 SysSchedShift[2] = 0
7913 PercentOSA[1] = 25	7932 PercentOSA[1] = 19.8
	7933 SysMinOAMethod[1] = "DCV Sensor in Zone"
7917 ScreenIDArrIdx = 5	7937 ScreenIDArrIdx = 4
7918 ScreenIDArrID = 170	7938 ScreenIDArrID = 151
7926 SFanPower[1] = 2.5	7946 SFanPower[1] = 2.3
7929 SFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	7949 SFanType[1] = "Variable Speed Drive"
7931 RFanPower[1] = 1.2	7951 RFanPower[1] = 1.1
7934 RFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	7954 RFanType[1] = "Variable Speed Drive"
7937 EconHighLimit[1] = 63	7957 EconHighLimit[1] = 65
7939 BDLEconMinDevPtt[1] = 60	7959 BDLEconMinDevPtt[1] = 55
7944 CoolOccTemp[1] = 72	7964 CoolOccTemp[1] = 73
7945 CoolUnoccTemp[1] = 76	7965 CoolUnoccTemp[1] = 84
7946 HeatOccTemp[1] = 74	7966 HeatOccTemp[1] = 70
7947 HeatUnoccTemp[1] = 68	7967 HeatUnoccTemp[1] = 58
7948 DesignCoolTemp[1] = 72	7968 DesignCoolTemp[1] = 75
7949 MinAllowedAirflow[1] = 1.2	7969 MinAllowedAirflow[1] = 0.3
7950 CoreVAVMinFlow[1] = 60	7970 CoreVAVMinFlow[1] = 20
7954 SysSchedShift[1] = 1	7974 SysSchedShift[1] = 0
7955 SysSchedShift[2] = 1	7975 SysSchedShift[2] = 0
7958 PercentOSA[1] = 22	7978 PercentOSA[1] = 20.73
	7979 SysMinOAMethod[1] = "DCV Sensor in Zone"
7962 ScreenIDArrIdx = 5	7983 ScreenIDArrIdx = 4
7963 ScreenIDArrID = 170	7984 ScreenIDArrID = 151
7971 SFanPower[1] = 3.2	7982 SFanPower[1] = 2.96
7974 SFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	7985 SFanType[1] = "Variable Speed Drive"
7976 RFanPower[1] = 2.4	7987 RFanPower[1] = 2.22
7979 RFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	8000 RFanType[1] = "Variable Speed Drive"
7982 EconHighLimit[1] = 63	8003 EconHighLimit[1] = 65
7984 BDLEconMinDevPtt[1] = 60	8005 BDLEconMinDevPtt[1] = 55
7989 CoolOccTemp[1] = 72	8010 CoolOccTemp[1] = 73
7990 CoolUnoccTemp[1] = 76	8011 CoolUnoccTemp[1] = 84
7991 HeatOccTemp[1] = 74	8012 HeatOccTemp[1] = 70
7992 HeatUnoccTemp[1] = 68	8013 HeatUnoccTemp[1] = 58
7993 DesignCoolTemp[1] = 72	8014 DesignCoolTemp[1] = 75
7994 MinAllowedAirflow[1] = 1.3	8015 MinAllowedAirflow[1] = 0.3
7995 CoreVAVMinFlow[1] = 60	8016 CoreVAVMinFlow[1] = 30
7996 CoreVAVMinFlow[1] = 60	8017 CoreVAVMinFlow[1] = 20
8000	8021

186 differences found

Ln 7814, Col 25 Added lines Deleted lines Changed lines ExamDiff Pro

ExamDiff - M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\Baseline\Parkrose HS_07262019.pd2 | M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\EE... \EEM_1_DDC Parkrose HS_072619.pd2

Files View Navigation Search Info

Diff 80: Change lines 7811 - 7816 (left file) to lines 7825 - 7831 (right file)

M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\Baseline\Parkrose HS_07262019.pd2	M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\EE... \EEM_1_DDC Parkrose HS_072619.pd2
8000 SysSchedShift[1] = 1	8021 SysSchedShift[1] = 0
8001 SysSchedShift[2] = 1	8022 SysSchedShift[2] = 0
8004 PercentOSA[1] = 18	8025 PercentOSA[1] = 14.5
	8026 SysMinOAMethod[1] = "DCV Sensor in Zone"
8022 ScreenIDArrIdx = 5	8044 ScreenIDArrIdx = 4
8023 ScreenIDArrID = 170	8045 ScreenIDArrID = 151
8027 SFanPower[1] = 2.2	8049 SFanPower[1] = 2.1
8030 SFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	8052 SFanType[1] = "Variable Speed Drive"
8032 RFanPower[1] = 0.9	8054 RFanPower[1] = 0.83
8035 RFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	8057 RFanType[1] = "Variable Speed Drive"
8038 EconHighLimit[1] = 63	8060 EconHighLimit[1] = 65
8040 BDLEconMinDevPtt[1] = 60	8062 BDLEconMinDevPtt[1] = 55
8046 CoolUnoccTemp[1] = 76	8068 CoolUnoccTemp[1] = 84
8048 HeatUnoccTemp[1] = 66	8070 HeatUnoccTemp[1] = 58
8049 DesignCoolTemp[1] = 70	8071 DesignCoolTemp[1] = 75
8050 MinAllowedAirflow[1] = 1.7	8072 MinAllowedAirflow[1] = 0.5
8051 CoreVAVMinFlow[1] = 100	8073 CoreVAVMinFlow[1] = 25
8056 SysSchedShift[1] = 1	8078 SysSchedShift[1] = 0
8057 SysSchedShift[2] = 1	8079 SysSchedShift[2] = 0
8059 PercentOSA[1] = 25	8081 PercentOSA[1] = 19.67
	8082 SysMinOAMethod[1] = "DCV Sensor in Zone"
8063 ScreenIDArrIdx = 5	8086 ScreenIDArrIdx = 4
8064 ScreenIDArrID = 170	8087 ScreenIDArrID = 151
8068 SFanPower[1] = 2.03	8091 SFanPower[1] = 1.87
8071 SFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	8094 SFanType[1] = "Variable Speed Drive"
8073 RFanPower[1] = 1.38	8096 RFanPower[1] = 1.3
8076 RFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	8099 RFanType[1] = "Variable Speed Drive"
8079 EconHighLimit[1] = 63	8102 EconHighLimit[1] = 65
8081 BDLEconMinDevPtt[1] = 60	8104 BDLEconMinDevPtt[1] = 55
8086 CoolOccTemp[1] = 70	8109 CoolOccTemp[1] = 73
8087 HeatUnoccTemp[1] = 76	8110 HeatUnoccTemp[1] = 84
8089 HeatUnoccTemp[1] = 68	8112 HeatUnoccTemp[1] = 58
8091 CoreVAVMinFlow[1] = 25	8114 CoreVAVMinFlow[1] = 20
8095 SysSchedShift[1] = 1	8118 SysSchedShift[1] = 0
8096 SysSchedShift[2] = 1	8119 SysSchedShift[2] = 0
8099 PercentOSA[1] = 34	8122 PercentOSA[1] = 27.07
	8123 SysMinOAMethod[1] = "DCV Sensor in Zone"
8108 SFanPower[1] = 2.7	8132 SFanPower[1] = 2.6
8111 SFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	8135 SFanType[1] = "Variable Speed Drive"
8113 RFanPower[1] = 1.7	8137 RFanPower[1] = 1.6
8116 RFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	8140 RFanType[1] = "Variable Speed Drive"
8119 EconHighLimit[1] = 63	8143 EconHighLimit[1] = 65
8121	8145

186 differences found

Ln 7814, Col 25 Added lines Deleted lines Changed lines ExamDiff Pro

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Files View Navigation Search Info

Diff 80: Change lines 7811 - 7816 (left file) to lines 7825 - 7831 (right file)

M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\Baseline\Parkrose HS_07262019.pd2	M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\Baseline\Parkrose HS_07262019.pd2
8121 BDLEconMinDevPtt[1] = 60	8145 BDLEconMinDevPtt[1] = 55
8126 CoolOccTemp[1] = 70	8150 CoolOccTemp[1] = 73
8127 CoolUnoccTemp[1] = 76	8151 CoolUnoccTemp[1] = 84
8128 HeatOccTemp[1] = 74	8152 HeatOccTemp[1] = 70
8129 HeatUnoccTemp[1] = 68	8153 HeatUnoccTemp[1] = 58
8130 DesignCoolTemp[1] = 69	8154 DesignCoolTemp[1] = 75
8131 MinAllowedAirflow[1] = 2	8155 MinAllowedAirflow[1] = 0.5
8132 CoreVAVMinFlow[1] = 100	8156 CoreVAVMinFlow[1] = 25
8133 PeriaVAVMinFlow[1] = 100	8157 PeriaVAVMinFlow[1] = 25
8137 SysSchedShift[1] = 1	8161 SysSchedShift[1] = 0
8138 SysSchedShift[2] = 1	8162 SysSchedShift[2] = 0
8141 PercentOSA[1] = 55.4	8165 PercentOSA[1] = 49.29
	8166 SysMinOAMethod[1] = "DCV Sensor in Zone"
8150 SFanPower[1] = 3.2	8175 SFanPower[1] = 3.1
8153 SFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	8178 SFanType[1] = "Variable Speed Drive"
8155 RFanPower[1] = 2.4	8180 RFanPower[1] = 2.3
8156 RFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	8181 RFanType[1] = "Variable Speed Drive"
8159 EconHighLimit[1] = 63	8184 EconHighLimit[1] = 65
8161 BDLEconMinDevPtt[1] = 60	8186 BDLEconMinDevPtt[1] = 55
8166 CoolOccTemp[1] = 70	8191 CoolOccTemp[1] = 73
8167 CoolUnoccTemp[1] = 74	8192 CoolUnoccTemp[1] = 84
8168 HeatOccTemp[1] = 72	8193 HeatOccTemp[1] = 70
8169 HeatUnoccTemp[1] = 66	8194 HeatUnoccTemp[1] = 58
8170 DesignCoolTemp[1] = 72	8195 DesignCoolTemp[1] = 75
8171 MinAllowedAirflow[1] = 3	8196 MinAllowedAirflow[1] = 0.5
8172 CoreVAVMinFlow[1] = 100	8197 CoreVAVMinFlow[1] = 25
8177 SysSchedShift[1] = 1	8202 SysSchedShift[1] = 0
8178 SysSchedShift[2] = 1	8203 SysSchedShift[2] = 0
8181 PercentOSA[1] = 15	8206 PercentOSA[1] = 13
	8207 SysMinOAMethod[1] = "DCV Sensor in Zone"
8185 ScreenIDArrIdx = 5	8211 ScreenIDArrIdx = 4
8186 ScreenIDArrID = 170	8212 ScreenIDArrID = 151
8190 SFanPower[1] = 3.2	8216 SFanPower[1] = 2.96
8193 SFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	8219 SFanType[1] = "Variable Speed Drive"
8195 RFanPower[1] = 1.4	8221 RFanPower[1] = 1.29
8196 RFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	8222 RFanType[1] = "Variable Speed Drive"
8199 EconHighLimit[1] = 63	8225 EconHighLimit[1] = 65
8201 BDLEconMinDevPtt[1] = 60	8227 BDLEconMinDevPtt[1] = 55
8206 CoolOccTemp[1] = 84	8232 CoolOccTemp[1] = 73
8208 HeatOccTemp[1] = 88	8234 HeatOccTemp[1] = 58
8209 HeatUnoccTemp[1] = 78	8235 HeatUnoccTemp[1] = 58
8210 MinAllowedAirflow[1] = 1	8236 DesignCoolTemp[1] = 75
8211	8237

186 differences found Ln 7814, Col 25 Added lines Deleted lines Changed lines ExamDiff Pro

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Diff 80: Change lines 7811 - 7816 (left file) to lines 7825 - 7831 (right file)

M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\Baseline\Parkrose HS_07262019.pd2	M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\Baseline\Parkrose HS_07262019.pd2
8211 CoreVAVMinFlow[1] = 60	8237 MinAllowedAirflow[1] = 0.5
8215 SysSchedShift[2] = 1	8238 CoreVAVMinFlow[1] = 20
	8242 SysSchedShift[1] = 0
8218 PercentOSA[1] = 18	8243 SysSchedShift[2] = 0
	8246 PercentOSA[1] = 20.59
8222 ScreenIDArrIdx = 5	8251 ScreenIDArrIdx = 4
8223 ScreenIDArrID = 170	8252 ScreenIDArrID = 151
8246 CoolOccTemp[1] = 72	8275 CoolOccTemp[1] = 73
8247 CoolUnoccTemp[1] = 76	8276 CoolUnoccTemp[1] = 84
8248 HeatOccTemp[1] = 74	8277 HeatOccTemp[1] = 73
8250 DesignCoolTemp[1] = 72	8279 DesignCoolTemp[1] = 75
8256 SysSchedShift[2] = 2	8285 SysSchedShift[1] = 0
	8286 SysSchedShift[2] = 0
8271 SFanPower[1] = 4	8301 SFanPower[1] = 3.7
8274 SFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	8304 SFanType[1] = "Variable Speed Drive"
8275 RFanPower[1] = 2.4	8305 RFanPower[1] = 1.85
8278 RFanType[1] = "Air Foil Centrifugal w/ Inlet Vanes"	8308 RFanType[1] = "Variable Speed Drive"
8281 EconHighLimit[1] = 63	8311 EconHighLimit[1] = 65
8283 BDLEconMinDevPtt[1] = 60	8313 BDLEconMinDevPtt[1] = 55
8287 CoolOccTemp[1] = 69	8317 CoolOccTemp[1] = 73
8288 CoolUnoccTemp[1] = 75	8318 CoolUnoccTemp[1] = 84
8289 HeatOccTemp[1] = 71	8319 HeatOccTemp[1] = 70
8290 HeatUnoccTemp[1] = 68	8320 HeatUnoccTemp[1] = 58
8291 MinAllowedAirflow[1] = 1.5	8321 DesignCoolTemp[1] = 75
8292 CoreVAVMinFlow[1] = 60	8322 MinAllowedAirflow[1] = 0.3
	8323 CoreVAVMinFlow[1] = 20
8296 SysSchedShift[2] = 1	8327 SysSchedShift[1] = 0
	8328 SysSchedShift[2] = 0
8335 SysSchedShift[2] = 1	8332 SysMinOAMethod[1] = "DCV Sensor in Zone"
	8368 SysSchedShift[1] = 0
	8369 SysSchedShift[2] = 0

EEM 1 DDC Upgrade vs EEM 2 RTU Refurbish

ExamDiff - M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\EEM 1-DDC Upgrade\EEM 1_DDC Parkrose HS_072619.pd2 | M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose...

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Diff 19: Delete line 1485 (left file)

M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\EEM 1_DDC Parkrose HS_072619.pd2	M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\EEM 2_DDC Parkrose HS_072619 F.pd2
1 Proj "EEM 1 DDC Parkrose HS 072619"	1 Proj "EEM 2 DDC Parkrose HS 072619 F"
7 ModDate = 1567285265	7 ModDate = 1567285893
8 RunDate = 1567285174	8 RunDate = 1567150178
20 NotProjFile = "EEM 1 DDC Parkrose HS 072619"	20 NotProjFile = "EEM 2 DDC Parkrose HS 072619 F"
23 PreviousName = "EEM 1 DDC Parkrose HS 072619"	23 PreviousName = "EEM 2 DDC Parkrose HS 072419"
28 ProjTreeLabel[1] = "Project: EEM 1 DDC Parkrose HS 072619"	28 ProjTreeLabel[1] = "Project: EEM 1 DDC Parkrose HS 072419"
32 MainDir "EEM 1 DDC Parkrose HS 072619"	32 MainDir "EEM 2 DDC Parkrose HS 072619 F"
77 ScreenIDArrIdx = 15	77 ScreenIDArrIdx = 12
78 ScreenIDArrID = 78	78 ScreenIDArrID = 71
161 CustFFDirCurrent = 1	222 DetailsCurrent = (1, 1, 1)
223 DetailsCurrent[3] = 1	261 Ventilation[4] = 22
487 ScreenIDArrIdx = 11	487 ScreenIDArrIdx = 12
488 ScreenIDArrID = 91	488 ScreenIDArrID = 71
574 CustFFDirCurrent = 1	634 DetailsCurrent = (1, 1, 1)
635 DetailsCurrent[3] = 1	898 ScreenIDArrIdx = 12
899 ScreenIDArrIdx = 11	899 ScreenIDArrID = 71
900 ScreenIDArrID = 91	
1030 CustFFDirCurrent = 1	1091 DetailsCurrent = (1, 1, 1)
1093 DetailsCurrent[3] = 1	1125 Ventilation[2] = 15
1127 Ventilation[2] = 20	1126 Ventilation[3] = 15
1128 Ventilation[3] = 20	1127 Ventilation[4] = 15
1129 Ventilation[4] = 20	1350 ScreenIDArrIdx = 12
1352 ScreenIDArrIdx = 11	1351 ScreenIDArrID = 71
1353 ScreenIDArrID = 91	
1485 CustFFDirCurrent = 1	1550 DetailsCurrent = (1, 1, 1)
1553 DetailsCurrent[3] = 1	1586 Ventilation[2] = 15
1589 Ventilation[2] = 20	1587 Ventilation[3] = 15
1590 Ventilation[3] = 20	1588 Ventilation[4] = 15
1591 Ventilation[4] = 20	1981 ScreenIDArrIdx = 12
1984 ScreenIDArrIdx = 11	1982 ScreenIDArrID = 71
1985 ScreenIDArrID = 91	
2111 CustFFDirCurrent = 1	2163 DetailsCurrent = (1, 1, 1)
2201 Ventilation[1] = 20	2198 Ventilation[1] = 15
2416 ScreenIDArrIdx = 11	2413 ScreenIDArrIdx = 12
2417 ScreenIDArrID = 91	2414 ScreenIDArrID = 71
2501 CustFFDirCurrent = 1	
2564 DetailsCurrent[3] = 1	2560 DetailsCurrent = (1, 1, 1)
2599 Ventilation[1] = 20	2595 Ventilation[1] = 15
2600 Ventilation[2] = 20	2596 Ventilation[2] = 15
2638 ScreenIDArrIdx = 11	2634 ScreenIDArrIdx = 12
2839	2835

121 differences found

Ln 1485, Col 25 Added lines Deleted lines Changed lines ExamDiff Pro

ExamDiff - M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\EEM 1-DDC Upgrade\EEM 1_DDC Parkrose HS_072619.pd2 | M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose...

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Diff 19: Delete line 1485 (left file)

M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\EEM 1_DDC Parkrose HS_072619.pd2	M:\Beyond Efficiency\Dropbox (Personal)\Elysi RC\Parkrose HS\Review process\Quest\EEM 2_DDC Parkrose HS_072619 F.pd2
2839 ScreenIDArrID = 91	2835 ScreenIDArrID = 71
2926 CustFFDirCurrent = 1	2977 DetailsCurrent = (1, 1, 1)
3015 Ventilation[1] = 20	3011 Ventilation[1] = 15
3016 Ventilation[2] = 20	3012 Ventilation[2] = 15
3245 ScreenIDArrIdx = 11	3241 ScreenIDArrIdx = 12
3246 ScreenIDArrID = 91	3242 ScreenIDArrID = 71
3329 CustFFDirCurrent = 1	
3390 DetailsCurrent[3] = 1	3395 DetailsCurrent = (1, 1, 1)
3424 Ventilation[1] = 20	3419 Ventilation[1] = 15
3425 Ventilation[2] = 20	3420 Ventilation[2] = 15
3651 ScreenIDArrIdx = 11	3646 ScreenIDArrIdx = 12
3652 ScreenIDArrID = 91	3647 ScreenIDArrID = 71
3736 CustFFDirCurrent = 1	
3803 DetailsCurrent[3] = 1	3797 DetailsCurrent = (1, 1, 1)
3839 Ventilation[1] = 20	3833 Ventilation[1] = 15
3840 Ventilation[2] = 20	3834 Ventilation[2] = 15
4070 ScreenIDArrIdx = 11	4064 ScreenIDArrIdx = 12
4071 ScreenIDArrID = 91	4065 ScreenIDArrID = 71
4155 CustFFDirCurrent = 1	
4219 DetailsCurrent[3] = 1	4212 DetailsCurrent = (1, 1, 1)
4254 Ventilation[1] = 20	4247 Ventilation[1] = 15
4255 Ventilation[2] = 20	4248 Ventilation[2] = 15
4486 ScreenIDArrIdx = 11	4479 ScreenIDArrIdx = 12
4487 ScreenIDArrID = 91	4480 ScreenIDArrID = 71
4574 CustFFDirCurrent = 1	
4634 DetailsCurrent[3] = 1	4626 DetailsCurrent = (1, 1, 1)
4668 Ventilation[1] = 20	4660 Ventilation[1] = 15
4669 Ventilation[2] = 20	4661 Ventilation[2] = 15
5021 CustFFDirCurrent = 1	
5084 DetailsCurrent[3] = 1	5075 DetailsCurrent = (1, 1, 1)
5458 CustFFDirCurrent = 1	
5525 DetailsCurrent[3] = 1	
5558 Ventilation[1] = 22	5515 DetailsCurrent = (1, 1, 1)
5559 Ventilation[2] = 22	5548 Ventilation[1] = 15
5560 Ventilation[3] = 22	5549 Ventilation[2] = 15
5859 CustFFDirCurrent = 1	5550 Ventilation[3] = 15
5925 DetailsCurrent[3] = 1	
6227 ScreenIDArrIdx = 11	5914 DetailsCurrent = (1, 1, 1)
6228 ScreenIDArrID = 91	6216 ScreenIDArrIdx = 12
6357 CustFFDirCurrent = 1	6217 ScreenIDArrID = 71
6421 DetailsCurrent[3] = 1	6409 DetailsCurrent = (1, 1, 1)
6459	6447

121 differences found

Ln 1485, Col 25 Added lines Deleted lines Changed lines ExamDiff Pro

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6459 Ventilation[1] = 20	6447 Ventilation[1] = 15
6460 Ventilation[2] = 20	6448 Ventilation[2] = 15
6461 Ventilation[3] = 20	6449 Ventilation[3] = 15
6462 Ventilation[4] = 20	6450 Ventilation[4] = 15
6771 CustFPDrsCurrent = 1	
6835 DetailsCurrent[3] = 1	6822 DetailsCurrent = (1, 1, 1)
7100 ScreenIDArrIdx = 11	7087 ScreenIDArrIdx = 12
7101 ScreenIDArrID = 91	7088 ScreenIDArrID = 71
7187 CustFPDrsCurrent = 1	
7251 DetailsCurrent[3] = 1	7237 DetailsCurrent = (1, 1, 1)
7286 Ventilation[1] = 20	7272 Ventilation[1] = 15
7287 Ventilation[2] = 20	7273 Ventilation[2] = 15
7807 SFanPower[1] = 3.24	7793 SFanPower[1] = 3.04
7812 RFanPower[1] = 2.22	7798 RFanPower[1] = 2.09
7833 SFanMotorEff[1] = "Standard"	7819 SFanMotorEff[1] = "Premium"
7834 RFanMotorEff[1] = "Standard"	7820 RFanMotorEff[1] = "Premium"
7841 PercentOSA[1] = 8	7827 PercentOSA[1] = 8.65
7846 ScreenIDArrIdx = 4	7832 ScreenIDArrIdx = 3
7847 ScreenIDArrID = 151	7833 ScreenIDArrID = 140
7855 SFanPower[1] = 2.59	7841 SFanPower[1] = 2.43
7860 RFanPower[1] = 1.85	7846 RFanPower[1] = 1.74
7881 SFanMotorEff[1] = "Standard"	7867 SFanMotorEff[1] = "Premium"
7882 RFanMotorEff[1] = "Standard"	7868 RFanMotorEff[1] = "Premium"
7887 PercentOSA[1] = 7.6	7873 PercentOSA[1] = 8.39
7892 ScreenIDArrIdx = 4	7878 ScreenIDArrIdx = 3
7893 ScreenIDArrID = 151	7879 ScreenIDArrID = 140
7900 SFanPower[1] = 3.61	7886 SFanPower[1] = 3.4
7905 RFanPower[1] = 2.3	7891 RFanPower[1] = 2.17
7926 SFanMotorEff[1] = "Standard"	7912 SFanMotorEff[1] = "Premium"
7927 RFanMotorEff[1] = "Standard"	7913 RFanMotorEff[1] = "Premium"
7937 ScreenIDArrIdx = 4	7923 ScreenIDArrIdx = 3
7938 ScreenIDArrID = 151	7924 ScreenIDArrID = 140
7946 SFanPower[1] = 2.3	7932 SFanPower[1] = 2.16
7951 RFanPower[1] = 1.1	7937 RFanPower[1] = 1.02
7972 SFanMotorEff[1] = "Standard"	7958 SFanMotorEff[1] = "Premium"
7973 RFanMotorEff[1] = "Standard"	7959 RFanMotorEff[1] = "Premium"
7983 ScreenIDArrIdx = 4	7969 ScreenIDArrIdx = 3
7984 ScreenIDArrID = 151	7970 ScreenIDArrID = 140
7992 SFanPower[1] = 2.96	7978 SFanPower[1] = 2.78
7997 RFanPower[1] = 2.22	7983 RFanPower[1] = 2.09
8019 SFanMotorEff[1] = "Standard"	8005 SFanMotorEff[1] = "Premium"
8020 RFanMotorEff[1] = "Standard"	8006 RFanMotorEff[1] = "Premium"
8025	8011

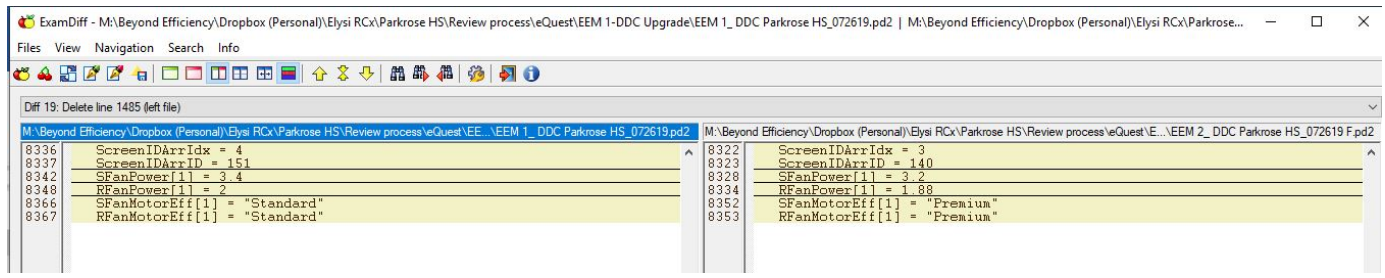
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8044 ScreenIDArrIdx = 4	8030 ScreenIDArrIdx = 3
8045 ScreenIDArrID = 151	8031 ScreenIDArrID = 140
8049 SFanPower[1] = 2.1	8035 SFanPower[1] = 1.97
8054 RFanPower[1] = 0.83	8036 RFanPower[1] = 0.72
8076 SFanMotorEff[1] = "Standard"	8062 SFanMotorEff[1] = "Premium"
8077 RFanMotorEff[1] = "Standard"	8063 RFanMotorEff[1] = "Premium"
8086 ScreenIDArrIdx = 4	8072 ScreenIDArrIdx = 3
8087 ScreenIDArrID = 151	8073 ScreenIDArrID = 140
8091 SFanPower[1] = 1.87	8077 SFanPower[1] = 1.75
8096 RFanPower[1] = 1.3	8082 RFanPower[1] = 1.22
8116 SFanMotorEff[1] = "Standard"	8102 SFanMotorEff[1] = "Premium"
8117 RFanMotorEff[1] = "Standard"	8103 RFanMotorEff[1] = "Premium"
8127 ScreenIDArrIdx = 4	8113 ScreenIDArrIdx = 3
8128 ScreenIDArrID = 151	8114 ScreenIDArrID = 140
8132 SFanPower[1] = 2.6	8118 SFanPower[1] = 2.44
8137 RFanPower[1] = 1.6	8123 RFanPower[1] = 1.5
8159 SFanMotorEff[1] = "Standard"	8145 SFanMotorEff[1] = "Premium"
8160 RFanMotorEff[1] = "Standard"	8146 RFanMotorEff[1] = "Premium"
8170 ScreenIDArrIdx = 4	8156 ScreenIDArrIdx = 3
8171 ScreenIDArrID = 151	8157 ScreenIDArrID = 140
8175 SFanPower[1] = 3.1	8161 SFanPower[1] = 2.92
8180 RFanPower[1] = 2.3	8166 RFanPower[1] = 2.17
8200 SFanMotorEff[1] = "Standard"	8186 SFanMotorEff[1] = "Premium"
8201 RFanMotorEff[1] = "Standard"	8187 RFanMotorEff[1] = "Premium"
8211 ScreenIDArrIdx = 4	8197 ScreenIDArrIdx = 3
8212 ScreenIDArrID = 151	8198 ScreenIDArrID = 140
8216 SFanPower[1] = 2.56	8202 SFanPower[1] = 2.78
8221 RFanPower[1] = 1.29	8207 RFanPower[1] = 1.21
8240 SFanMotorEff[1] = "Standard"	8226 SFanMotorEff[1] = "Premium"
8241 RFanMotorEff[1] = "Standard"	8227 RFanMotorEff[1] = "Premium"
8251 ScreenIDArrIdx = 4	8237 ScreenIDArrIdx = 3
8252 ScreenIDArrID = 151	8238 ScreenIDArrID = 140
8259 SFanPower[1] = 2	8245 SFanPower[1] = 1.87
8264 RFanPower[1] = 1.6	8250 RFanPower[1] = 1.5
8283 SFanMotorEff[1] = "Standard"	8269 SFanMotorEff[1] = "Premium"
8284 RFanMotorEff[1] = "Standard"	8270 RFanMotorEff[1] = "Premium"
8293 ScreenIDArrIdx = 4	8279 ScreenIDArrIdx = 3
8294 ScreenIDArrID = 151	8280 ScreenIDArrID = 140
8301 SFanPower[1] = 3.7	8287 SFanPower[1] = 3.49
8305 RFanPower[1] = 1.85	8291 RFanPower[1] = 1.74
8325 SFanMotorEff[1] = "Standard"	8311 SFanMotorEff[1] = "Premium"
8326 RFanMotorEff[1] = "Standard"	8312 RFanMotorEff[1] = "Premium"
8336	8322



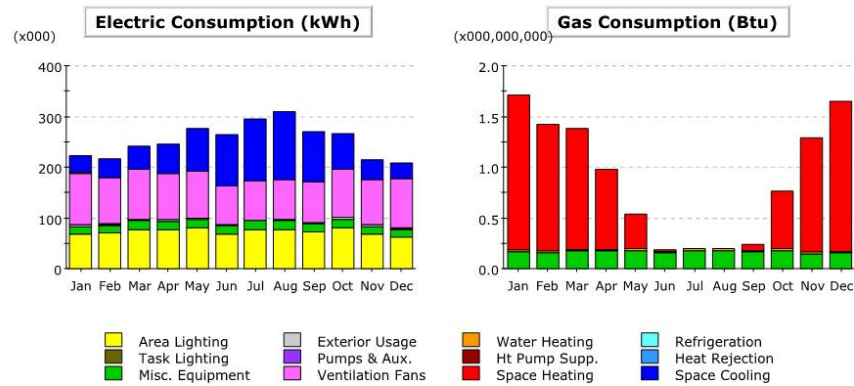
Appendices

Appendix A - ENERGY MODELING ASSUMPTIONS FOR THE PROPOSED EEM

Item	Baseline Condition	Proposed Condition	Justification
Temperature Set-points	Heating SP: 74 °F Cooling SP: 72 °F	Heating SP: 70 °F Cooling SP: 74 °F	The data logs suggest the temperatures in the existing building case, plus a slight increase (heating) and decrease (cooling) in these setpoint averages to reflect the inefficiencies of the system as observed. The new DDC system will have the ability to establish more accurate/tighter control from new calibrated/modern sensors, more reliable controllers, replaced VAV box reheat valves and improved PID loop sequences. The energy waste through these existing physical mechanisms need to be factored into the modeling process both to calibrate the model with the energy billings, but also to model the savings for the improvements from the EEM upgrade process. This is done most efficiently, and in the simplest manner to both understand the problem and improvement, but also to explain to the controls engineering non-expert via elevating (heating) and lowering (cooling) set-points in the base case. Thus, forcing the model to operate the simulated building in the slightly wasteful manner as close as possible to the actual building HVAC systems. The new DDC system eliminates/reduces these inaccuracies and these wasteful/uncomfortable temperature swings plus allow the set-points to be lowered in the building (narrower temperature swings allow a lowering of set-points since occupants are not exposed to as low of bottom of the cycle temperatures). The new EEM upgrade model run was run at 72°F for cooling and 70°F heating to be a little more conservative in the evaluation than the suggested operations sequences.
Unoccupied Temperature Setback	Heating SP: 68 °F Cooling SP: 76 °F	Modeled Heating SP: 58 °F Modeled Cooling SP: 84 °F busting 'override' implementation.	The data logs suggested that there are some setbacks in place (not very aggressive) but with the new DDC system more aggressive setbacks are to be implemented. See comment above on why is has been done as well as the functionality differences between the new and old control systems. If the final set-points are within the ranges stated, the implementation is compliant with the EEM recommendations. Note, that based on the set-points proposed as well as the value used for modeling, if the owner desires to alter the set-point up to the upper range i.e., 62°F or even 63°F when the outside air is below say 20-25°F, automatically via the DDC system programming (or even higher than 63°F for a few days on an 'temporary override basis' the DDC system needs to be either automatically re-setting the system back to the desired lower setbacks during a cold spell, to keep pipes from freezing or tenants satisfied etc., or setup to alarm the operators to let them know the school system(s) are in a temporary over-ride mode. Since the number of hours per year below these outside air temperatures are so few, the modeled values still allow for this operational flexibility. While still achieving the projected energy savings.

outside air control	25 cfm/person for all spaces	20 cfm/person for all spaces other than classrooms 22 cfm/person in classrooms	The outside air flow rate defined for the baseline is derived by modeling the building at levels defined at the time of design/construction i.e., 20 cfm/person. From there the values are elevated/lowered based on the data logs which show only select periods of time when/select locations where the CO2 levels exceed the maximum ppm desired targets of 800-850. So, most of the time too much outside air is being supplied. Since the existing system has no CO2 level feedback/control, so there are no alterations of the outside air volumes based on the space needs. The level of OSA flow in the model is adjusted iteratively along with other known, definable variables to obtain the calibrated model results and the most correct cfm values. Too much or too little outside air and the model will not calibrate with the actual energy usage billings. Then with the DDC upgrade, with CO2 sensors added the OSA levels can be varied but still only within the logical limits of the physical HVAC systems in place. i.e., older systems were not designed to allow for current code level cfm volumes. So, the upgrade values used reflect the difficulty the existing systems would have going down as far as current code allows, without expensive air handler/ductwork and distribution box upgrade costs. So, improvements are solid but only slightly beyond the original HVAC system design intent. In classrooms, however, it was observed that the CO2 levels were constantly high suggesting that the occupancy considered while designing the system was different than the current occupancy (more students in classrooms). To reduce the peak time CO2 levels, we modeled that a small increase in OSA levels will occur when controlling to the 800-850 ppm target. Twenty-two (22) cfm/person was used in the model while the spaces will still have CO2 sensors which will save energy much of the time when not fully occupied by students.
Fans	Inlet guide vanes	VFD's	The existing system has inlet guide vanes which aren't a very efficient way of controlling the airflow, so the guide vanes are to be removed and VFDs installed for fan speed/flow control. The constant volume fans were also configured with VFDs to reduce air flows when heating/cooling/ventilation loads are low (except for the pool and locker room air handlers due to air quality issues). Static across filters as well as without the guide vanes will also be lowered at lower flow rates. These were also altered in the model. The contractor was also alerted to make sure they factor in coordination of supply, return and exhaust flow volumes to make sure building area differential pressurization issues do not surface post upgrade.
Fan Operation	Based on set occupancy schedule	Optimum start/stop schedule	Supply fan modeled to operate 8 AM – 4 PM M-F (extended hours for Gym, pool, Auditorium) to reflect the operation of the optimal start/stop routine and from 8 AM to 2 PM Saturdays with extended hours for common spaces and no use on Sundays. The summertime startup has been delayed by 1-2 hours to reflect low occupancy during the start of the day. The system should include override buttons to allow for unoccupied shutdowns while accommodating the periodic after-hours use needs, if not schedulable. The modeling of unoccupied set-points is not as aggressive as those listed above to allow for some number of 'unpredictable' hours of operation from these situations.

Appendix B - Equest baseline and EEM runs



Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	34.9	38.1	45.1	57.8	83.1	99.3	121.6	133.7	99.9	68.2	38.5	30.4	850.6
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.8	0.7	0.6	0.4	0.2	0.0	-	-	0.0	0.3	0.6	0.7	4.4
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	100.4	89.9	97.4	90.4	92.9	77.6	77.1	77.9	78.8	95.5	88.9	96.2	1,063.0
Pumps & Aux.	1.3	1.1	1.1	0.7	0.3	0.0	-	-	0.1	0.5	1.1	1.3	7.5
Ext. Usage	3.3	2.5	2.8	2.7	1.9	1.9	1.9	3.1	3.0	3.1	3.2	3.3	32.5
Misc. Equip.	15.5	15.2	16.9	16.6	17.3	15.5	16.8	16.8	16.0	17.3	15.2	14.6	193.7
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	67.5	69.6	77.0	76.6	80.1	69.0	77.1	77.1	72.4	80.1	67.2	61.2	875.2
Total	223.7	217.2	240.9	245.3	275.8	263.2	294.5	308.6	270.2	265.0	214.7	207.7	3,026.8

Gas Consumption (Btu x000,000,000)

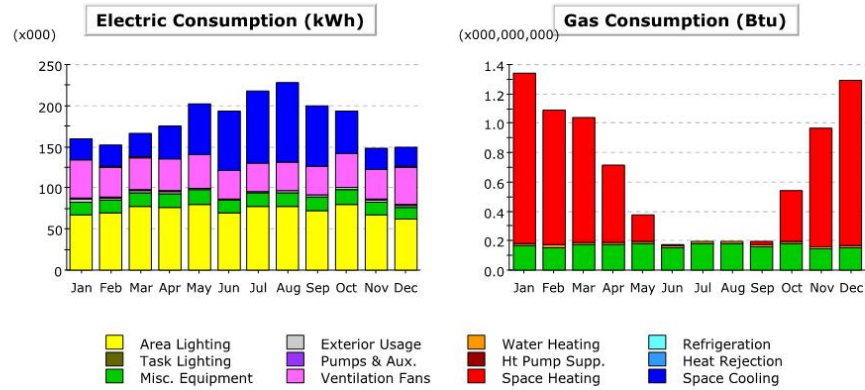
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	1.53	1.25	1.19	0.80	0.34	0.02	-	-	0.06	0.57	1.13	1.48	8.36
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.18
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	0.17	0.15	0.17	0.17	0.18	0.15	0.18	0.18	0.16	0.18	0.15	0.15	1.99
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1.71	1.42	1.38	0.98	0.54	0.18	0.19	0.19	0.23	0.76	1.29	1.65	10.54

Baseline Data - Various eQuest simulation outputs for each EEM are summarized and calculated below (as labeled)														
Equest Model to Billed Data Comparison Analysis - Baseline														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Total
Electric	Avg Billed kwh	218,925	231,900	214,100	240,600	281,100	266,700	296,200	299,300	256,700	236,250	242,000	229,000	3,012,775
	Modeled kwh	223,700	217,200	240,900	245,300	275,800	263,200	294,500	308,600	270,200	265,000	214,700	207,700	3,026,800
Natural Gas	Avg Billed Therms	17,345.3	16,298.0	13,213.3	9,848.3	6,431.7	2,979.3	1,246.0	1,075.0	2,444.3	6,600.0	10,289.3	17,424.7	105,195
	Modeled Therms	17,100.0	14,200.0	13,800.0	9,800.0	5,400.0	1,800.0	1,900.0	1,900.0	2,300.0	7,600.0	12,900.0	16,500.0	105,200
From Baseline Chart Spreadsheet Tab														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Electric Data Drop from Equest	223.7	217.2	240.9	245.3	275.8	263.2	294.5	308.6	270.2	265.0	214.7	207.7		3026.8
N Gas Data Drop from Equest	1.71	1.42	1.38	0.98	0.54	0.18	0.19	0.19	0.23	0.76	1.29	1.65		10.5
											75.26 Modeled Baseline EUI (kbtu/sqft)			
											75.09 Billed Energy Usage EUI Baseline			

EEM # 2 RTU refurbish eQuest Model Run

Project/Run: EEM 2_DDC Parkrose HS_072619 F - Baseline Design

Run Date/Time: 08/31/19 @ 14:11



Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	24.7	26.3	28.8	40.6	61.9	71.8	86.6	95.9	72.5	51.3	26.0	23.0	609.5
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.6	0.5	0.5	0.3	0.1	0.0	-	-	0.0	0.2	0.5	0.6	3.4
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	46.5	36.9	39.6	38.3	40.8	35.0	34.8	34.8	35.4	40.6	35.6	45.2	463.6
Pumps & Aux.	1.2	1.0	1.0	0.6	0.2	0.0	-	-	0.0	0.4	1.0	1.2	6.6
Ext. Usage	3.3	2.5	2.8	2.7	1.9	1.9	1.9	3.1	3.0	3.1	3.2	3.3	32.5
Misc. Equip.	15.5	15.2	16.9	16.6	17.3	15.5	16.8	16.8	16.0	17.3	15.2	14.6	193.7
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	67.5	69.6	77.0	76.6	80.1	69.0	77.1	77.1	72.4	80.1	67.2	61.2	875.2
Total	159.2	152.2	166.6	175.8	202.4	193.2	217.2	227.8	199.4	193.1	148.6	149.1	2,184.5

Gas Consumption (Btu x000,000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	1.16	0.92	0.85	0.53	0.18	0.01	-	-	0.02	0.35	0.81	1.12	5.94
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.18
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	0.17	0.15	0.17	0.17	0.18	0.15	0.18	0.18	0.16	0.18	0.15	0.15	1.99
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1.34	1.09	1.04	0.71	0.37	0.18	0.19	0.19	0.20	0.54	0.97	1.29	8.11

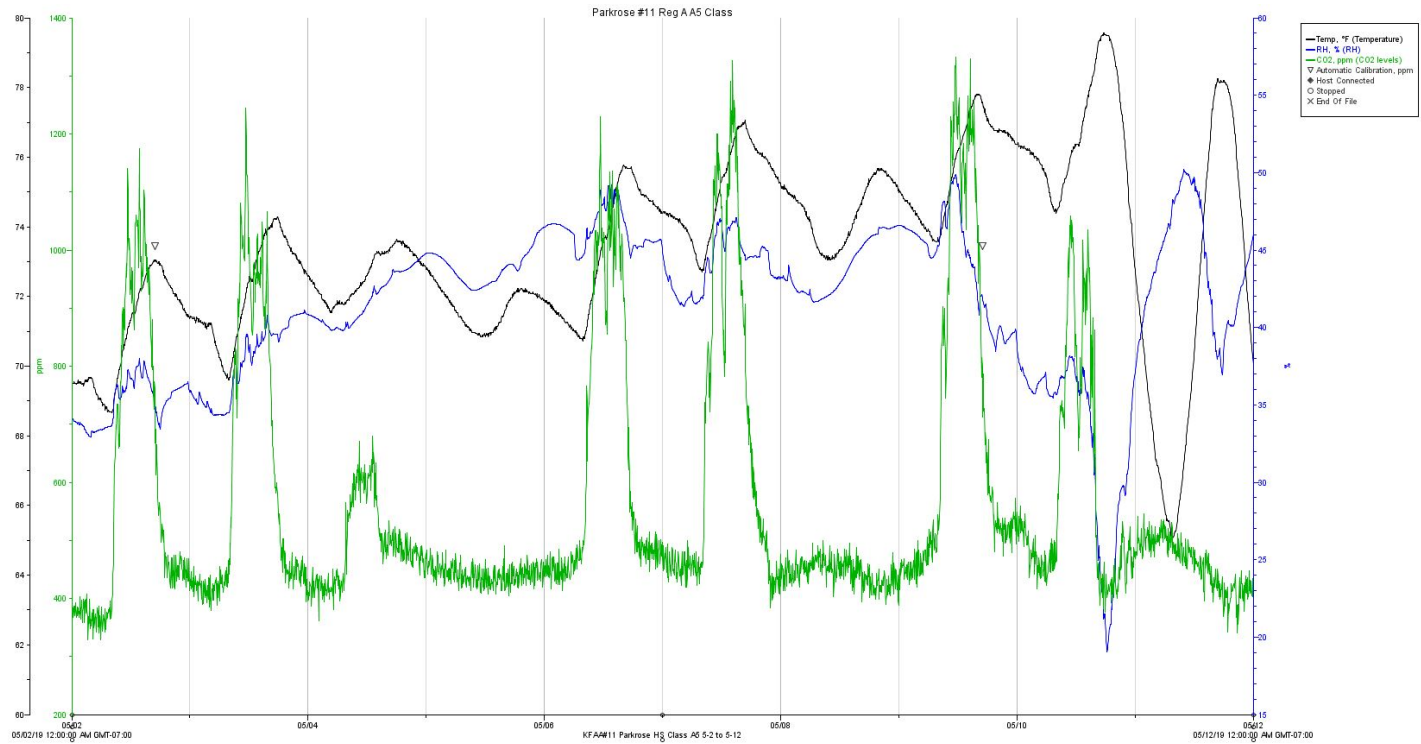
eQUEST 3.65.7175

Monthly Energy Consumption by Enduse

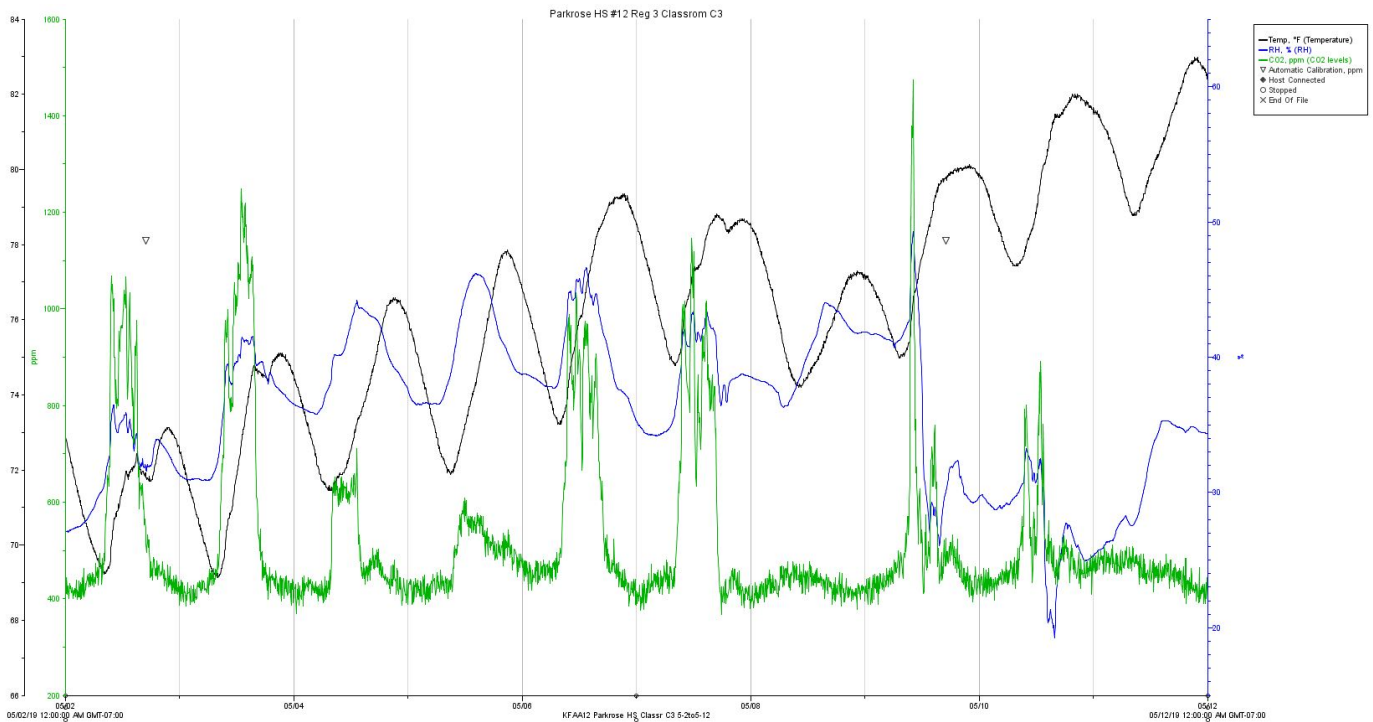
Page 1

EEM # 2 Rooftop Air Handler Refurbishment														
Electric	Post 1 Upgrade Modeled kwh	161,300	154,000	168,800	178,100	204,900	195,600	219,900	230,600	201,800	195,400	150,500	151,100	2,212,000
	Modeled Saved kwh	2,100	1,800	2,200	2,300	2,500	2,400	2,700	2,800	2,400	2,300	1,900	2,000	27,400
														1.2%
Natural Gas	Post 1 Upgrade Modeled Therms	13,400	10,900	10,400	7,100	3,700	1,800	1,900	1,900	2,000	5,400	9,700	12,900	81,100
	Modeled Saved Therms	-	-	-	-	-	-	-	-	-	-	-	-	-
														0.0%
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Electric Data Drop from Equest		159.2	152.2	166.6	175.8	202.4	193.2	217.2	227.8	199.4	193.1	148.6	149.1	2,185
N Gas Data Drop from Equest		1.34	1.09	1.04	0.71	0.37	0.18	0.19	0.19	0.20	0.54	0.97	1.29	8
														E MBTU 93.5
														NG MBTU 0
														56.19 new EUI after above EEM Upgrade

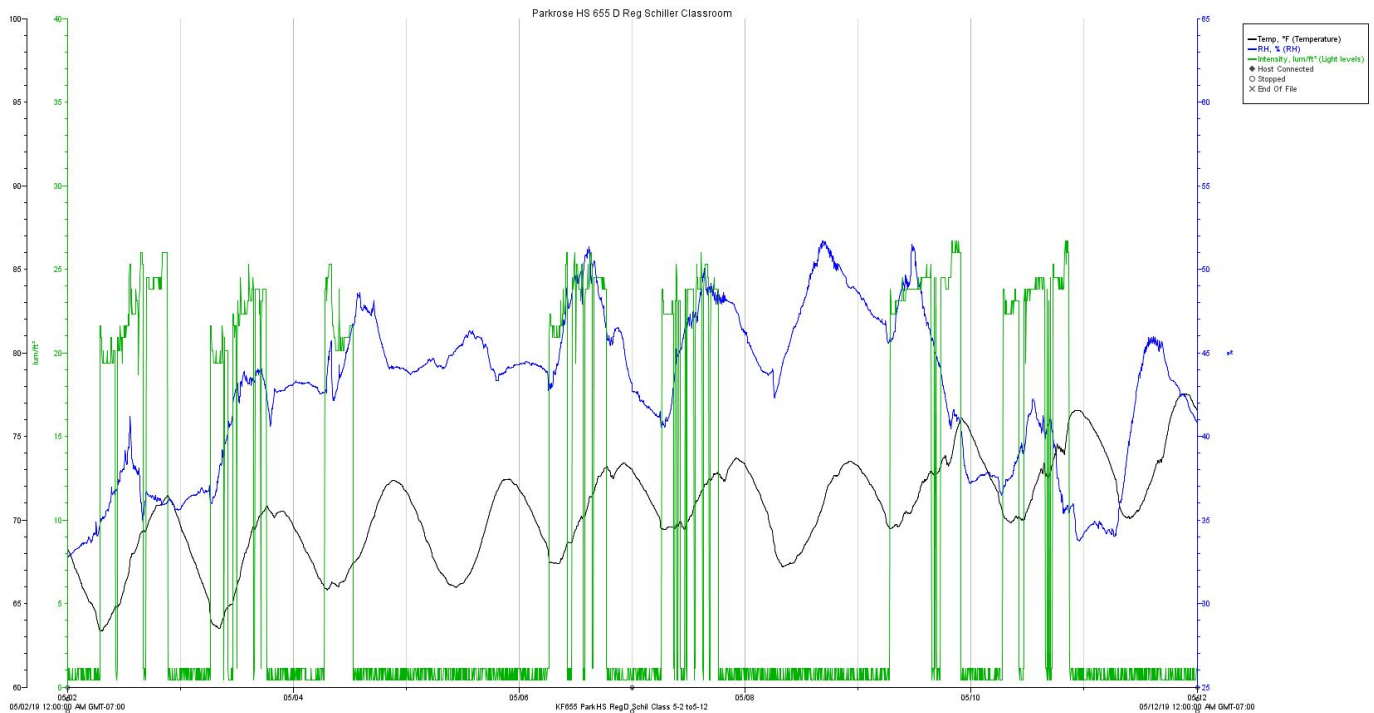
Appendix C - Data Logging Results



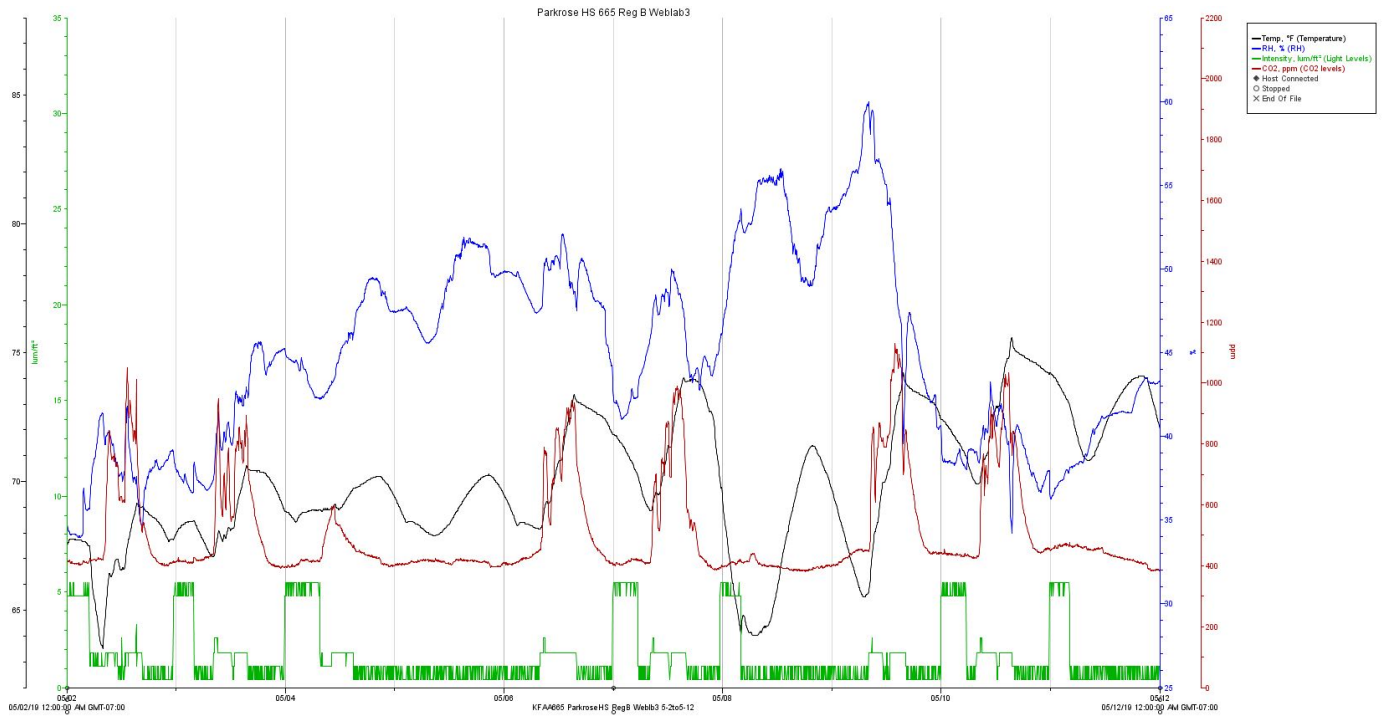
A Region-A5 Class, 5/2-5/22, Temperature typically fluctuates between 68°F and 72°F but has some unusual high and lows at 78°F and 62°F during the weekend including Friday and Monday. RH fluctuates between 35% and 60% and appears to be inversely proportional to temperature (i.e., when temperature decreases RH increases) CO2 typically fluctuates between low excessive background levels and highs in the 1000-1200 ppm range suggesting high occupancy and high OSA during unoccupied hours. The rapid CO2 drop off reflects excessive flows after the occupied period ends.



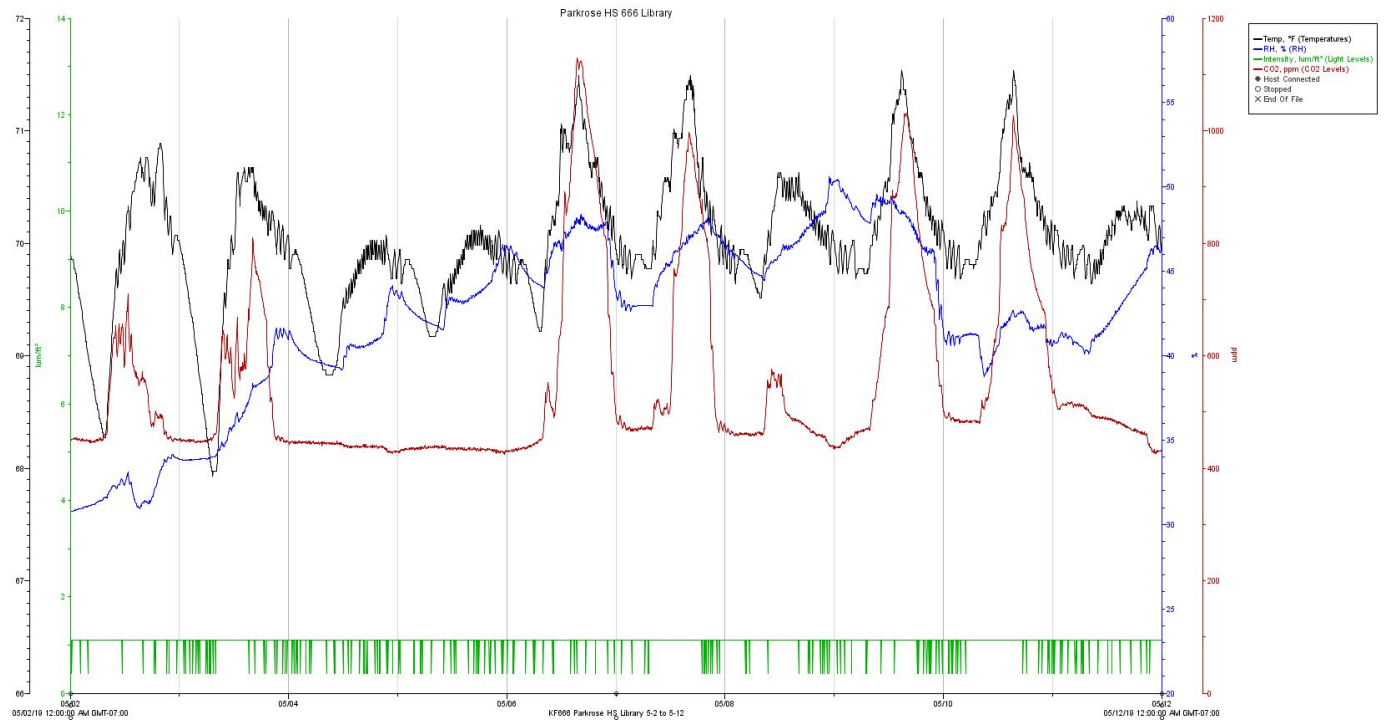
C Region Classroom C3, 5/2-5/22, Temperature typically fluctuates between 68°F and 74°F but during the first week of data logging there is an upward trend and reached as high as 83°F over the weekend from 3/14-3/15. RH fluctuates between 25% and 40% and appears to be independent of temperature, suggesting a high amount of OSA. CO2 typically fluctuates between 350 and 1000 ppm suggesting a high amount of OSA apart from a few occupied short periods.



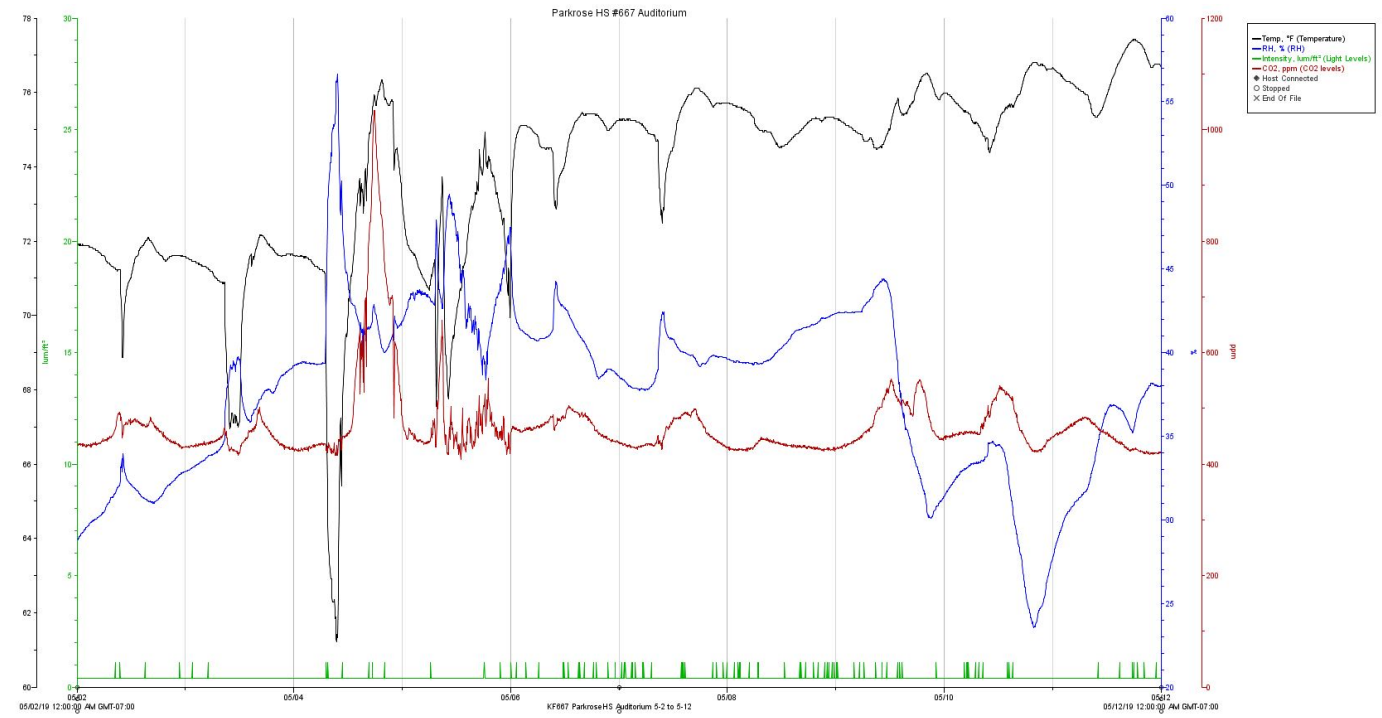
D region Schiller Classroom, 5/2-5/12, Temperature typically fluctuates between 65°F and 73°F but goes to 75°F over the weekend. RH fluctuates between 24% and 40% and appears to be independent of space temperature, suggesting a high amount of OSA. Lights appear to operate 7AM to 7PM and turn off intermittently.



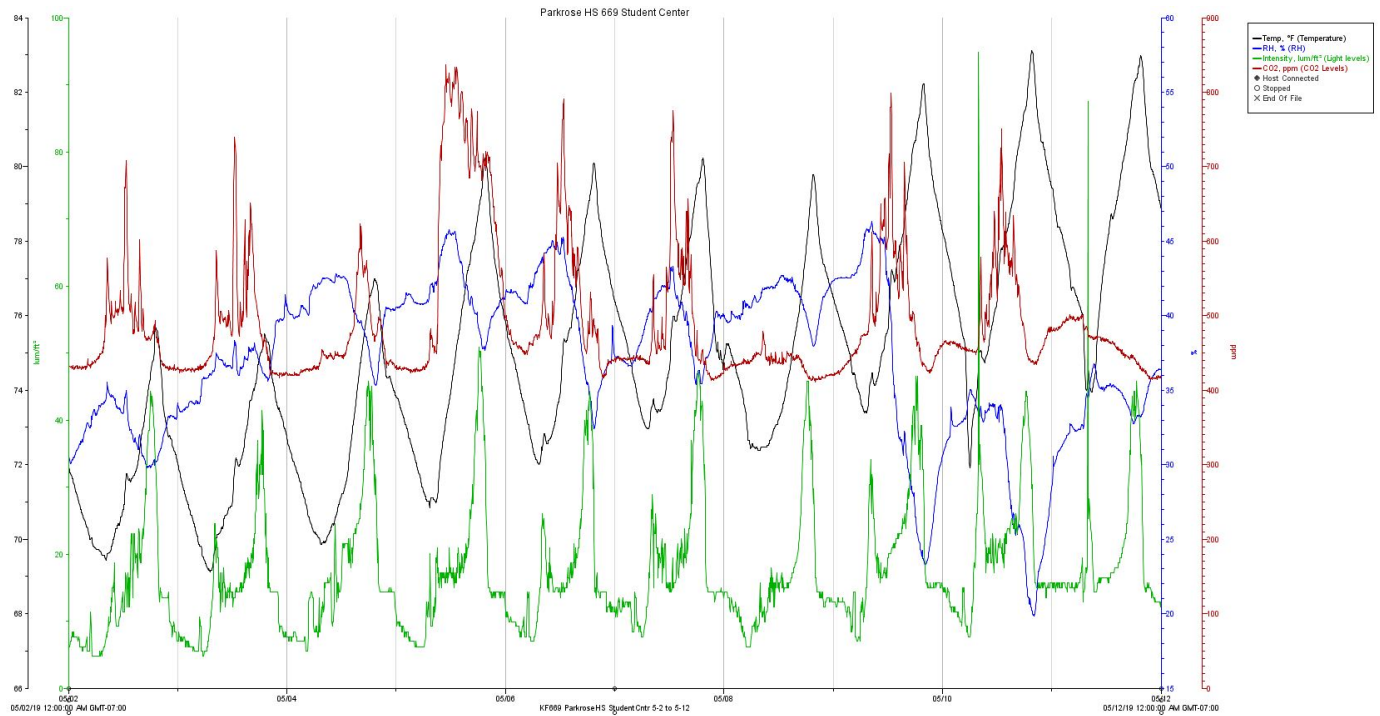
B Region Wet lab 3 Classroom, 05/02 to 05/12, Temperature typically fluctuates between 68°F and 72°. RH fluctuates between 40% and 60% and appears to be independent of the temperature. CO2 typically fluctuates between 400 and 1100 ppm.



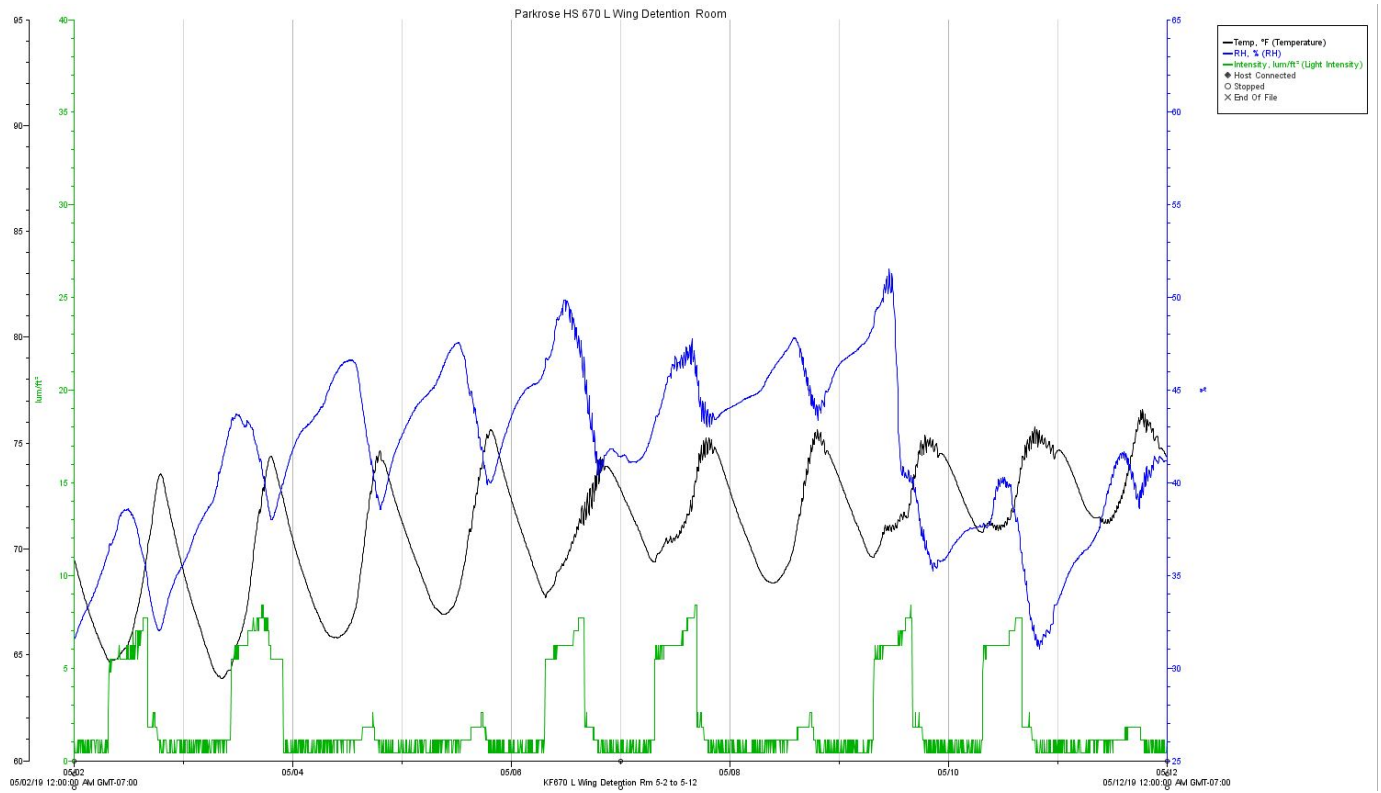
Library, 05/02 – 05/12 , Temperature typically fluctuates between 69°F and 71°F including weekends. RH fluctuates between 40% and 60% and appears to be independent of space temperature suggesting high OA. CO2 typically fluctuates between 400 and 800 ppm with high peaks to 1100 ppm.



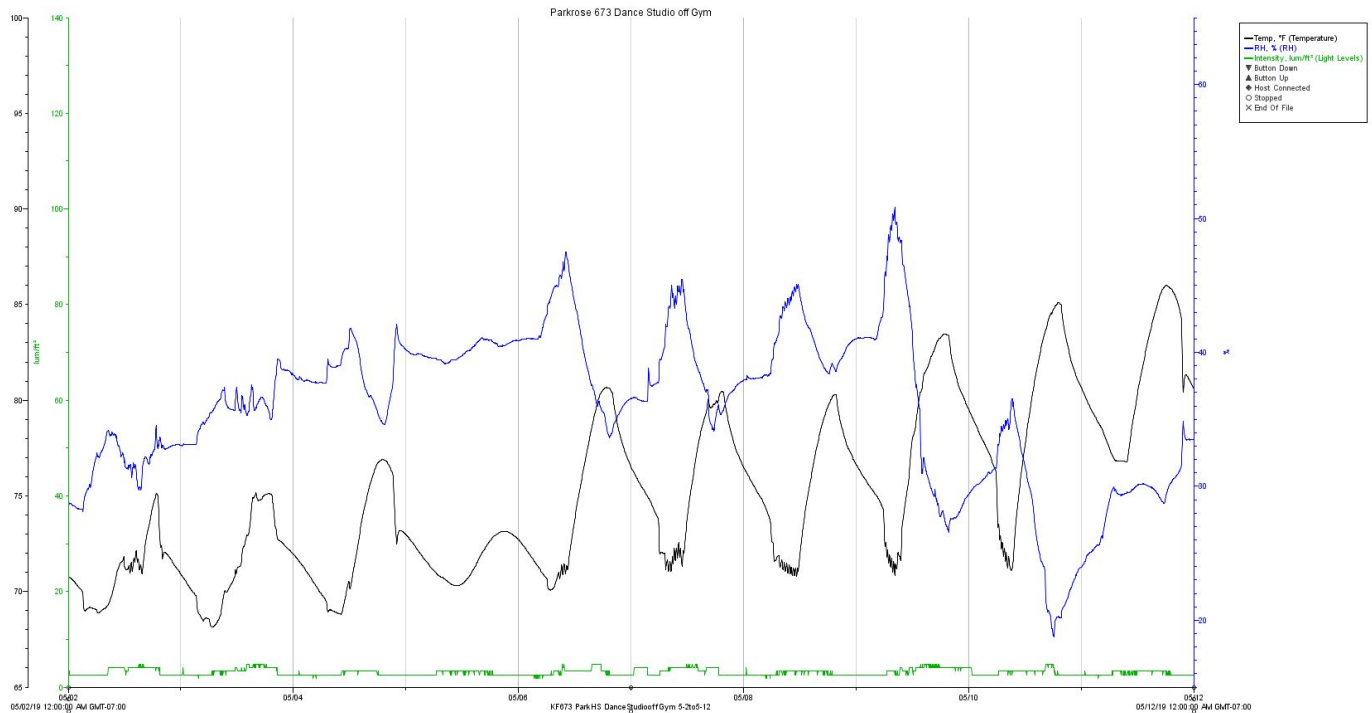
Auditorium, 05/02 to 05/12, Temperature typically fluctuates between 70°F and 74°F during the weekdays and goes as high as 77°F during the weekend. An upward trend is observed during the first week which may suggest higher outdoor temperatures in that week. RH appears to be independent of space temperature suggesting high OSA. CO2 typically fluctuates between 400 and 800 ppm with one high peak of 1000 ppm on 5/4 suggesting an event occurred on this day.



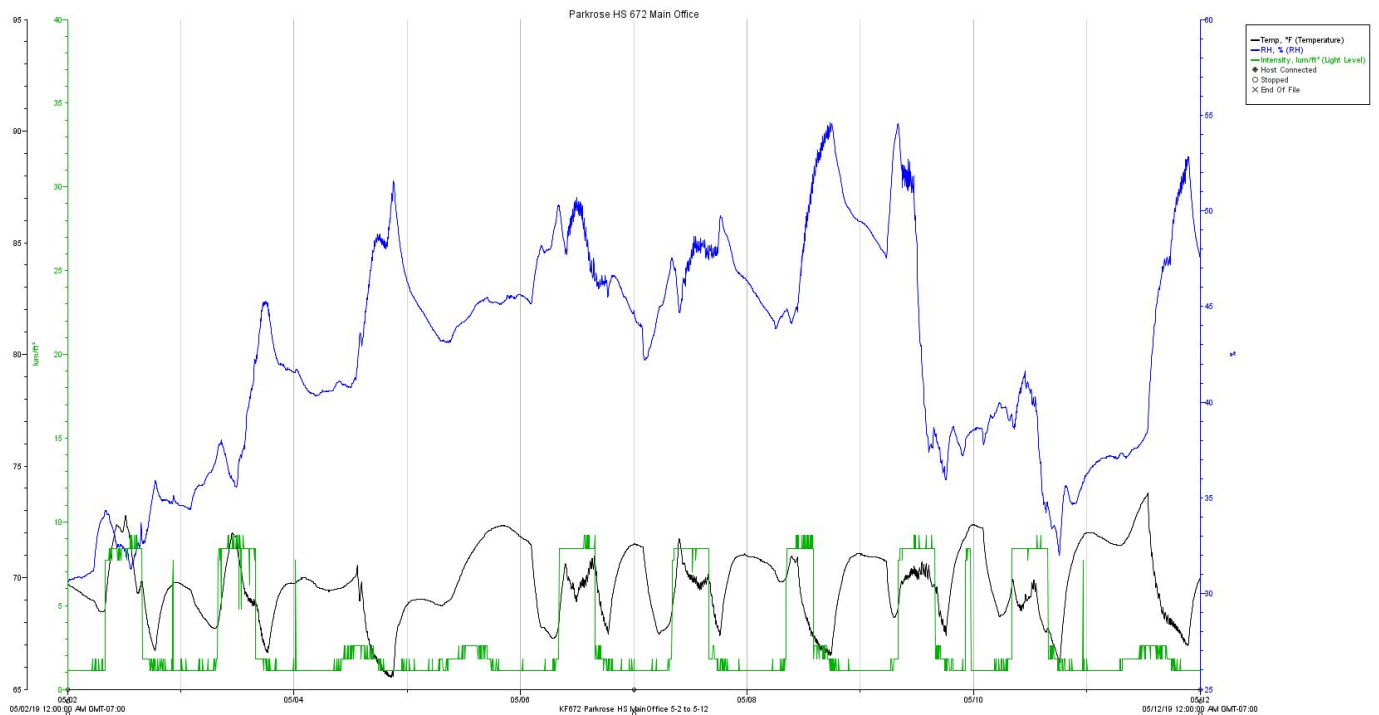
Student Center, 4/29-5/22, Temperature typically fluctuates between 70°F and 74°F during the weekdays and goes as high as 82°F during a three-day period. An upward trend is observed during the first week which suggest higher outdoor temperatures in that week. CO2 fluctuates between 400 and 800 ppm despite being a high traffic student area suggesting a high amount of OSA. Light pattern suggests significant outside lighting so a good candidate for daylighting control.



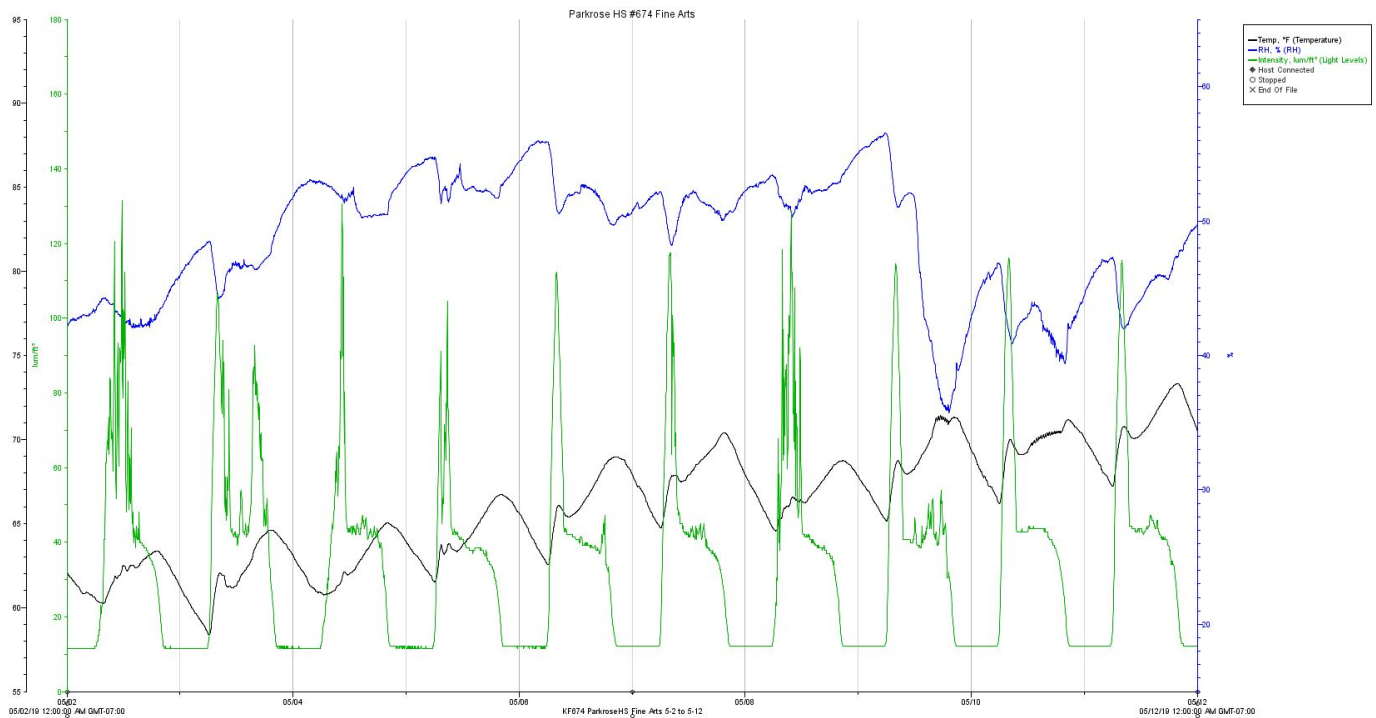
L wing Detention, 4/29-5/22, Temperature typically fluctuates between 65°F and 70°F during the weekdays and goes as high as 75°F during the weekend. Some of the days its observed to be having sawtooth like pattern which suggests that the controlled devices are turning on/off or opening and closing frequently (hunting). It appears to be inversely proportional to space temperature, suggesting tighter OSA control.



Dance Studio, 05/02 – 05/12, Temperature typically fluctuates between 68°F and 84°F. RH appears to be independent of space temperature, suggesting a high amount of OSA.



Main Office, 05/02 – 05/12, Temperature typically fluctuates between 67°F and 72°F. RH appears to be independent of space temperature, suggesting a high amount of OSA.



Fine Arts Building, 05/02 – 05/12, Temperature typically fluctuates between 70°F and 72°F. RH appears to be independent of space temperature, suggesting a high amount of OSA.

Appendix D - Building Pictures



Figure 1: Classroom Wing A & C (Building A)



Figure 2: Library/Community Center (Building B)



Figure 3: Main Entrance- Student Center (Building C)



Figure 4: Performing Arts/Auditorium (Building D)



Figure 5: Gymnasium & Pool (Buildings E & F)



Figure 6: Fine Arts Building



Figure 7: Stairs from Student Center Up To 2nd Floor Classrooms (Building A)

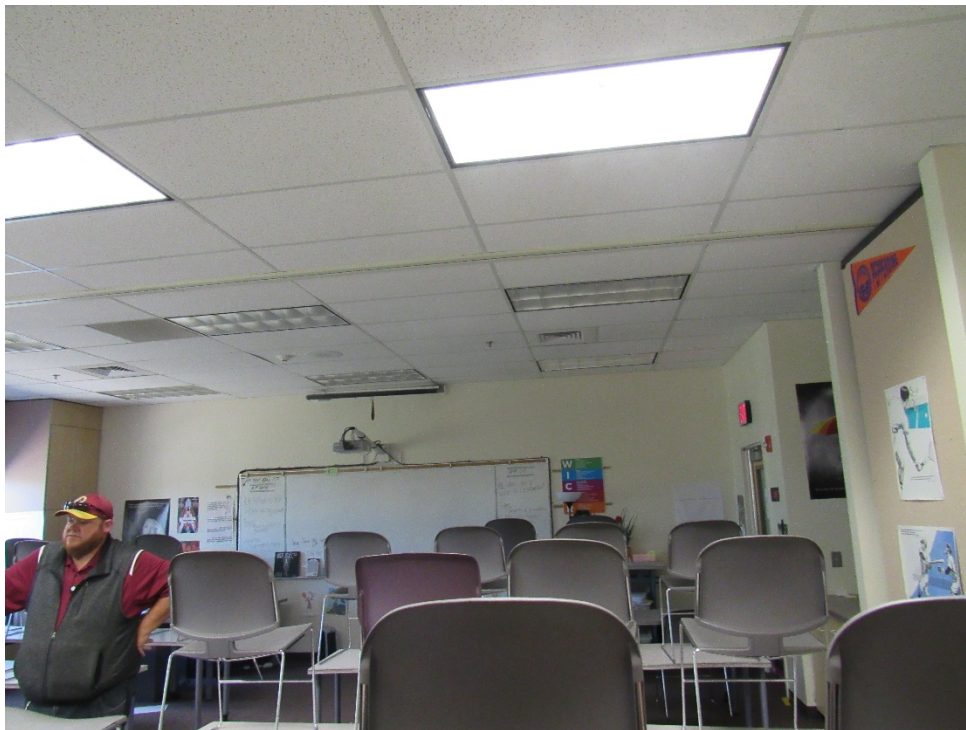


Figure 8: Classrooms – 1st Floor (Building A)



Figure 9: Open Area Between Classrooms – 1st Floor (Building A)



Figure 10: North Corridor – 2nd Floor (Building A)



Figure 11: Corridor Looking West – 1st Floor (Building A)



Figure 12: Library - Looking East - 1st Floor (Building B)



Figure 13: Library - 1st Floor – South Side (Building B)



Figure 14: Student Center Lobby - 1st Floor – South Side (Building C)



Figure 15: Main Office - 1st Floor – (Building C)



Figure 16: Student Center - 1st Floor (Building C)



Figure 17: Cafeteria- 1st Floor – (Building C)



Figure 18: Kitchen Equipment - 1st Floor – (Building C)



Figure 19: Kitchen Equipment - 1st Floor – (Building C)



Figure 20: Kitchen Dishwasher - 1st Floor – (Building C)



Figure 21: Auditorium Stage - 1st Floor – (Building D)



Figure 22: Auditorium Seating – 1st Floor – (Building D)



Figure 23: Gymnasium – (Building F)



Figure 24: Gymnasium Ducting – (Building F)



Figure 25: Gymnasium – (Building F)



Figure 26: Fine Arts Building –Work Area



Figure 27: Fine Art Building - Dance Studio



Figure 28: Bryan Boilers – (Space Heating Hot Water)



Figure 29: Tjernlund Boilers – (Domestic Hot Water)



Figure 30: Space Heating Water Pumps

Appendix E - Vendor Quote for Upgrades

Parkrose SD - Parkrose HS - DDC and HVAC EEM Cost Estimation									
EEM # 1	DDC Upgrade and Observed Corrective Actions								
	Materials				Labor / Gen'l			Total	Data Source/Notes
Item Description	Qty	Unit	\$/unit	\$	Hours	\$/Hour	\$	\$	
Delta Connects Budget Cost									
Base	1	1	\$848,334	\$848,334	0	\$100	\$0	\$848,334	
Deduct for existing system Demo - 4% of costs	1	1	-\$33,933	-\$33,933	0	\$100	\$0	-\$33,933	
Per discussions with Delta this budget quote includes									
all elements listed in this report (CO2, VFDs etc.).									
Note - the contingency budget for potential									
unknown mechanical repairs is not included in									
this value. It is anticipated/presumed based on the									
next step due diligence/detailed design phase									
that this fund 'might be' fully or partially at this budget									
level once potential facility construction uncertainties									
can be addressed as the Delta team is on site for									
these more detailed investigative/design phase steps.									
Total								\$814,401	



BUILDING INTELLIGENCE. BUILDING SUCCESS.

BUDGET PROPOSAL

To: Parkrose School District
Attn: Tom DuFresne, Facilities Manager
Project: Parkrose HS BAS Energy Retrofit

Date: July 23, 2019
NO: 072219.0001

Delta Connects is pleased to provide the following Budget Proposal for the replacement upgrade of the Parkrose High School BAS Energy Retrofit. Proposal was created using archived mechanical drawings, existing control as built documents. Further investigation to include site walks is expected to provide additional cost effective solutions, this budget proposal is based on site-unseen conditions.

Scope of Work \$848,334

Scope of Work Includes:

- Provision and installation of a Delta Controls Building Automation System (BAS) for the Parkrose High School Alerton retrofit project.
- Base scope provides for a point for point control replacement of the existing aged Alerton control system.
- Reuse all existing control end devices, i.e., sensors, relays, actuators, transformers, etc., unless specifically mentioned elsewhere in this proposal.
- Reuse all existing control enclosures, conduits, cables, wires, hangers, and fasteners unless specifically mentioned elsewhere in this scope letter.
- All temperature sensors currently on the Alerton system will be replaced. The sensors are twenty years old and have most likely lost their functional tolerances. New sensors will match the Delta Controls scale functionality.
- All existing RS485 communications trunk will be replaced with BACnet MSTP communication cable.
- Existing Ethernet cabling will be reused. New Ethernet cabling will be installed as needed for a distributive network.
- Existing 24 volt power wiring and transformers will be reused. New 24 volt power wiring will be installed as needed for a distributed network.
- Control retrofit of equipment in the following areas:
- Provide VAV reheat control valves, material and mechanical labor to replace all of the controls valves on the VAV's.
- Upgrade thermostats to Delta Controls eZNS BACnet thermostats, these stats have an LCD display and an adjustable set-points display. Replace existing 2 conductor thermostat cable with a 4 conductor cable for the new stats.
- Provide and installation of AHU fan VFDS to replace variable flow vanes. Pool and Locker Room AHUs are not included. Vanes are expected to be in poor condition and will require replacement. Installation will include shaft grounding kits for motors.

AREA A

- McQuay Air Handler 3
 - 18 Main Floor VAV's off of AHU3
- McQuay Air Handler 4
 - 12 Upper Floor VAV's off of AHU4

AREA A1

- McQuay Air Handler 1
 - 20 Upper Floor VAV's off of AHU1
- McQuay Air Handler 2
 - 10 Main Floor VAV's off of AHU2

Delta Connects Inc.

22522 29th Drive SE, Suite 104 * Bothell, WA 98021 * Tel +1 425.487.8613 * Fax +1 425.487.8769
17400 SW Upper Boones Ferry Rd, Suite 230 * Durham, OR 97224 * Tel +1 503.670.7200 * Fax +1 503.968.0954

AREA C

- McQuay Air Handler 7
 - 7 Main Floor VAV's off of AHU7
- McQuay Air Handler 8
 - Constant Volume Air Handler

AREA C1

- McQuay Air Handler 6
 - 7 Main Floor VAV's off of AHU3
 - Exhaust Fans 9, 11 & 12
 - Exhaust Fan 10 – Kilm

AREA D

- McQuay Air Handler 9
 - 12 Main Floor VAV's off of AHU9
- McQuay Air Handler 10
 - Constant Volume Air Handler
- McQuay Air Handler 11
 - Constant Volume Air Handler

AREA E

- McQuay Air Handler 12
 - 8 Main Floor VAV's off of AHU12
- Makeup Air Units (MAU) 1 & 2 and Exhaust Fan 20
- Exhaust Fans 13, 14, 15 & 16

AREA F

- McQuay Air Handler 13
 - 11 VAV's off of AHU13
- Boiler Room
- Fin Tube 1

AREA G

- McQuay Air Handler 14
 - Constant Volume Air Handler
- McQuay Air Handler 15
 - Constant Volume Air Handler
- Exhaust Fan 17, 18 & 19

AREA H

- McQuay Air Handler 16
 - Constant Volume Air Handler
- McQuay Air Handler 17
 - Constant Volume Air Handler
- McQuay Air Handler 18
 - 6 VAV's off of AHU18

General Inclusions

- Delta Control enteliWEB software Suite
 - Provide and install enteliWEB software as the new district Delta Controls front end server. The current ORCAweb software the district uses was installed in 2008 and was listed as obsolete by Delta Controls meaning further support, development and upgrades will no longer be provided. Furthermore, ORCAweb has significant problems running on any Windows 10 platform.
 - Software accessible from any internet connection via computer, tablet or smart phone, password protected. Client IT department must provide external IP and firewall porting for offsite access.
 - Software is capable of unlimited user access accounts.

- Graphical user interface, existing graphics will be placed on the new enteliWEB software.
- Creation of multiple user access accounts for employee interface (if desired).
- Provision of (1) CopperCube BACnet archiving appliance for long term trend log storage (replaces Historian Software).
- Project includes a mix of dayshift in non-student areas, i.e., mechanical rooms, roofs, etc., or no-school days and shift work to avoid student activity.
- Includes creation of custom Sequence of Operations (SOO) for the most efficient operations while taking the districts requirements for comfort into account.
- Remove from site and recycle any equipment removed during this scope of work, including but not limited to, controllers, electrical material and existing control computer.
- Includes prevailing wage as required and certified payroll reports.
- Includes 16 hours of training. Training can be a combination of onsite training, training in our training room at our local Tigard office or factory training in Surrey, British Columbia (travel expenses to be paid by the district).
- All newly installed equipment and software will carry a (1) year parts and labor warranty.

Proposal Excludes:

- Proposal assumes all mechanical equipment (damper blades and linkages, starters, isolation valves, fans, compressors, etc.) to be in proper working order, if any equipment found to be in need of repair or replacement appropriate pricing will be discussed. Delta Connects is a full turnkey mechanical contractor.
- Proposal assumes all existing control devices to be reused (sensors, relays, etc.) in proper working order, if any devices found to be in need of repair or replacement appropriate pricing will be discussed.
- Excludes any and all work related to the 110 volt fire dampers, including but not limited to, trouble shooting, repairing, locating, or replacing. Fire smoke dampers **will not** be represented on the system graphical user interface.
- Proposal assumes normal working hours (Monday through Friday 7-5), no overtime, weekends or holidays.
- Dumpster waste fees. Delta Connects will remove all associated construction debris related to their work on a daily basis.

Accepted by:	Proposed by: Jeff Stephens
Customer:	Delta Connects Inc.
Signature: _____	Jeff Stephens
Title: _____	Sales Manager
Date:	Date: July 23, 2019

Kind Regards,

Jeff Stephens | Sales Manager
 971-266-5631 direct | 503-209-9946 cell
jstephens@deltaconnects.com



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EEM 2 Cost Summary

EEM # 2	Rooftop Air Handler Refurbishment								
	Materials				Labor / Gen'l			Total	Data Source/Notes
Item Description	Qty	Unit	\$/unit	\$	Hours	\$/Hour	\$	\$	
Replace Motors									
Per verbal budget discussions with Delta Connects	1	1	\$250,000	\$250,000	0	\$100	\$0	\$250,000	Estimated cost
Estimate of air handler damper seals repairwork	1	18	\$200	\$3,600	72	\$100	\$7,200	\$10,800	Estimated cost
Estimate of AHU and duct cleaning	1	18	\$100	\$1,800	224	\$100	\$22,400	\$24,200	Estimated cost
Note - some mechanical equipment failures (dampers, burners, or DX equipment may be in need of repair or upgrade, these costs are not in this energy project cost since they are unpredictable and part of SD maintenance activities and could fall under ETO SEM ongoing efforts with the district.									
My Estimate				\$0			\$0	\$0	
Estimate								\$285,000	



BOTHEL OFFICE
19310 North Creek Parkway #3
Bothell, WA 98021
PH (425) 487-8613
Fax (425) 487-8769

PORTLAND OFFICE
17400 SW Upper Boones Ferry Rd #230
Durham, OR 97224
PH 503-670-7200
FAX 503-968-0954

PROPOSAL LETTER

Project: Parkrose HS – Energy Upgrades Project

Quote No: 2519-5482

Date: 4/5/21

To: Parkrose SD

Sharie Lewis

Jon Sanders

Robyn Stolin

Sales Person: Matt Axtell

maxtell@deltaconnects.com

206-730-5671

Delta Connects is pleased to present the following proposal for the above referenced project. Pricing is based on existing asbuilt drawings gathered during the energy study, and site walks. The information contained within this quotation is proprietary and may not be disseminated without the expressed written consent of Delta Connects Inc. Scope of work is as follows:

PARKROSE HS ENERGY PROJECT UPGRADES

\$ 723,706

CONTROLS UPGRADE

The existing aged control system will be replaced and upgraded with the full BACnet Delta Controls Building Automation System. This will include all new Delta Controls controllers, new programming of equipment and systems with focus towards enhanced energy conservation sequences, and a new graphics package for the High School. Delta Connects will provide all low voltage installation for a complete controls system with a 1 year warranty on parts and labor on the control system and components.

1. Provide enhanced energy conservation sequences.
 - ✓ Create and implement new demand control ventilation programming utilizing new CO2 and motion sensors in all spaces.
 - ✓ Create and implement energy efficient heating and cooling control programming utilizing 0-10V modulation VAV reheat valves.
 - ✓ Create standard heating and cooling, setpoints, and lockouts prescribed by ETO/ODOE.
 - ✓ Optimize programming strategies towards duct static supply setpoint with use of existing and new RTU VFDs.
 - ✓ Optimize programming of RTU gas heat morning warmup
 - ✓ Implement optimal start
 - ✓ Implement energy efficient strategy towards room space temperature setpoint deadband control
2. New Delta Controls DDC system will replace existing McQuay air handler control system. Air handlers will be controlled directly by DDC system, but keep McQuay safeties in place. Each air handler will receive an ebMGR controller with multiple I/O modules to provide proper processing power, and fast network speeds. Modules will have HOAs switches to provide easy troubleshooting. Air handlers will be outfitted with new control devices; supply, exhaust, mixed air duct temperature sensors. Motor VFDs will be controlled and monitored with start/stop, speed, feedback, and fault.
3. All Variable Air Volume boxes (VAVs) will be provide a new controller that provides supply air temperature, damper control with feedback, reheat control, air flow, and space thermostat. Each reheat VAV will receive a new combination Belimo hot water control valve/actuator. Delta Connects will provide installation of the control valves.

4. Exhaust fans identified in proposal will be controlled with combination start/stop relay and analog current sensor.
5. The existing BACnet MSTP network will be broke up into multiple BACnetIP segments to provide more bandwidth, providing faster communication and for emerging data-heavy technologies. Ethernet will be routed from major equipment (AHUS and boiler plant) back to existing MDF/IDF rooms. Existing network cabling will be reused as needed.
6. CO₂ sensors will be provided for all large spaces, classrooms, and offices allowing for demand control ventilation.
7. Temperature sensors utilized on the existing control system will be replaced. All other existing control end-devices are assumed in good working order, but will be tested and logged for deficiencies during commissioning towards the end of the project. End-devices include but are not limited to current sensors, relays, transformers, differential pressure sensors, filter sensors, mix-air temperature sensors, damper actuators, etc.
8. The project will reuse existing cabling, conduit system and enclosures, transformers, hangers, and fasteners, low voltage power. New network wiring required will be provided and installed by Delta Connects.
9. Upgrade existing Delta Controls server to the most recent version of enteliWEB, which will be the new headend interface for the high school. This software is accessible from any internet connection via computer, tablet, smart phone when provided the proper credentials. Parkrose IT department must provide external IP and firewall porting for offsite access. enteliWEB allows for unlimited user account access. Included is a data archiving appliance used for long term trend storage.

This proposal assumes the School District will provide server hardware with dedicated space for new Delta Controls enteliWEB software. Delta Connects will install and configure enteliWEB software. Delta Controls software maintenance/license fees are included for 5 years in this proposal.

10. Includes 16 hours of training. Training can be a combination of onsite training, training in our training room at our local Tigard office.
11. Proposed Equipment Systems/Areas that will receive a controls retrofit upgrade.

Boiler Plant

Pool Boiler Plant

Air Handler 1 and associated VAVs

Air Handler 2 and associated VAVs

Air Handler 3 and associated VAVs

Air Handler 4 and associated VAVs

Air Handler 5 and associated VAVs

Air Handler 6 and associated VAVs

Air Handler 7 and associated VAVs

Air Handler 8 (no VAVs)

Air Handler 9 and associated VAVs

Air Handler 10 (no VAVs)

Air Handler 11 (no VAVs)

Air Handler 12 and associated VAVs

Air Handler 13 and associated VAVs

Air Handler 14 (no VAVs)

Air Handler 15 (no VAVs)

Air Handler 16 (no VAVs)

Air Handler 17 (no VAVs)

Air Handler 18 and associated VAVs

Make Up Air Handler 1

Make Up Air Handler 2

Fin Tube Radiators

Exhaust Fans 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21

VARIABLE FREQUENCY DRIVES (VFDs)

New VFDS will replace the existing inlet guide vanes to the following AHUs. VFDs will be provided and installed by Delta Connects to include all mechanical and electrical needs. New shaft grounding kits will be provided and installed to ensure maximum protection to existing motor bearings.

AHU-10 Stage; Supply and Return Fan
AHU-11 Auditorium; Supply and Return Fan
AHU-16 East Gym; Supply and Return Fan
AHU-17 West Gym: Supply and Return Fan

AIR HANDLER TUNE-UP / OPTIMIZATION

All air handlers will receive a cleaning and tuning to maximize effectiveness and operational efficiency. All remaining inlet guide vanes for any air handler will be removed, but fan cones and other static flow guiding components will remain to allow for proper air flow. Air handlers will receive coil cleanings. Fallen insulation will be removed and repaired; associated VAVs and reheat coils downstream will be investigated for further fallen insulation and will be removed if found.

Tuning and optimization will also include cleaning of outside fresh air screens, greasing motor bearings, inspecting motor belts and chives, lubricating and inspecting dampers, inspecting filters. Delta Connects will provide an in-depth analysis of the heating components which will include combustion analysis and needed adjustments. Below is a list of mechanical service items that will be performed for each air handler.

Coil Cleaning

- ✓ Clean condenser coils
- ✓ Check evaporator coils and clean if required

Fix insulation

- ✓ Repair insulation with spray adhesive

Fire heat testing

- ✓ Setup burners to factory specification
- ✓ Perform combustion analysis

Refrigeration leaks

- ✓ Leak check refrigeration circuits
- ✓ Repair any minor leaks not requiring extra parts or substantial labor

Motor bearings

- ✓ Lubricate motor bearings

VAV coils inspection (inspect/remove)

- ✓ Visually inspect VAV coils with telescopic camera
- ✓ Cut access panels to clean coils if required

Sheaves / belts

- ✓ Check condition of sheaves and belts
- ✓ Replace if required

Misc. repairs

- ✓ Replace any worn or failed minor components
- ✓ Relays, pressure switches, temperature sensors etc.

RTU economizers

- ✓ Economizer dampers will be functional tested and adjusted for proper operation.
- ✓ Dampers will be tuned with associated control signal.

ADDS / DEDUCTS / BREAKOUTS REQUESTED	
Breakout 1 - Mechanical System Evaluations	\$ 21,600
Add Option 1 – Provide and install new fan motors for RTUs receiving new VFDs in base <i>RTU10, 11, 16, 17</i>	\$32,202
Add Option 2 – Provide outside damper actuators for 17 RTUs <i>Excludes Pool RTU, includes Belimo actuator, mounting kits, and installation labor</i>	\$ 19,202

General Project Inclusions:

1. Providing new sequence of operations (SOO) to maximize energy efficiency
2. Prevailing Wage rates
3. Normal business working hours. No overtime or differential shift included.
4. Removal of daily debris and garbage
5. 16 hours of training

Not Included in Scope of Work

1. Ethernet switches, patch panels, patch cables, Keystone blocks
2. Graphic updates to existing Delta Controls sites. Sites will be incorporated into enteliWEB, but existing graphics will remain the same.
3. Asbestos Abatement
4. New Server

TERMS AND CONDITIONS OF SALE

1. **REMITTANCES** All invoices shall be due and payable upon receipt or as otherwise agreed upon and set forth in writing by Delta Connects (hereinafter called "Seller"). The Customer, if so requested agrees to furnish Seller with all information including financial statements, necessary to make a proper credit appraisal. Refusal to supply information may cause this proposal to be withdrawn. Terms of payment originally granted are subject to the approval of continued credit status. Prices are subject to correction for error.
2. **PROPOSALS** are based upon straight-time labour. Any request by the Customer for overtime work shall be considered an extra. This Proposal expires 60 days after its date, subject to the provisions of the first sentence of the paragraph below entitled "Acceptance of Terms".
3. **PROGRESS PAYMENTS** Seller reserves the right to invoice Customer monthly as the work progresses, for all materials delivered to the job site or to an off-site facility and for all work performed on-site and off-site. Engineering, drafting and other mobilization costs incurred prior to installation shall be included in Seller's initial invoice. Invoices are due upon receipt by Customer. If the Customer becomes overdue in any progress payment, Seller shall be entitled to suspend work, shall be entitled to interest at the current prime rate plus 3 % and also to avail itself of any other legal remedies. Seller shall also be entitled to interest on all amounts retained by Customer from progress payments or otherwise. Customer agrees that he will pay and/or reimburse Seller for any and all reasonable legal and administrative fees which are incurred by Seller in the collection of amounts due and payable hereunder.
4. **CANCELLATION AND SUSPENSION** Any contract resulting from this proposal is subject to cancellation or instructions to suspend work by the customer only upon agreement to pay Seller adjustment charge.
5. **TAXES** The amount of any future sales, use, occupancy, excise, or other tax, federal, provincial, or local which Seller hereafter shall be obligated legally to pay, either on its own behalf or the Customer or otherwise, with respect to the material covered by this proposal, shall be added to such prices and paid by the Customer.
6. **LOSS, DAMAGE OR DELAY** Seller shall not be liable for any loss, damage, or delay occasioned by any causes beyond Seller's control, including, but not limited to, governmental actions or orders, embargoes, strikes, differences with workmen, fires, floods, accidents, or transportation delays. **IN NO EVENT SHALL SELLER BE LIABLE FOR ANY CONSEQUENTIAL OR SPECIAL DAMAGES.**
7. **WARRANTY** Seller warrants that the equipment manufactured and services furnished by it and covered by this proposal are free from defects in material and workmanship under normal use and service and, without charge, equipment found to be so defective in material or workmanship will be repaired or replaced, if written notice of failure is received by Seller within one (1) year after date of installation, provided said equipment has been operated in accordance with Seller's instructions and provided such defects are not due to abuse, fire, or decomposition by chemical or galvanic action. **THIS EXPRESS WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, GUARANTEES, OR REPRESENTATIONS, EXPRESS OR IMPLIED. THERE ARE NO IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.** Seller assumes no responsibility for repairs made on Seller's equipment unless done by Seller's authorized personnel, or by written authority from Seller. Seller makes no guarantee with respect to material not manufactured by it.
8. **PURCHASER'S REMEDIES** The Customer's remedies with respect to equipment found to be defective in material or workmanship shall be limited exclusively to the right of repair or replacement of such defective equipment. **IN NO EVENT SHALL SELLER BE LIABLE FOR CLAIMS (BASED UPON BREACH OF IMPLIED WARRANTY) FOR ANY OTHER DAMAGES, WHETHER DIRECT, IMMEDIATE FORESEEABLE, CONSEQUENTIAL, OR SPECIAL OR FOR ANY EXPENSES INCURRED BY REASON OF THE USE OR MISUSE OF EQUIPMENT WHICH DOES OR DOES NOT CONFORM TO THE TERMS AND CONDITIONS OF ANY CONTRACT RESULTING FROM THIS PROPOSAL.**
9. **PATENT INFRINGEMENT** Seller will hold its Customer and the Owner harmless for infringement of any patent covering equipment of its manufacture. This, of necessity, is limited to the equipment per se and cannot be extended to applications of such equipment in a system, except in writing by an officer of the Seller. The Customer and Owner shall advise Seller immediately in the event any claims of infringement are brought to their attention.
10. **GOVERNING LAW** The law of the place of work shall govern the interpretation of any contract resulting from this proposal.

11. **CERTIFICATION** The person whose signature appears on the attached hereof hereby certifies that, to his best knowledge and belief, the annexed bid is not the result of any agreement, arrangement or understanding between the Seller and any other manufacturer or seller of automatic temperature control systems and that the prices, terms or conditions thereof have not been communicated by or on behalf of the Seller to any such person and will not be communicated to any such person prior to the official opening of said bid.
12. **ACCEPTANCE OF TERMS** this proposal shall become a binding contract between the Customer and Seller when accepted in writing by the Customer. Such acceptance shall be with mutual understanding that the terms and conditions of this proposal are a part thereof with the same effects as though signed by both parties named herein and shall prevail over any inconsistent provision of said order.

No waiver, alteration, or modification of the terms and conditions on this and the attached hereof shall be binding unless in writing and signed by an authorized representative of Seller.

Accepted by:	Proposed by:
Customer	Delta Connects Inc.
By:	By:
Signature: _____ Title: _____	Matt Axtell Business Development
Date:	

**PRICES QUOTED ARE VALID FOR 60 DAYS FROM DATE OF QUOTATION
PRICES DO NOT INCLUDE COST OF BOND**



BOTHELL OFFICE
19310 North Creek Parkway #3
Bothell, WA 98021
PH (425) 487-8613
Fax (425) 487-8769

PORTLAND OFFICE
17400 SW Upper Boones Ferry Rd #230
Durham, OR 97224
PH 503-670-7200
FAX 503-968-0954

PROPOSAL LETTER

Project: Parkrose SD – New HS RTU Damper Actuators

Quote No: _____

Date: 4/5/2021

To: Robyn Stolin

Sales Person: Matt Axtell

maxtell@deltaconnects.com

206-730-5671

Delta Connects is pleased to present the following proposal for Parkrose High School. Pricing is based on 1999 mechanical drawings provided. The information contained within this quotation is proprietary and may not be disseminated without the expressed written consent of Delta Connects Inc. Scope of work is as follows:

RTU Damper Actuators

\$ 19,202

Provide and install new RTU economizer damper actuator(s) for the following RTUs. Delta Connects will utilize Belimo actuators and mounting kits.

1. RTU 1 through 14, and 16, 17, 18
2. Installation and wiring
3. Programming and commissioning included, dependent on Delta Controls system as the BAS

Inclusions:

1. All control wiring will be installed per State and Local codes
2. All new equipment and installation will carry one year warranty
3. All areas will be cleaned and returned to original condition upon Delta Connects installers leaving the area.
4. Prevailing wages included.

Exclusions:

1. RTU 15 is not included in scope (Pool)
2. Assume normal working hours
3. No overtime
4. Damper or damper repairs, assumes equipment in working condition

TERMS AND CONDITIONS OF SALE

1. **REMITTANCES** All invoices shall be due and payable upon receipt or as otherwise agreed upon and set forth in writing by Delta Connects (hereinafter called "Seller"). The Customer, if so requested agrees to furnish Seller with all information including financial statements, necessary to make a proper credit appraisal. Refusal to supply information may cause this proposal to be withdrawn. Terms of payment originally granted are subject to the approval of continued credit status. Prices are subject to correction for error.
2. **PROPOSALS** are based upon straight-time labour. Any request by the Customer for overtime work shall be considered an extra. This Proposal expires 60 days after its date, subject to the provisions of the first sentence of the paragraph below entitled "Acceptance of Terms".
3. **PROGRESS PAYMENTS** Seller reserves the right to invoice Customer monthly as the work progresses, for all materials delivered to the job site or to an off-site facility and for all work performed on-site and off-site. Engineering, drafting and other mobilization costs incurred prior to installation shall be included in Seller's initial invoice. Invoices are due upon receipt by Customer. If the Customer becomes overdue in any progress payment, Seller shall be entitled to suspend work, shall be entitled to interest at the current prime rate plus 3 % and also to avail itself of any other legal remedies. Seller shall also be entitled to interest on all amounts retained by Customer from progress payments or otherwise. Customer agrees that he will pay and/or reimburse Seller for any and all reasonable legal and administrative fees which are incurred by Seller in the collection of amounts due and payable hereunder.
4. **CANCELLATION AND SUSPENSION** Any contract resulting from this proposal is subject to cancellation or instructions to suspend work by the customer only upon agreement to pay Seller adjustment charge.
5. **TAXES** The amount of any future sales, use, occupancy, excise, or other tax, federal, provincial, or local which Seller hereafter shall be obligated legally to pay, either on its own behalf or the Customer or otherwise, with respect to the material covered by this proposal, shall be added to such prices and paid by the Customer.
6. **LOSS, DAMAGE OR DELAY** Seller shall not be liable for any loss, damage, or delay occasioned by any causes beyond Seller's control, including, but not limited to, governmental actions or orders, embargoes, strikes, differences with workmen, fires, floods, accidents, or transportation delays. **IN NO EVENT SHALL SELLER BE LIABLE FOR ANY CONSEQUENTIAL OR SPECIAL DAMAGES.**
7. **WARRANTY** Seller warrants that the equipment manufactured and services furnished by it and covered by this proposal are free from defects in material and workmanship under normal use and service and, without charge, equipment found to be so defective in material or workmanship will be repaired or replaced, if written notice of failure is received by Seller within one (1) year after date of installation, provided said equipment has been operated in accordance with Seller's instructions and provided such defects are not due to abuse, fire, or decomposition by chemical or galvanic action. **THIS EXPRESS WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, GUARANTEES, OR REPRESENTATIONS, EXPRESS OR IMPLIED. THERE ARE NO IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.** Seller assumes no responsibility for repairs made on Seller's equipment unless done by Seller's authorized personnel, or by written authority from Seller. Seller makes no guarantee with respect to material not manufactured by it.
8. **PURCHASER'S REMEDIES** The Customer's remedies with respect to equipment found to be defective in material or workmanship shall be limited exclusively to the right of repair or replacement of such defective equipment. **IN NO EVENT SHALL SELLER BE LIABLE FOR CLAIMS (BASED UPON BREACH OF IMPLIED WARRANTY) FOR ANY OTHER DAMAGES, WHETHER DIRECT, IMMEDIATE FORESEEABLE, CONSEQUENTIAL, OR SPECIAL OR FOR ANY EXPENSES INCURRED BY REASON OF THE USE OR MISUSE OF EQUIPMENT WHICH DOES OR DOES NOT CONFORM TO THE TERMS AND CONDITIONS OF ANY CONTRACT RESULTING FROM THIS PROPOSAL.**
9. **PATENT INFRINGEMENT** Seller will hold its Customer and the Owner harmless for infringement of any patent covering equipment of its manufacture. This, of necessity, is limited to the equipment per se and cannot be extended to applications of such equipment in a system, except in writing by an officer of the Seller. The Customer and Owner shall advise Seller immediately in the event any claims of infringement are brought to their attention.
10. **GOVERNING LAW** The law of the place of work shall govern the interpretation of any contract resulting from this proposal.

11. **CERTIFICATION** The person whose signature appears on the attached hereof hereby certifies that, to his best knowledge and belief, the annexed bid is not the result of any agreement, arrangement or understanding between the Seller and any other manufacturer or seller of automatic temperature control systems and that the prices, terms or conditions thereof have not been communicated by or on behalf of the Seller to any such person and will not be communicated to any such person prior to the official opening of said bid.
12. **ACCEPTANCE OF TERMS** this proposal shall become a binding contract between the Customer and Seller when accepted in writing by the Customer. Such acceptance shall be with mutual understanding that the terms and conditions of this proposal are a part thereof with the same effects as though signed by both parties named herein and shall prevail over any inconsistent provision of said order.

No waiver, alteration, or modification of the terms and conditions on this and the attached hereof shall be binding unless in writing and signed by an authorized representative of Seller.

Accepted by:	Proposed by:
Customer	Delta Connects Inc.
By:	By:
Signature: _____ Title: _____	Matt Axtell Business Development
Date:	

**PRICES QUOTED ARE VALID FOR 60 DAYS FROM DATE OF QUOTATION
PRICES DO NOT INCLUDE COST OF BOND**

Jackson County School District No. 6
PRICE AGREEMENT for
BUILDING TECHNOLOGIES AND HVAC
INSTALLATION AND SERVICE

This Price Agreement (Agreement) is between Jackson County School District No. 6, by and through its duly authorized representatives, hereinafter called "Central Point School District", or the "District" and Delta Connects, Inc., an Oregon Corporation, hereinafter called "Contractor". This Agreement may refer to the District and Contractor individually as a "Party" or jointly as the "Parties."

RECITALS:

- Jackson County School District No. 6 desires to obtain work related to new installations, replacement, servicing, parts, diagnosis and programming for HVAC, DDC, Security, Communications, lighting and other control systems, for equipment on properties owned, operated or serviced by the District (the "Products and Services");
- Contractor shall provide all deliverables and services specifically described herein and in the Statement of Work in accordance with the terms, covenants, and conditions of the Agreement and its Exhibits related to Products and Services provided.

THE PARTIES AGREE:

1. **STATEMENT OF WORK:** This Agreement authorizes Contractor to provide and the District to procure those Products and Services and establishes the terms and conditions for the District to obtain said Products and Services from Contractor. Contractor shall provide those Products and Services described in the attachments in accordance with the prices shown herein as requested by the District, accept and pay for the Products and Services based upon the terms and conditions herein stated. All work shall be performed and paid in accordance with attachments incorporated herein.
2. **EFFECTIVE DATE AND DURATION:** The initial term of this Agreement shall begin on 5/1/2020, and shall expire on 5/31/25, unless terminated sooner as provided herein. Up to three (3), 1-year extensions can be added at mutual agreement.
3. **CONSIDERATION:** *The District agrees to pay Contractor per the rates in this Agreement and per the scope established in each Work Order.*
4. **GENERAL DEFINITIONS:** These definitions apply to the entire Agreement and subsequent Amendments:

Amendment means a written document required to be signed by both Parties when in any way altering the terms and conditions, contract period, or cost provisions of the Agreement or changing, adding to, or substantially altering a Statement of Work.

Assigned Rights means the Owner may assign the pricing and terms of this Agreement to another firm contracted to perform a larger scope of work, to which this work is incidental, in their performance of work to the District. The Contractor must negotiate in good faith to deliver their scope through the assigned firm, in accordance with the prime contract between the District and the assigned firm.

Contingency means a Work Order scope element and cost which was not defined at the time of execution of the Work Order, but which is within the expected scope range and cost of the Work Order. Such work shall be defined for both scope and cost in a proposal from the Contractor, and must be approved by the Owner prior to proceeding with such scope. Any Contingency amount not allocated

during the course of the project will belong to the Owner. Use of Contingency is to occur within the Work Order period.

District Confidential Information means any information, in any form or media, including verbal discussions, whether or not marked or identified by the District, which is reasonably described by one or more of the following categories of information: (1) financial, statistical, personnel, human resources data or Personally Identifiable Information as described in the Oregon Consumer Identity Theft Protection Act of 2007; (2) business plans, negotiations, or strategies; (3) unannounced pending or future products, services, designs, projects or internal public relations information; (4) trade secrets, as such term is defined by ORS 192.501(2) and the Uniform Trade Secrets Act ORS 646.461 to 646.475; (5) Exempt per ORS 192.501 and/or ORS 192.502 (6) attorney/client privileged communications, (7) exempt per federal laws (including but not limited to Copyright, HIPPA) and (8) information relating to or embodied by designs, plans, configurations, specifications, programs, or systems developed for the benefit of the District including without limitation, data and information systems, any software code and related materials licensed or provided to the District by third parties; processes; applications; codes, modifications and enhancements thereto; and any work products produced for the District.

Coverage Hours means those hours specified in this Agreement or subsequent Amendment during which period Contractor shall provide Services.

Customization means (a) any modification to or adaptation of the Products, or (b) any new component or accessory or, in the case of Software, new code, designed to run in conjunction with the Products, that contains features unique to the District's governmental purposes, whether prepared, created, or developed (1) by Contractor at the District's request as a work for hire, (2) by the District, or (3) by the District in conjunction with Contractor.

Customer Service means the customer support services call center that operates from 8 a.m. to 8 p.m. Pacific Standard Time, Monday through Friday (excluding national holidays), provided by Contractor to assist the District in operating the System.

Days except as otherwise provided, means calendar days. (See ORS 279A.010(1)(c))

Delivery of Products means Product has been received at the location specified in this Agreement or subsequent Amendment. Delivery of Products shall not be construed to represent final acceptance following delivery of the Product.

Documentation means user manuals and other written materials in any form that describe the features or functions of the Products and System, including but not limited to published specifications, marketing materials, technical manuals, and operating instructions provided by Contractor to the District, or readily available to the public, or as required to be produced by Contractor subject to the terms of this Agreement.

Emerging Small Business (ESB) means only those firms certified as an ESB by the State Office of Minority, Women and Emerging Small Business (OMWESB).

Equipment means any goods, including hardware, machinery, mechanical and electronic devices, tool, component, or materials, of tangible form together with the necessary supplies for upkeep and maintenance, and other apparatus necessary for the proper execution, installation and acceptable completion of the Project or any Amendment hereunder.

Intergovernmental Cooperative Procurement means Contractor agrees to extend the same prices, terms and conditions in this Agreement to all public agencies. A public agency wishing to purchase items under this Agreement will execute its own agreement with Contractor for its requirements. Public agencies may utilize this District agreement through Intergovernmental Cooperative Procurement if the agreement is determined by the agency to have been awarded in compliance with their solicitation requirements and there is no statutory provision prohibiting such purchase.

Knowledge Transfer means information and know-how regarding technological or general business issues, including, without limitation, products, identified or foreseeable problems, personnel, resources, or costs, as may relate to the Project or any component thereof which Contractor may be required under this Agreement or any subsequent Amendment to pass on to the District.

Maintenance means services provided by Contractor to the District designed to keep Equipment operating in optimum condition.

Material Breach means any breach of this Agreement that (a) causes or may cause substantial harm to the non-breaching party; or (b) substantially deprives the non-breaching party of the benefit it reasonably expected under this Agreement.

Minority Owned Business means only those firms certified as a minority owned business by the State Office of Minority, Women and Emerging Small Business (OMWESB).

Product(s) means goods, materials, Equipment, Documentation, and Services including installation, warranty services, and Maintenance and Services, which may include installation, modification and training.

Project means the overall collection of activities required for delivery, installation and support of the system including, without limitation, design, development, integration, testing, support and Maintenance, any of which Contractor may be providing in whole or in part.

Software means the object code version of any proprietary or licensed computer programs, firmware, applications, or Operating System Software which are components of the System and are licensed by Contractor to District pursuant to this Agreement, including, without limitation, any custom Software or Customization, application software, base software, diagnostic software, Updates, Upgrades and any related Documentation. Software may include Third Party Software and/or Open Source Software delivered by Contractor if required to produce and maintain the System.

Update means a change, modification, or enhancement to the Equipment and related Documentation, which improves its performance or efficiency, but does not alter its core functionality.

Upgrade means a newer, better version, change, modification, or enhancement to the Equipment and related Documentation, which Contractor makes available from time to time, which incorporates major new features or increases the core functionality of the Equipment and may be considered a new version.

Use means the District's right to install, integrate, configure, implement, test, access, maintain and operate the Equipment, any Contractor-provided tools to customize the Equipment; Documentation listed in the Agreement; training materials District may acquire to provide internal training on the Equipment to District Users; any enhancements produced by or in collaboration with Contractor to develop the Equipment to District's unique business processes and/or programming environment for purposes of installing, operating, configuring or using the Equipment.

User means any person employed or working on behalf of the District, its bureaus, divisions, offices, directors, and any person or entity under contract or authorized by the District to provide it with services and to use the District's resources in whole or in part, in the course of assisting the District.

Work Order means a document which fully describes the scope, schedule and costs associated with work authorized to be executed under the terms of this agreement.

5. ORDER OF PRECEDENCE: In the event there is a conflict between the terms and conditions of one portion of this Contract with another portion of this Contract, and notwithstanding anything to the contrary in the General Conditions, the conflict will be resolved by designating which portion of the Contract documents takes precedence over the other for purposes of interpretation, except where a

clear statement of precedence other than that set forth in this section is included in the document. In this Contract the order of precedence shall be:

- a. Amendments and Change Orders
- b. This Agreement
- c. Attachment A, Statement of Work and Applicable State Laws
- d. Attachment B, General Conditions to the Agreement
- e. Attachment C, Contractor's Pricing
- f. Attachment D, Statement of Work
- g. Executed Work Orders to this Agreement
- h. Supplemental Conditions, if any
- i. The Solicitation Document and any Addenda thereto
- j. Contractor's accepted proposal to the Solicitation Document

6. DELIVERY: All services shall be FOB delivered to the District in Oregon. Should installation or assembly be required, offered prices shall include all costs associated with delivery, assembly, setup, and proper disposal of packaging material. If required by the District, Contractor shall furnish on-site or other service assistance, as may be required at no additional cost to the District. Acceptance shall not relieve Contractor from its responsibility under any representation or warranty. Contractor must be prepared to respond to service calls within timeline as outlined in Attachment A, Statement of Work.

Contractor shall immediately notify the District, in writing, if service delivery cannot be completed as intended.

If the services are not provided within thirty (30) days from the order date, the District, at its sole discretion, may obtain the services from other sources and the successful Offeror shall be liable for the excess costs incurred, including the difference in service pricing. Additional or repeated service delivery problems may be cause for Agreement cancellation.

Service delivery as required shall not be considered complete until all discrepancies have been corrected. Services not meeting Agreement specifications shall be provided to Contractor and shall be corrected at Contractor's expense. Acceptance occurs when the District authorizes payment of the invoice. If the District makes a payment for a Product prior to Final Acceptance, the payment does not grant a waiver of any representation or warranty by Contractor.

7. LIQUIDATED DAMAGES: Liquidated damages are applicable to non-emergency mechanical services work and not on emergency or non-emergency repair work. Time is of the essence. If Contractor fails to complete the Project or to deliver the supplies and perform the Services within the time specified within the Agreement (or any written extension thereof by the District) or within any specific Work Order, the actual damage to the District for the delay will be substantial but will be difficult or impractical to determine. It is therefore, agreed that the District shall be entitled to establish, as part of any specific Work Order, liquidated damages in an amount reasonably determined by the District to compensate the District for delays by Contractor in delivering the supplies, and/or performing the Services on time, and to deduct from the monies due to Contractor the amounts for each calendar day of delay past the completion date established in the Work Order. Payment or assessment of liquidated damages does not release Contractor to fulfill the obligations of this Agreement.

8. Cooperative Procurement: This Agreement is being established as a Cooperative Procurement. Other public entities may utilize the rates and terms of this Agreement in adherence with their own purchasing policies, upon notification to the District of their intent to do so.

9. Assigned Rights: The District may assign the terms and conditions of this Agreement to a contractor providing services to the District, for which the services of this Agreement are incidental. The Contractor will allow the District, through their relationship with the Assigned firm, the ability to execute all the rights of this Agreement.

10. TIME IS OF THE ESSENCE: Contractor shall make every reasonable effort to meet established delivery dates and other deadlines. Circumstances that may delay the delivery of goods and services from established delivery dates and other deadlines, including excusable delays and force majeure events, shall be reported to the District immediately upon discovery. The District and Contractor shall mutually agree upon any schedule or pricing change due to excusable delays or force majeure events in writing. In the event Contractor does not meet the established delivery dates or other deadlines and Contractor has failed to cure such breach within thirty (30) days of written notice by the District, the District may obtain the undelivered goods and/or non-performed service from another source, and no recurring charges, one-time charges, or termination charges or other penalties.

11. COMPLIANCE WITH APPLICABLE LAW: Contractor warrants it is duly authorized to operate and do business in all places where it shall be required to do business under the Agreement; that it has obtained or shall obtain all necessary licenses and permits required in connection with the Agreement, and that it shall fully comply with all laws, ordinances, orders, decrees, labor standards and regulations of its domicile and wherever performance occurs during the term of this Agreement. Contractor warrants it is lawfully organized and constituted under all federal, state and local laws, ordinances and other authorities of its domicile and is otherwise in full compliance with all legal requirements of its domicile. The following additional conditions apply to this solicitation and any resultant purchase order or agreement: Appendix A as attached hereto.

Contractor must be in compliance with the laws regarding conducting business in the District before an award may be made and shall be responsible for the following:

CERTIFICATION AS AN EEO AFFIRMATIVE ACTION EMPLOYER: Contractor is certified as an Equal Employment Opportunity Employer.

NON-DISCRIMINATION IN EMPLOYEE BENEFITS (EQUAL BENEFITS): Contractor has complied by providing the Equal Benefits Compliance Worksheet/Declaration Form indicating: Full compliance.

NOTIFICATION TO STATE OF NONRESIDENT CONTRACTOR: If the Agreement Price exceeds

\$10,000 and Contractor is a Nonresident Contractor, the Contractor shall promptly report to the Oregon Department of Revenue on forms provided by the Department of Revenue, the Agreement Price, terms of payment, Agreement duration and such other information as the Department of Revenue may require before final payment can be made on the Agreement. A copy of the report shall be forwarded to the District. The District shall satisfy itself that the above requirements have been complied with before it issues final payment on the Agreement. http://www.oregon.gov/dor/docs/nonresident-bidder_800020.pdf

NONDISCRIMINATION: Contractor shall comply with all applicable federal, state and local laws and regulations. Contractor agrees it is currently in compliance with all tax laws. Contractor shall comply with Title VI of the Civil Rights Act of 1964 and its corresponding regulations.

11. INDEPENDENT CONTRACTOR STATUS: Contractor is engaged as an independent contractor and shall be responsible for any federal, state, and local taxes and fees applicable to payments hereunder. The Contractor, its subcontractors, and their employees are not employees of the District and are not eligible for any benefits through the District including, without limitation, federal social security, health benefits, workers' compensation, unemployment compensation, and retirement benefits.

12. ACCESS TO DISTRICT FACILITIES: Contractor agrees that Contractor's physical or remote access to the District facilities shall be subject to the security interests and controls necessary

to protect public property, and the District shall not be liable for any delays necessary in granting Contractor access to any portion of the facilities or systems.

13. **NO THIRD-PARTY BENEFICIARIES:** Contractor and District are the only Parties to this Agreement and are the only Parties entitled to enforce its terms. Nothing in this Contract gives, assigns or provides any benefit or right, whether directly, indirectly, or otherwise, to third persons.
14. **OWNERSHIP OF PROPERTY:** Contractor agrees the District will, upon completion of the Initial Term of this Agreement have full ownership of the System. Should the Agreement be terminated prior to the completion of the Initial Term of the Agreement, the District shall negotiate in good faith with Contractor to resolve the disposition of the System. Contractor warrants that, with the exception of property that is leased or subject to a properly perfected security interest, it shall at all times own Equipment and Software proposed for this Agreement, with the exception of Third-Party Software, telecommunications services and buildings, and shall keep such property free and clear of any and all security interests, liens, charges, levies, assessments or encumbrances. Any work products produced or created by Contractor for the District shall be understood to be, to the fullest extent of the law, works made for hire unless the Parties have expressly agreed otherwise in writing.
15. **SUCCESSORS IN INTEREST:** The provisions of this Agreement shall be binding upon and shall inure to the benefit of the Parties hereto, and their respective successors and approved assigns.
16. **SURVIVAL:** The terms, conditions, representations, and all warranties contained in this Agreement shall survive the termination or expiration of this Agreement.
17. **INDEMNIFICATION:** Contractor shall hold harmless, defend, and indemnify the District, its officers, employees, and agents, from all claims, demands, suits, actions, losses, damages, liabilities, costs and expenses of whatsoever nature, including reasonable attorney's fees and costs, resulting from or arising out of the activities of Contractor or its officers, employees, subcontractors, or agents including intentional acts, or of its subcontractors, agents or employees under this Agreement. Contractor is not responsible for any damages caused solely by the actions of the District, its officers, employees and agents.
18. **ASSIGNMENT OF ANTI-TRUST RIGHTS:** By entering into an agreement, Contractor, for consideration paid to Contractor under the Agreement, does irrevocably assign to the District any claim for relief or cause of action which the Contractor now has or which may accrue to Contractor in the future, including, at the District's option, the right to control any such litigation on such claim for relief or cause of action, by reason of violation of 15 USC SS 1-15 or ORS 646.725 or ORS 646.730, in connection with any goods or services provided to Contractor by any person, which goods or services are used, in whole or in part, for the purpose of carrying out Contractor's obligation under this Agreement.

In the event Contractor hires subcontractors to perform any of Contractor's duties under Agreement, Contractor shall require the subcontractor to irrevocably assign to the District, as a third party beneficiary any right, title or interest that has accrued or may accrue to the subcontractor by reasons of any violation of 15 USC SS 1-15, ORS 646.725 or ORS 646.730, including, at the District's option, the rights to control of any litigation arising thereunder, in connection with any goods or services provided to the subcontractor by any person, in whole or in part, for the purpose of carrying out the subcontractor's obligations as agreed to by Contractor in pursuance of the completion of the Agreement.

In connection with this assignment, it is an express obligation of Contractor that it will take no action which will in any way diminish the value of the rights conveyed or assigned hereunder to the District. It is an express obligation of Contractor to advise the District Superintendent:

- A. In advance, of its intention to commence any action on its own behalf regarding such claims for relief or causes of action;
- B. Immediately, upon becoming aware of the fact that an action has been commenced on its own behalf by some other person or persons, of the pendency of such action; and
- C. The date on which it notified the obligor(s) of any such claims for relief or causes of action of the fact of its assignment to the District.

Furthermore, it is understood or agreed that in the event that any payment under such claim is made to Contractor, it shall promptly pay over to the District its proportionate share thereof, if any, assigned to the state hereunder.

- 19. **SEVERABILITY:** In the event that a court, government agency, or regulatory agency with proper jurisdiction determines that any provision of this Agreement is unlawful, the remainder of this Agreement shall continue in effect and the rights and obligations of the parties shall be construed and enforced as if this Agreement did not contain the particular provision held to be invalid.
- 20. **FUNDING:** In the event the District, during the adoption of the District's annual budget, reduces, changes, eliminates, or otherwise modifies the funding for any of the projects identified herein, Contractor agrees to abide by any such decision including revision or termination of services.
- 21. **LIENS:** Provided Contractor receives timely payment, Contractor shall not permit any claim to be filed or prosecuted against the District or any lien against the property purchased in connection with this Agreement and agrees to assume responsibility should such lien or claim be filed.
- 22. **FORCE MAJEURE:** Neither District nor Contractor shall be held responsible for performance if its performance is prevented by unforeseeable acts or events beyond the Party's reasonable control, including, but not limited to, acts of God, fire, flood, earthquakes or other catastrophes; strikes or other labor unrest; power failures, electrical power surges or current fluctuations; nuclear or other civil or military emergencies; or acts of legislative, judicial, executive, or administrative authorities; or any other circumstances that are not within its reasonable control.

If delay in delivery due to a Force Majeure Event does not exceed thirty (30) days, such delays in delivery shall automatically extend the delivery date for a period equal to the duration of such events; any Warranty Period affected by a Force Majeure Event shall likewise be extended for a period equal to the duration of such event so long as it does not exceed thirty (30) days.

If delay in delivery due to Force Majeure Event is longer than thirty (30) days, the District shall have the right to terminate this Agreement, a Task/Change Order, Maintenance agreement or any license hereunder upon written notice to Contractor, in accordance with this Section.

Either party may terminate this Agreement due to a Force Majeure event as set forth herein.

- 23. **AMENDMENTS:** All changes to this Agreement, including changes to the scope of work and Agreement amount, must be made by written amendment and approved and executed by authorized representatives of the parties to be valid. Contractor understands that District employees have no actual or apparent authority to enter into amendments, except as may be

specifically granted by the District's Board, Superintendent or authorized designee, as the case may be. .

24. **NON-WAIVER:** No waiver, consent, modification, or change of terms of this Agreement shall bind either Party unless in writing and signed by both Parties. Such waiver, consent, modification, or change if made, shall be effective only in specific instances and for the specific purposes given. The failure of the District to enforce any provision of this Agreement shall not constitute a waiver of that or any other provision.
25. **COORDINATION WITH OTHER CONTRACTORS AND OTHER SERVICES:** Contractor shall cooperate fully with other contractors and District employees providing systems or support to the District during installation, operation, or maintenance of the Products and Services. This includes planning for and integration of the Products and Services provided under this Agreement with those provided by others. Further, Contractor shall make every reasonable effort to cooperate with District to minimize and/or prevent any degradation of the other computer and telecommunications systems, equipment, or services of the District by the installation, operation, or maintenance of the Products and Services. Contractor's failure to cooperate with the District and other contractors may be grounds for termination as provided herein.
26. **AUDITS:** The District, either directly or through a designated representative, may conduct financial and performance audits of the billings and services specified in this Agreement at any time in the course of the Agreement and during the three (3) year period established by ACCESS TO RECORDS. Audits shall be conducted in accordance with generally accepted auditing standards. If an audit discloses that payments to Contractor were in excess of the amount to which Contractor was entitled, then Contractor shall repay the amount of the excess to the District. Under no circumstances will the payment of previous invoices constitute an acceptance of the charges associated with those invoices. If any audit shows performance of services is not efficient in accordance with Government Auditing Standards, or that the program is not effective in accordance with Government Auditing Standards, the District may pursue remedies for breach of this Agreement. All financial records, supporting documents, statistical records and all other records pertinent to this Agreement shall be retained by Contractor for a minimum of five (5) years for purposes of State of Oregon
27. **EMPLOYEES NOT TO BENEFIT:** No District employee or elected official of the District shall be admitted to any share or part of this Agreement or to any benefit that may arise there from; but, this provision shall not be construed to extend to this Agreement if made with a corporation for its general benefit.
28. **CONFLICT OF INTEREST:** Contractor hereby certifies that, if applicable, its agreement proposal was made in good faith without fraud, collusion or connection of any kind with any other proposer of the same request for proposals or other District procurement solicitation(s), that Contractor as a proposer has competed solely on its own behalf without connection or obligation to, any undisclosed person or firm. Contractor certifies that it is not a District official/employee or a business with which a District official/employee is associated, and that to the best of its knowledge, Contractor, its employee(s), its officer(s) or its director(s) is not a District official/employee or a relative of any District official/employee who: i) has responsibility in making decisions or ability to influence decision-making on the Agreement or Project to which this Agreement pertains; ii) has or will participate in evaluation or management of the Agreement; or iii) has or will have financial benefits in the Agreement. Contractor understands that should it elect to employ any former District official/employee during the term of the Agreement then that the former District official/Contractor employee must comply with applicable government ethics and conflicts of interest provisions in ORS Chapter 244, including

but not limited to ORS 244.040(5) and ORS 244.047, and the District's Charter, Codes and administrative rules.

29. **PRICES AND PRICE CHANGES:** Initial Agreement prices shall be as established herein. Unit prices shall remain firm through the first year of the Agreement. At the end of the calendar year following the date of acceptance, price changes may be allowed herein. Contractor agrees to provide pricing for all products for which Contractor is an authorized distributor for the duration of this Agreement if and when requested by the District. Following the end of the one-year period referenced above, District and Contractor acknowledge that prices for goods and services furnished by Contractor under this Agreement may need to be adjusted during the term of the Agreement due to changes in Contractor's prices, rate plans, or product offerings. Such price changes shall be documented in writing between Contractor and District's Chief Procurement Officer as amendments.

Contractor shall submit any proposed pricing revisions in writing to the Project Manager for consideration at least thirty (30) days before the proposed effective date. All proposed price adjustments shall be calculated consistent with the methodology used to calculate the prices set forth in the Contractor's original proposal, the Contractor shall certify this in its request for price adjustments. Price adjustments shall become effective thirty (30) days from the date of last signature on the Agreement amendment document or as otherwise stated therein. Except that no increase in price adjustments shall become effective prior to a date one year following the date of acceptance. Price adjustments will only become effective by fully executed amendments, following receipt by the Project Manager of the requested price adjustment.

30. **ESCALATION/DE-ESCALATION CLAUSE:** Pricing adjustments may be adjusted up or down but shall not exceed the Bureau of Labor Statistics (BLS) Consumer Price Index (CPI) CPI-U West Region Class Size B/C based upon a period of 12 months, from January through January, supported by submission of copy of the CPI that supports the pricing adjustment. Additionally, all price reductions shall be passed on, in total, as of the effective date. The District shall have the option of accepting the price increase or canceling the balance of the Agreement. Contractor shall notify the District of all price increases and decreases as soon as possible after the BLS makes the CPI data available. No upward price adjustment of any sort will be allowed during the first year of the Agreement. Notification shall be in writing and will be confirmed in writing by the District.

31. **RIGHT TO CHANGE:** The District reserves the right to order changes to the Products, materials, Equipment and Services outlined herein. The District and Contractor shall determine a fair and equitable cost and if required, additional time for such changes. All such changes shall be ordered in writing and agreed to by the Parties.

32. **NOTICE:** Except as otherwise stated in this Agreement, any notice or demand to be given under this Agreement shall be delivered in person or deposited in United States Certified Mail, Return Receipt Requested. Any notices or other communications shall be addressed as follows:

CONTRACTOR:

Delta Connects Inc.
17400 SW Upper Boones Ferry Rd, Suite 230
Durham, OR 97224
Attn: Rodney Lyster

DISTRICT:

Spencer Davenport, CPSD Bond Manager
Central Point School District Admin. Office
300 Ash Street
Central Point, OR 97502

If either Party changes its address or if a Party's representative changes, the other Party shall be advised of such a change in writing, in accordance with this section.

38. INTELLECTUAL PROPERTY: Except Customizations, all trademarks, service marks, patents, copyrights, trade secrets, and other proprietary rights in or related to the Product or Service are and will remain the exclusive property of Contractor or its designees. District shall not decompile, disassemble, or otherwise reverse engineer the Software. **The District requires the following regarding copyrighting and patent pending on work products pertaining to this Agreement:**

- A. Copyright: All work products of Contractor which result from this Agreement are the exclusive property of the District. If this Agreement results in a copyright, the District reserves a royalty-free, nonexclusive and irrevocable license to reproduce, publish or otherwise use, and to authorize others to use, for governmental purposes, the work or the copyright to any work developed under this Agreement and any rights of copyright to which the Contractor or its sub- vendor, purchases ownership with grant support.
- B. Patent: If this Agreement results in the production of patentable items, patent rights, processes, or inventions, the Contractor or any of its sub-vendors shall immediately notify the District. The District will provide the Contractor with further instruction on whether protection on the item will be sought and how the rights in the item will be allocated and administered in order to protect the public interest, in accordance with federal guidelines.

39. PROPRIETARY AND CONFIDENTIAL INFORMATION: The Oregon Public Records Law, ORS 192.311 et seq. strictly governs the District's treatment of requests for public records pertinent to this Agreement.

- A. Maintenance of Confidentiality. Contractor shall treat as confidential any District Confidential Information that has been made known or available to Contractor or that Contractor has received, learned, heard or observed; or to which Contractor has had access. Contractor shall use District Confidential Information exclusively for the District's benefit and in furtherance of the Products and/or Services provided by Contractor. Except as may be expressly authorized in writing by the District, in no event shall Contractor publish, use, discuss or cause or permit to be disclosed to any other person such District Confidential Information. Contractor shall (1) limit disclosure of the District Confidential Information to those directors, officers, employees and agents of Contractor who need to know the District Confidential Information in connection with the District Project, (2) exercise reasonable care with respect to the District Confidential Information, at least to the same degree of care as Contractor employs with respect to protecting its own proprietary and confidential information, and (3) return immediately to the District, upon its request, all materials containing District Confidential Information, in whatever form, that are in Contractor's possession or custody or under its control. Contractor is expressly restricted from and shall not use Confidential intellectual property of the District without the District's prior written consent.
- B. Scope. This Contract shall apply to all District Confidential Information previously received, learned, observed, known by or made available to Contractor. This Agreement shall not apply to District Confidential Information which (1) is or later becomes part of the public domain without breach of this Agreement and through no wrongful act of Contractor; (2) Contractor lawfully receives from a third party; (3) was developed independently by and was reduced to writing by Contractor prior to the earlier of the date of this Agreement or the date of any access or exposure to any District Confidential Information, or (4) is required to be disclosed under operation of law. Contractor's confidentiality obligations under this Agreement shall survive termination.

- C. Equitable Remedies. Contractor acknowledges that unauthorized disclosure of District Confidential Information or misuse of a District computer system or network will result in irreparable harm to the District. In the event of a breach or threatened breach of this Agreement, the District may obtain equitable relief prohibiting the breach, in addition to any other appropriate legal or equitable relief.
- D. Contractor's Confidential Information. During the term of the Agreement, Contractor may disclose to the District, certain Contractor Confidential Information pertaining to Contractor's business. Contractor shall be required to mark CONFIDENTIAL with a restrictive legend or similar marking. If CONFIDENTIAL is not clearly marked or the Contractor's Confidential Information cannot be marked with a restrictive legend or similar marking or is disclosed either orally or by visual presentation, Contractor shall identify the Confidential Information at the time of disclosure or within a reasonable time thereafter. The District shall not be deemed to have breached this Section if (1) Contractor's Confidential Information later becomes part of the public domain through no act or omission of the District; (2) is required to be disclosed under operation of law; (3) the District lawfully receives Confidential Information from a third party with no breach of any duty of confidentiality; or (4) was developed independently by and was reduced to writing by the District prior to the earlier of the date of this Agreement or the date of any access or exposure to any Contractor Confidential Information.
- E. Public Records Request. Contractor acknowledges that the District is subject to the Oregon Public Records Act and Federal law. Third persons may claim that the Confidential Information Contractor submitted to the District hereunder may be, by virtue of its possession by the District, a public record and subject to disclosure pursuant to the Oregon Public Records Act. Subject to the following conditions, the District agrees not to disclose any information Contractor submits to the District that includes a written request for confidentiality and as described above, specifically identifies the information to be treated as Confidential. The District's commitments to maintain certain information confidential under this Agreement are all subject to the constraints of Oregon and federal laws. Within the limits and discretion allowed by those laws, the District will maintain the confidentiality of information.
- F. Release of Public Information. All information submitted by Contractor shall be public record and subject to disclosure pursuant to the Oregon Public Records Act (ORS 192.311 et seq.), except such portions for which Contractor requests exemption from disclosure consistent with federal or Oregon law and which are ultimately determined to be subject to exemption. Any portion that the Contractor claims constitutes a "trade secret" or is "confidential" must meet the requirements of ORS 192.345, 192.355, 646.461 or other state or federal law. Documents with Copyright must be clearly marked.
- G. Discovery of Documents. In the event a party to litigation seeks discovery of information submitted by Contractor in confidence, the District will notify Contractor of the request. The District shall allow Contractor to participate in the response at its own expense. The District will comply with any effective order issued by the court having jurisdiction over the matter.

40. INFRINGEMENT INDEMNITY: Contractor shall, at its own expense, hold harmless, indemnify, and defend the District, its directors, officers, employees, agents and affiliates from and against any and all claims, demands, damages, liabilities, losses, and expenses (including reasonable attorney fees, whether or not at trial and/or on appeal), arising out of or in connection with any actual or alleged

violation or infringement by the Software of any proprietary right of any person whosoever, including any copyright, patent, trade name, trademark, or misappropriation of the trade secrets of any third party. The District agrees to notify Contractor of the claim and gives Contractor sole control of the defense of the claim and negotiations for its settlement or compromise. No settlement that prevents the District's continuing use of the Software/Products shall be made without the District's prior written consent. If any third party claim causes the District's use of the Software to be endangered, restricted or disrupted, Contractor shall (i) cause the Software to be replaced, at no additional charge, with a compatible functionally equivalent and non-infringing product; (ii) cause the Software to be modified to avoid the infringement; (iii) obtain a license for the District to continue using the Software and pay any additional fee required for such license; or (iv) if, after Contractor uses all due diligence or standard of care none of the foregoing alternatives is possible, Contractor will terminate the license and refund to the District license fees actually paid by the District and any direct damages documented by District for the affected Software and Documentation.

41. SECURITY: Contractor shall provide immediate notification to the District's Information Security Manager and the District's Project Manager of any online security breach that affects District systems. Contractor shall provide notification to the District's Project Manager of any incident relating to System integrity such as a computer virus.

- A. Contractor shall comply with District technology standards.
- B. Contractors providing or having access to data containing District confidential or personally identifiable information (as defined in the Oregon Consumer Identity Theft Protection Act, ORS 646A.600 to 646A.628) must maintain and demonstrate compliance with the following:

Oregon Consumer Identity Theft Protection Act, ORS 646A.600 to 646A.628. Specifically, Contractors must develop, implement and maintain reasonable safeguards to protect the security, confidentiality and integrity of the personal information, including disposal of the data. Contractors must also provide immediate notification to the District of a data security breach (as defined) and in cooperation with the District, provide notice to affected consumers. Any costs or fees incurred by the District due to Contractor's data breach, including but not limited to notification, consumer credit reports or fines by the Department of Consumer and Business Services, shall be reimbursed to the District by Contractor.

- C. Additionally, any Contractor who provides or has access to Software which processes and /or interacts with credit/debit card information must also be compliant with the following: Payment Card Industry - Data Security Standard (PCI-DSS). The most current version is 1.2. These standards are maintained at www.pcisecuritystandards.org.

42. NEWS RELEASES AND PUBLIC ANNOUNCEMENTS: The Contractor shall not use in its external advertising, marketing programs, or other promotional efforts, the District seal or other representations of the District, any data, pictures or other representations of the District, except with prior specific written authorization from the District.

Contractor shall not issue any news release or public announcement pertaining to this Agreement or the Project without prior written approval of the District, which may be withheld in the District's sole discretion. A minimum notice of three (3) business days is required for a response to a request for such approval. If approval is not issued within the three (3) business day period, the request shall be deemed denied.

43. UNIFORM COMMERCIAL CODE: The provisions of this Agreement are not to be construed as exclusive remedies or as a limitation upon rights or remedies that may be or may become available under ORS Chapters 71 and 72 (Uniform Commercial Code).

44. NON-EXCLUSIVE AGREEMENT: The District may, but is not required, to purchase any Products or Services under this Agreement. Products or Services will be requested on an as needed basis, therefore there is no guarantee of Products to be purchased or Services requested under any resulting agreement. Payment shall be made only for Products and Services actually ordered, delivered, and accepted, whether greater or less than the original estimated quantities. This Agreement does not establish an exclusive arrangement between the District and Contractor, and the District retains the right to purchase the same or similar Products and Services from other providers.

45. ENTIRE AGREEMENT: The Contract Documents, including but not limited to this Agreement, the General Conditions and other Attachments, represent the entire agreement between the Parties. The Contract Documents are the final, complete and exclusive statement of the terms thereof, and supersedes and terminates any prior agreement, understanding, or representation between the Parties with respect thereto, whether written or oral.

This Agreement may be signed in two (2) or more counterparts, each of which shall be deemed an original, and which, when taken together, shall constitute one and the same agreement. It is understood and agreed by the Parties hereto that:

- a. Any reference in this Agreement to the scope of work or specifications is intended as a convenience to the Parties in administration of the Agreement. Therefore, in the absence of an express statement to the contrary herein, any restatement or partial restatement in this Agreement of any provision of the scope of work or specifications is not intended, nor shall be construed to change, alter, modify, amend, or delete the requirements of the scope of work or specifications.
- b. All statutory, charter and ordinance provisions applicable to public contracts in the District and State of Oregon shall be followed with respect to this Agreement.
- c. The District and Contractor may conduct this transaction, including any Agreement amendments, by electronic means, including the use of electronic signatures.

Signature Page

CONTRACTOR:

Delta Connects Inc.
17400 SW Upper Boones Ferry Rd, Suite 230
Durham, OR 97224

DISTRICT:

Central Point School District
300 Ash Street
Central Point, OR 97502


Signature

Rodney Lyster
Printed Name

Regional Manager
Title

May 12 2020
Date


Signature

SPENCER DAVENPORT
Printed Name

CHIEF PROJECTS OFFICER
Title

5/15/2020
Date

APPENDIX A APPLICABLE STATE LAWS

Contractor shall observe all applicable state and local laws pertaining to public contracts including the District's Equal Benefits Ordinance and its administrative rules, all of which are incorporated by this reference. Failure to comply with the Ordinance permits the District to impose sanctions or require remedial actions as stated in Section 13.1 of the rules. ORS Chapters 279A, 279B and 279C require every public contract to contain certain provisions. Pursuant to those chapters, the following provisions shall be a part of this contract, as applicable.

- Pursuant to ORS 279B.220, on every public contract, the contractor shall make payment promptly, as due, to all persons supplying to the contractor labor or material for the performance of the work provided for in the contract; shall pay all contributions or amounts due the Industrial Accident Fund from the contractor or subcontractor incurred in the performance of the contract; not permit any lien or claim to be filed or prosecuted against the state or a county, school district, municipality, municipal corporation or subdivision thereof, on account of any labor or material furnished, and; pay to the Department of Revenue all sums withheld from employees under ORS 316.167.
- Pursuant to ORS 279B.230(1), in every public contract, the contractor shall promptly, as due, make payment to any person, co-partnership, association or corporation furnishing medical, surgical and hospital care services or other needed care and attention, incident to sickness or injury, to the employees of the contractor, of all sums that the contractor agrees to pay for the services and all moneys and sums that the contractor collected or deducted from the wages of employees under any law, contract or agreement for the purpose of providing or paying for the services.
- Pursuant to ORS 279B.230(2), in every public contract, all subject employers working under the contract are either employers that will comply with ORS 656.017 or employers that are exempt under ORS 656.126.
- Pursuant to ORS 279B.235(1), persons may not be employed for more than 10 hours in any one day, or 40 hours in any one week, except in cases of necessity, emergency or when the public policy absolutely requires it. In such cases, the employee shall be paid a) at least time and half pay for all overtime in excess of 8 hours in any one day or 40 hours in any one week when the work week is five consecutive days, Monday through Friday; or b) for all overtime in excess of 10 hours in any one day or 40 hours in any one week when the work week is four consecutive days, Monday through Friday; and c) for all work performed on Saturday and on any legal holiday specified in ORS 279B.020.

OREGON BUREAU OF LABOR AND INDUSTRIES – BOLI

PREVAILING WAGE RATES

Contractor agrees to comply with the provisions of ORS 279C.800 through 279C.870 relating to State of Oregon, Bureau of Labor and Industries (BOLI) Prevailing Wage Rates dated January 1, 2020, and amendments dated February 1, 2020. State of Oregon, BOLI wage rates are required for all work on this contract.

Contractor and every subcontractor must have a public works bond filed with the Construction Contractors Board before starting work on the project, unless exempt. ORS 279C.830(3).

The work for this contract will be performed in Jackson County.

End of Section 00830



BUREAU OF LABOR AND INDUSTRIES, PREVAILING WAGE RATE UNIT

**INSTRUCTIONS FOR COMPLETING THE PREVAILING WAGE RATE
PAYROLL/CERTIFIED STATEMENT FORM (WH-38)**

The Payroll/Certified Statement form (WH-38) may be used by contractors for reporting their payroll as required by ORS 279C.845 on public works projects subject to the Prevailing Wage Rate (PWR) Law. Although this form has not been officially approved by the U.S. Department of Labor (US DOL), it is designed to meet the requirements of the federal Davis-Bacon Act. For projects associated with the U.S. Department of Housing and Urban Development (HUD), contact the public agency (owner) associated with the project for assistance with payroll reporting.

Contractors are not required to use the WH-38 form in reporting their payroll; however, the contractor must provide all of the information contained in the form, including the certified statement on page two. The certified statement must be signed by the contractor, certifying the accuracy of the information reported on the payroll, including representations pertaining to the provision of fringe benefits to employees by third parties, and must be submitted with each weekly payroll report. Detailed instructions concerning the preparation of the form follow:

Complete the top third of the form. Be sure to enter the date the contract was first advertised for bid. If you are not sure of this date, contact the public agency (owner) associated with the project. The "Payroll No." is a US DOL requirement and represents the number of weeks the contractor performed work on the project.

Column 1 – NAME AND ADDRESS: The employee's full name must be shown on each payroll submitted. The employee's address must also be shown on the first payroll submitted. The address need not be shown on subsequent payrolls submitted unless the address changes. The US DOL requires an employee identification number for each individual employee, on each payroll submitted. This number may be, but does not have to be, the last four digits of the employee's social security number.

Column 2 – CLASSIFICATION: For assistance in determining the correct classification, use the Bureau of Labor and Industries' publication "Definitions of Covered Occupations for Public Works Contracts in Oregon." On the WH-38, list the classification that is most descriptive of the work actually performed by the employee. Give the group number for those classifications that include such information. Indicate which workers are apprentices, if any, and give their current percentage, classification, and group number when applicable. If an employee works in more than one classification, use the highest rate for all hours worked, or use separate line entries to show hours worked and hourly rates for each classification.

Column 3 – DAY AND DATE: Enter the day of the week (M, T, W, Th, F, S, and Sn) in the top row of boxes, and the corresponding date below.

HOURS WORKED EACH DAY: Enter the total number of straight time hours worked in the row marked "ST." Generally, hours worked over 8 in a day or work performed on Saturdays, Sundays, and legal holidays should be entered as overtime ("OT") hours worked. Contractors who have adopted and followed a written work schedule of four consecutive ten-hour days (Monday through Thursday or Tuesday through Friday) may enter hours worked over 10 in a day as overtime hours. For more information on overtime requirements, see the Contractor Responsibilities section of the Bureau of Labor and Industries' publication "Prevailing Wage Rate Laws" handbook.

Column 4 – TOTAL HOURS: Enter separately the total number of straight time and overtime hours worked by the employee (in each classification, if applicable) on the PWR project during the week. The total number of straight time hours worked should be entered in the lower box ("ST"); the total number of overtime hours worked should be entered in the top box ("OT").

Column 5 – HOURLY BASE RATE: Enter the hourly base rate (plus zone pay, if any) and the hourly overtime rate (plus zone pay, if any) paid to the employee in the appropriate straight time and overtime boxes. (Payment of not less than one and one half times the base rate of pay, including zone pay but not

including fringe benefits, is required to be paid for overtime hours pursuant to ORS 279C.540). Generally, use the appropriate prevailing wage rates in effect at the time the contract was first advertised for bid by the public agency. If this date is not known, or if the project was not advertised for bid, contact the public agency (owner) associated with the project for assistance with applicable rates.

Column 6 – HOURLY FRINGE BENEFIT AMOUNT PAID AS WAGES TO THE EMPLOYEE: Enter hourly fringe benefit amounts paid directly to the employee as wages. (For overtime hours worked, it is not necessary to pay time and one half for the fringe benefit portion of the prevailing wage rate.)

Column 7 – GROSS AMOUNT EARNED: Enter the gross amount earned for work on the PWR project during the week. If part of the employee's wages for the pay period were earned on projects other than the project described on the WH-38, or if the employee is paid less often than on a weekly basis, enter in column 7 first the gross amount earned on the PWR project for the week, then the total gross amount earned for the pay period. For example: \$567.84 / \$1,267.27.

Column 8 – ITEMIZED DEDUCTIONS, FICA, FED. STATE, ETC.: Enter deductions withheld from wages for the pay period. All deductions must be in accordance with the provisions of ORS 652.610 (and as defined in Regulations, Part 3 (29 CFR Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. Stat. 967, 76 Stat. 357; 40 U.S.C 276c) on projects subject to Davis-Bacon Act). For projects subject to the Davis-Bacon Act, itemize the deductions.

Column 9 – NET WAGES PAID: Enter the total amount of net wages actually paid to the employee for the pay period. This figure can be calculated by subtracting the total deductions reported in Column 8 from the gross amount of wages for the pay period reported in the bottom portion of Column 7.

Column 10 – HOURLY FRINGE BENEFITS PAID TO BENEFITS PARTY, PLAN, FUND OR PROGRAM: Enter the hourly amount of fringe benefits paid to each individually approved party, plan, fund, or program, for each employee. List these amounts separately on the lines provided. Any contractor who is making payments to approved parties, plans, funds or programs in amounts less than the required hourly fringe benefit is obligated to pay the difference directly to the employee as wages in lieu of fringe benefits, and to show that amount in Column 6 of this form. For information on how to calculate hourly fringe benefit credits, see Appendix A in the Bureau of Labor and Industries' publication "Prevailing Wage Rate Laws" handbook.

Column 11 – NAME OF BENEFIT PARTY, PLAN, FUND OR PROGRAM: Enter the name of the party, plan, fund, or program that corresponds to the amount paid as an hourly fringe benefit in Column 10.

CALCULATION CHECK

In order to determine whether the wages and fringe benefits paid are sufficient to meet prevailing wage rate requirements, the following check may be performed:

1. For each classification listed in column 2, compute the sum of:
 - a) the hourly base rate of pay shown in Column 5,
 - b) the hourly fringe benefit amount paid as wages to employee shown in Column 6, and
 - c) the hourly fringe benefits paid to benefit party, plan, fund or program shown in Column 10.
2. This sum must equal or exceed the total of the hourly base rate (including zone pay) and the hourly fringe benefit rate for that classification as listed in the appropriate issue of the Bureau of Labor and Industries publications Prevailing Wage Rates for Public Works Contracts in Oregon.

IF YOU HAVE QUESTIONS REGARDING COMPLETION OF THIS FORM, CONTACT THE PREVAILING WAGE RATE UNIT OF THE BUREAU OF LABOR AND INDUSTRIES AT (971)673-0838.

NOTE: PAYROLL/CERTIFIED STATEMENTS ARE ONLY REQUIRED TO BE SUBMITTED TO THE PUBLIC AGENCY ASSOCIATED WITH THE PROJECT.

**CERTIFIED PAYROLL AND OTHER FORMS ARE AVAILABLE ON OUR WEBSITE:
WWW.OREGON.GOV/BOLI**

PRIME CONTRACTOR <input type="checkbox"/>	SUBCONTRACTOR <input type="checkbox"/>	PAYROLL NO. <input type="checkbox"/>	FINAL PAYROLL <input type="checkbox"/>
Business Name (DBA):		CCB Registration Number:	

Project Name:	Type of Work:
Street Address:	Project Location:
Mailing Address:	Project County:

Date Pay Period Began:	Date Pay Period Ended:
THIS SECTION FOR PRIME CONTRACTORS ONLY	
Subcontract Amount:	
Prime Contractor Business Name (DBA):	
Prime Contractor Phone: ()	
Prime Contractor's CCB Registration Number:	
Date You Began Work on the Project:	

(1)	(2)	(3) DAY AND DATE							(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
NAME , ADDRESS AND EMPLOYEE'S IDENTIFICATION NUMBER	CLASSIFICATION (INCLUDE GROUP # AND APPRENTICESHIP STEP IF APPLICABLE)								HOURLY BASE RATE	HOURLY FRINGE BENEFIT AMOUNTS PAID AS WAGES TO EMPLOYEE	GROSS AMOUNT EARNED (see directions)	ITEMIZED DEDUCTIONS FICA, FED, STATE, ETC.	NET WAGES PAID	HOURLY FRINGE BENEFITS PAID TO BENEFIT PARTY, PLAN, FUND OR PROGRAM	NAME OF BENEFIT PARTY, PLAN, FUND, OR PROGRAM	
		HOURS WORKED EACH DAY														
			</													

*Although this form has not been officially approved by the U.S. Department of Labor, it is designed to meet the requirements of both the state PWR law and the federal Davis-Bacon Act.

CERTIFIED STATEMENT

Date: _____

I, _____, _____ (NAME OF SIGNATORY PARTY) _____ (TITLE)
do hereby state:

(1) That I pay or supervise the payment of the persons employed by:

_____ (CONTRACTOR, SUBCONTRACTOR OR SURETY)
on the _____ (BUILDING OR WORK) _____; that during the payroll period
commencing on the _____ day of _____ (MONTH) _____, (YEAR) _____, and ending the _____ day
of _____ (MONTH) _____ (YEAR) _____, all persons employed on said project have been paid the
full weekly wages earned, that no rebates have been or will be made either directly or
indirectly to or on behalf of said _____ (CONTRACTOR, SUBCONTRACTOR OR SURETY)
from the full weekly wages earned by any person, and that no deductions have been
made either directly or indirectly from the full wages earned by any person, other than
permissible deductions as specified in ORS 652.610, and as defined in Regulations, Part
3 (29 CFR Subtitle A), issued by the Secretary of Labor under the Copeland Act, as
amended (48 Stat. 948, 63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. 276c), and
described below:

(2) That any payrolls otherwise under this contract required to be submitted for the above
period are correct and complete; that the wage rates for workers contained therein are
not less than the applicable wage rates contained in any wage determination
incorporated into the contract; that the classifications set forth therein for each worker
conform with work performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide
apprenticeship program registered with a state apprenticeship agency recognized by the
Bureau of Apprenticeship and Training, United States Department of Labor, or if no such
recognized agency exists in a state, are registered with the Bureau of Apprenticeship
and Training, United States Department of Labor.

I HAVE READ THIS CERTIFIED STATEMENT, KNOW THE CONTENTS THEREOF
AND IT IS TRUE TO MY KNOWLEDGE:

_____ (NAME AND TITLE)

(SIGNATURE AND DATE)

In addition to completing sections (1) - (3), if your project is subject to the federal
Davis-Bacon Act requirements, complete the following section as well:

(4) That:
(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS OR
PROGRAMS

☐ - In addition to the basic hourly wage rates paid to each laborer or mechanic
listed in the above referenced payroll, payments of fringe benefits as listed in
the contract have been or will be made to appropriate programs for the benefit
of such employees, except as noted in Section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

☐ - Each laborer or mechanic listed in the above referenced payroll has been paid,
as indicated on the payroll, an amount not less than the sum of the applicable
basic hourly wage rate plus the amount of the required fringe benefits as listed
in the contract, except as noted in Section 4(c) below.

(c) EXCEPTIONS:

EXCEPTION (CRAFT)	EXPLANATION

REMARKS:

NAME AND TITLE	SIGNATURE
THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 231 OF TITLE 31 OF THE UNITED STATES CODE.	

FILE THIS FORM WITH THE PUBLIC AGENCY ASSOCIATED WITH THE PROJECT
NOTE TO CONTRACTORS: YOU MUST ATTACH COPIES OF THIS FORM TO EACH OF YOUR PAYROLL SUBMISSIONS ON THIS PROJECT.
INSTRUCTIONS AND ADDITIONAL FORMS ARE AVAILABLE ON OUR WEBSITE: WWW.OREGON.GOV/BOLI.

ATTACHMENT A STATEMENT OF WORK

1. **TECHNICAL REQUIREMENTS AND SCHEDULE:** Contractor, including sub contractors, must be experienced and/or certified to provide scope related to new installations, replacement, servicing, parts, diagnosis and programming for HVAC, DDC, Security, Communications, Lighting and other control systems as described below at the rates specified in Attachment B, Price Schedule. Scope may include;
 - a. DDC/BMS systems, including electric and pneumatic controls system and their associated devices and equipment.
 - b. Security Systems, including video, access control, intrusion detection, cabling, connectivity, network infrastructure, etc.
 - c. Communications Systems, including clocks, paging, strobes, intercom, displays, mass notification, cabling, connectivity, network infrastructure, etc.
 - d. Lighting Control systems, including low and line voltage systems and their associated devices and equipment.
 - e. Other Control or Technology systems that deem to be necessary to provide a complete or smart building environment.
 - f. HVAC Systems, including any mechanical system that provides comfort or life safety to the building and its occupants.
 - g. Electrical Systems, including any electrical systems that provides comfort or life safety to the building and its occupants.
 - h. Other work associated with or supporting the elements described above.
2. **WORK PERFORMED BY THE DISTRICT:** District staff shall make available sufficient hours of staff personnel as is required to meet with Contractor and provide such information as required. The District has assigned a project manager who will oversee the work and provide support as needed.

The District shall be responsible for implementing and maintaining usual, customary and appropriate internal accounting procedures and controls, internal controls and other appropriate procedures and controls for the District. These controls will include information technology, proprietary information, and trade secret safeguards if appropriate to District work.

3. **DISTRICT FURNISHED PROPERTY:** No materials, labor or facilities will be furnished by the District unless otherwise provided for within this Agreement.

JACKSON COUNTY SCHOOL DISTRICT NO. 6
GENERAL CONDITIONS FOR PUBLIC IMPROVEMENT CONTRACTS

January 2020

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JACKSON COUNTY SCHOOL DISTRICT NO. 6
GENERAL CONDITIONS FOR PUBLIC IMPROVEMENT CONTRACTS
("General Conditions")

SECTION A
GENERAL PROVISIONS

A.1 DEFINITION OF TERMS

To the extent used in the Contract Documents, the following terms shall be as defined below:

ARCHITECT/ENGINEER means the Person appointed by the Owner to make drawings and specifications and, to provide contract administration of the Work contemplated by the Contract to the extent provided herein or by supplemental instruction of Owner (under which Owner may delegate responsibilities of the Owner's Authorized Representative to the Architect/ Engineer), in accordance with ORS Chapter 671 (Architects) or ORS Chapter 672 (Engineers) and administrative rules adopted thereunder.

CHANGE ORDER means a written order issued by the Owner's Authorized Representative to the Contractor requiring a change in the Work within the general scope of the Contract Documents, issued under the changes provisions of Section D.1 including Owner's written change directives as well as changes reflected in a writing executed by the parties to this Contract and, if applicable, establishing a Contract Price or Contract Time adjustment for the changed Work.

CLAIM means a demand by Contractor pursuant to Section D.3 for review of the denial of Contractor's initial request for an adjustment of Contract terms, payment of money, extension of Contract Time or other relief, submitted in accordance with the requirements and within the time limits established for review of Claims in these General Conditions.

CONTRACT means the written agreement between the Owner and the Contractor comprised of the Contract Documents which describe the Work to be done and the obligations between the parties.

CONTRACT DOCUMENTS means the Solicitation Document and addenda thereto, the Contract, these General Conditions, Supplemental General Conditions, if any, the accepted Offer, Plans, Specifications, amendments and Change Orders.

CONTRACT PERIOD as set forth in the Contract Documents, means the total period of time beginning with the issuance of the Notice to Proceed and concluding upon Final Completion.

CONTRACT PRICE means the total of the awarded Offer amount, as increased or decreased by the price of approved alternates and Change Orders.

CONTRACT TIME means any incremental period of time allowed under the Contract to complete any portion of the Work as reflected in the project schedule.

CONTRACTOR means the Person awarded the Contract for the Work contemplated.

DAYS are calendar days, including weekdays, weekends and holidays, unless otherwise specified.

DIRECT COSTS means, unless otherwise provided in the Contract Documents, the cost of materials, including sales tax, cost of delivery; cost of labor, including social security, old age and unemployment insurance, and fringe benefits required by agreement or custom; worker's compensation insurance; project specific insurance (including, without limitation, Builder's Risk Insurance and Builder's Risk Installation Floater); bond premiums, rental cost of equipment, and machinery required for execution of the work; and the additional costs of field personnel directly attributable to the Work.

ENGINEER means a person who is registered and holds a valid certificate in the practice of engineering in the State of Oregon, as provided under ORS 672.002 to 672.325, and includes all terms listed in ORS 672.002(2). (See ORS 279C.100(3)) A technical professional providing specific engineering type services which do not require licensing as a registered engineer will be referred to as an Applications Engineer for purposes of the documents which support this contract, and is not an Engineer for purposes of this definition.

FINAL COMPLETION means the final completion of all requirements under the Contract, including Contract Closeout as described in Section K but excluding Warranty Work as described in Section I.2, and the final payment and release of all retainage, if any.

FORCE MAJEURE means an act, event or occurrence caused by fire, riot, war, acts of God, nature, sovereign, or public enemy, strikes, freight embargoes or any other act, event or occurrence that is beyond the control of the party to this Contract who is asserting Force Majeure.

NOTICE TO PROCEED means the official written notice from the Owner stating that the Contractor is to proceed with the Work defined in the Contract Documents. Notwithstanding the Notice to Proceed, Contractor shall not be authorized to proceed with the Work until all initial Contract requirements, including the Contract, performance bond and payment bond, and certificates of insurance, have been fully executed and submitted to Owner in a suitable form.

OFFER means (a) a bid in connection with an invitation to bid, and/or (b) a proposal in connection with a request for proposals.

OFFEROR means (a) a bidder in connection with an invitation to bid, and/or (b) a proposer in connection with a request for proposals.

OVERHEAD means those items which may be included in the Contractor's markup (general and administrative expense and profit) and that shall not be charged as Direct Cost of the Work, including without limitation such Overhead expenses as Corporate Activity Tax, wages or salary of personnel above the level of foreman (i.e., superintendents and project managers), expenses of Contractor's offices at the job site (e.g. job trailer) including expenses of personnel staffing the job site office, and Commercial General Liability Insurance and Automobile Liability Insurance.

OWNER means Jackson County School District No. 6, aka Central Point School District 6.

OWNER'S AUTHORIZED REPRESENTATIVE means those individuals identified in writing by the Owner to act on behalf of the Owner for this project. Owner may elect, by written notice to Contractor, to delegate certain duties of the Owner's Authorized Representative to more than one party, including without limitation, to an Architect/Engineer. However, nothing in these General Conditions is intended to abrogate the separate design professional responsibilities of Architects under ORS Chapter 671 or of Engineers under ORS Chapter 672.

PERSON means an entity doing business as a sole proprietorship, a partnership, a joint venture, a corporation, a limited liability company or partnership, or any other entity possessing the legal capacity to contract.

PLANS means the drawings which show the location, type, dimensions, and details of the Work to be done under the Contract.

PUBLIC IMPROVEMENT CONTRACT means a public contract for a public improvement. "Public improvement contract" does not include a public contract for emergency work, minor alterations, or ordinary repair or maintenance necessary to preserve a public improvement. (See ORS 279A.010(1)(bb)).

PUNCHLIST means the list of Work yet to be completed or deficiencies which need to be corrected in order to achieve Final Completion of the Contract.

RECORD DOCUMENT means the as-built Plans, Specifications, testing and inspection records, product data, samples, manufacturer and distributor/supplier warranties evidencing transfer to Owner, operational and maintenance manuals, shop drawings, Change Orders, correspondence, certificate(s) of occupancy, and other documents listed in Subsection B.9.1 of these General Conditions, recording all Services performed.

SOLICITATION DOCUMENT means an invitation to bid or request for proposal or request for quotes.

SPECIFICATION means any description of the physical or functional characteristics of the Work, or of the nature of a supply, service or construction item. Specifications may include a description of any requirement for inspecting, testing or preparing a supply, service or construction item for delivery and the quantities or qualities of materials to be furnished under the Contract. Specifications generally will state the results or products to be obtained and may, on occasion, describe the method and manner of doing the work to be performed. Specifications may be incorporated by reference and/or may be attached to the Contract.

SUBCONTRACTOR means a Person having a direct contract with the Contractor, or another Subcontractor, to perform one or more items of the Work.

SUBSTANTIAL COMPLETION means the date when the Owner accepts in writing the construction, alteration or repair of the improvement to real property or any designated portion thereof as having reached that state of completion when it may be used or occupied for its intended purpose. Substantial Completion of operation or control systems will occur when all controlled system operate as intended for 7 continuous calendar days. Commissioning, seasonal adjustments and tuning of the system may occur after Substantial Completion.

SUBSTITUTIONS means items that in function, performance, reliability, quality, and general configuration are the same or better than the product(s) specified. Approval of any substitute item shall be solely determined by the Owner's Authorized Representative. The decision of the Owner's Authorized Representative is final.

SUPPLEMENTAL GENERAL CONDITIONS means those conditions that remove from, add to, or modify these General Conditions. Supplemental General Conditions may be included in the Solicitation Document or may be a separate attachment to the Contract.

WORK means the furnishing of all materials, equipment, labor, transportation, services and incidentals necessary to successfully complete any individual item or the entire Contract and the carrying out of duties and obligations imposed by the Contract Documents.

A.2 SCOPE OF WORK

The Work contemplated under this Contract includes all labor, materials, transportation, equipment and services for, and incidental to, the completion of all construction work in connection with the project described in the Contract Documents. The Contractor shall perform all Work necessary so that the project can be legally occupied and fully used for the intended use as set forth in the Contract Documents.

A.3 RESERVED

A.4 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE

- A.4.1 It is understood that the Contractor, before submitting an Offer, has made a careful examination of the Contract Documents; has become fully informed as to the quality and quantity of materials and the character of the Work required; and has made a careful examination of the location and conditions of the Work and the sources of supply for materials. The Owner will in no case be responsible for any loss or for any unanticipated costs that may be suffered by the Contractor as a result of the Contractor's failure to acquire full information in advance in regard to all conditions pertaining to the Work. No oral agreement or conversation with any officer, agent, or personnel of the Owner, or with the Architect/ Engineer either before or after the execution of this Contract, shall affect or modify any of the terms or obligations herein contained. It is anticipated specific work will be identified by Work Order and will not be subject to the conditions of this sub-section.
- A.4.2 Should the Plans or Specifications fail to particularly describe the materials, kind of goods, or details of construction of any aspect of the Work, Contractor shall have the duty to make inquiry of the Owner and Architect/Engineer as to what is required prior to performance of the Work. Absent Specifications to the contrary, the materials or processes that would normally be used to produce first quality finished Work shall be considered a part of the Contract requirements.
- A.4.3 Any design errors or omissions noted by the Contractor shall be reported promptly to the Owner's Authorized Representative, including without limitation, any nonconformity with applicable laws, statutes, ordinances, building codes, rules and regulations.
- A.4.4 If the Contractor believes that additional cost or Contract Time is involved because of clarifications or instructions issued by the Owner's Authorized Representative (or Architect/Engineer) in response to the Contractor's notices or requests for information, the Contractor must submit a written request to the Owner's Authorized Representative, setting forth the nature and specific extent of the request, including all time and cost impacts against the Contract as soon as possible, but no later than thirty (30) Days after receipt by Contractor of the clarifications or instructions issued. If the Owner's Authorized Representative denies Contractor's request for additional compensation, additional Contract Time, or other relief that Contractor believes results from the clarifications or instructions, the Contractor may proceed to file a Claim under Section D.3, Claims Review Process. If the Contractor fails to perform the obligations of Sections A.4.1 to A.4.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations.

A.5 RESERVED

A.6 RETIREMENT SYSTEM STATUS AND TAXES

Contractor represents and warrants that it is not a contributing member of the Public Employees' Retirement System and will be responsible for any federal or state taxes applicable to payment received under this Contract. Contractor will not be eligible for any benefits from these Contract payments of federal Social Security, employment insurance, workers' compensation or the Public Employees' Retirement System, except as a self-employed individual. Unless the Contractor is subject to backup withholding, Owner will not withhold from such payments any amount(s) to cover Contractor's federal or state tax obligations.

A.7 GOVERNMENT EMPLOYMENT STATUS

- A.7.1 If this payment is to be charged against federal funds, Contractor represents and warrants that it is not currently employed by the Federal Government. This does not preclude the Contractor from holding another contract with the Federal Government.
- A.7.2 Contractor represents and warrants that Contractor is not an employee of Owner or the State of Oregon for purposes of performing Work under this Contract.

SECTION B ADMINISTRATION OF THE CONTRACT

B.1 OWNER'S ADMINISTRATION OF THE CONTRACT

- B.1.1 The Owner's Authorized Representative will provide administration of the Contract as described in the Contract Documents (1) during construction (2) until final payment is due and (3) during the one-year period for correction of Work. The Owner's Authorized Representative will act on behalf of the Owner to the extent provided in the Contract Documents, unless modified in writing in accordance with other provisions of the Contract. In performing these tasks, the Owner's Authorized Representative may rely on the Architect/ Engineer or other consultants to perform some or all of these tasks.
- B.1.2 The Owner's Authorized Representative will not make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Owner's Authorized Representative will neither have control over or charge of, nor be responsible for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work.
- B.1.3 Except as otherwise provided in the Contract Documents or when direct communications have been specifically authorized, the Owner and Contractor shall endeavor to communicate with each other through the Owner's Authorized Representative or designee about matters arising out of or relating to the Contract. Communications by and with the Architect/Engineer's consultants shall be through the Architect/Engineer. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner's Authorized Representative.
- B.1.4 Based upon the Architect/Engineer's evaluations of the Contractor's Application for Payment, or unless otherwise stipulated by the Owner's Authorized Representative, the Architect/Engineer will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

B.2 CONTRACTOR'S MEANS AND METHODS; MITIGATION OF IMPACTS

- B.2.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures.
- B.2.2 The Contractor is responsible to protect and maintain the Work during the course of construction and to mitigate any adverse impacts to the project, including those caused by authorized changes, which may affect cost, schedule, or quality.
- B.2.3 The Contractor is responsible for the actions of all its personnel, laborers, suppliers, and Subcontractors on the project. The Contractor shall enforce strict discipline and good order among Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of persons who are unfit or unskilled for the tasks assigned to them.

B.3 MATERIALS AND WORKMANSHIP

- B.3.1 The intent of the Contract Documents is to provide for the construction and completion in every detail of the Work described. All Work shall be performed in a professional manner and unless the means or methods of performing a task are specified elsewhere in the Contract Documents, Contractor shall employ methods that are generally accepted and used by the industry, in accordance with industry standards.
- B.3.2 The Contractor is responsible to perform the Work as required by the Contract Documents. Defective Work shall be corrected at the Contractor's expense.
- B.3.3 Work done and materials furnished shall be subject to inspection and/or observation and testing by the Owner's Authorized Representative to determine if they conform to the Contract Documents. Inspection of the Work by the Owner's Authorized Representative does not relieve the Contractor of responsibility for the Work in accordance with the Contract Documents.
- B.3.4 Contractor shall furnish adequate facilities, as required, for the Owner's Authorized Representative to have safe access to the Work including without limitation walkways, railings, ladders, tunnels, and platforms. Producers, suppliers, and fabricators shall also provide proper facilities and access to their facilities.
- B.3.5 The Contractor shall furnish Samples of materials for testing by the Owner's Authorized Representative and include the cost of the Samples in the Contract Price.

B.4 PERMITS

Contractor shall obtain and pay for all necessary permits and licenses, except for those specifically excluded in any Supplemental General Conditions, for the construction of the Work, for temporary obstructions, enclosures, opening of streets for pipes, walls, utilities, environmental Work, etc., as required for the project. Contractor shall be responsible for all violations of the law, in connection with the construction or caused by obstructing streets, sidewalks or otherwise. Contractor shall give all requisite notices to public authorities. The Contractor shall pay all royalties and license fees. The Contractor shall defend all suits or claims for infringement of any patent or other proprietary rights and save harmless and blameless from loss, on account thereof, the Owner and its directors, officers, agents and employees.

B.5 COMPLIANCE WITH GOVERNMENT LAWS AND REGULATIONS

- B.5.1 Contractor shall comply with all federal, state and local laws, codes, regulations and ordinances applicable to the Work and the Contract. Failure to comply with such requirements shall constitute a breach of Contract and shall be grounds for Contract termination. Without limiting the generality of the foregoing, Contractor expressly agrees to comply with the following as applicable: i) Title VI and VII of Civil Rights Act of 1964, as amended; (ii) Section 503 and 504 of the Rehabilitation Act of 1973, as amended; (iii) the

Health Insurance Portability and Accountability Act of 1996; (iv) the Americans with Disabilities Act of 1990, as amended; (v) ORS Chapter 659A; as amended (vi) all regulations and administrative rules established pursuant to the foregoing laws; and (vii) all other applicable requirements of federal and state civil rights and rehabilitation statutes, rules and regulations. Owner's performance under the Contract is conditioned upon Contractor's compliance with the provisions of ORS 279C.505, 279C.510, 279C.515, 279C.520, and 279C.530, which are incorporated by reference herein.

- B.5.2 Contractor shall comply with all applicable requirements of federal and state civil rights and rehabilitation statutes, rules and regulations; and
- (a) Contractor shall not discriminate against Disadvantaged, Minority, Women or Emerging Small Business enterprises, as those terms are defined in ORS 200.005, or a business enterprise that is owned or controlled by or that employs a disabled veteran, as that term is defined in ORS 408.225, in the awarding of subcontracts.
 - (b) Contractor shall maintain, in current and valid form, all licenses and certificates required by law, regulation, or this Contract when performing the Work.
- B.5.3 Unless contrary to federal law, Contractor shall certify that it shall not accept a bid from Subcontractors to perform Work as described in ORS 701.005 under this Contract unless such Subcontractors are registered with the Construction Contractors Board in accordance with ORS 701.035 to 701.055 at the time they submit their bids to the Contractor.
- B.5.4 Unless contrary to federal law, Contractor shall certify that each landscape contractor, as defined in ORS 671.520(2), performing Work under this Contract holds a valid landscape contractor's license issued pursuant to ORS 671.560.
- B.5.5 The following notice is applicable to Contractors who perform excavation Work. ATTENTION: Oregon law requires you to follow rules adopted by the Oregon Utility Notification Center. Those rules are set forth in OAR 952-001-0010 through OAR 952-001-0090. You may obtain copies of the rules by calling the center at (503)2321987.
- B.5.6 Failure to comply with any or all of the requirements of B.5.1 through B.5.5 shall be a breach of Contract and constitute grounds for Contract termination. Damages or costs resulting from such noncompliance shall be the responsibility of Contractor.

B.6 SUPERINTENDENCE

If required by Owner, Contractor shall keep on the site, during the progress of the Work, a competent superintendent and any necessary assistants who shall be satisfactory to the Owner and who shall represent the Contractor on the site. Directions given to the superintendent by the Owner's Authorized Representative shall be confirmed in writing to the Contractor.

B.7 INSPECTION

- B.7.1 Owner's Authorized Representative shall have access to the Work at all times.
- B.7.2 Inspection of the Work will be made by the Owner's Authorized Representative at its discretion. The Owner's Authorized Representative will have authority to reject Work that does not conform to the Contract Documents. Any Work found to be not in conformance with the Contract Documents, in the discretion of the Owner's Authorized Representative, shall be removed and replaced at the Contractor's expense.
- B.7.3 Contractor shall make or obtain at the appropriate time all tests, inspections and approvals of portions of the Work required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work. The Contractor shall give the Owner's Authorized Representative timely notice of when and where tests and inspections are to be made so that the Owner's Authorized Representative may be present for such procedures. Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Owner's Authorized Representative.
- B.7.4 As required by the Contract Documents, Work done or material used without inspection or testing by the Owner's Authorized Representative may be ordered removed at the Contractor's expense.
- B.7.5 If directed to do so any time before the Work is accepted, the Contractor shall uncover portions of the completed Work for inspection. After inspection, the Contractor shall restore such portions of Work to the standard required by the Contract. If the Work uncovered is unacceptable or was done without sufficient notice to the Owner's Authorized Representative, the uncovering and restoration shall be done at the Contractor's expense. If the Work uncovered is acceptable and was done with sufficient notice to the Owner's Authorized Representative, the uncovering and restoration will be paid for as a Change Order.
- B.7.6 If any testing or inspection reveals failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Owner's Authorized Representative's and Architect/Engineer's services and expenses, shall be at the Contractor's expense.
- B.7.7 When the United States government participates in the cost of the Work, or the Owner has an agreement with other public or private organizations, or if any portion of the Work is being performed for a third party or in close proximity to third party facilities, representatives of these organizations have the right to inspect the Work affecting their interests or property. Their right to inspect shall not make them a party to the Contract and shall not interfere with the rights of the parties of the Contract. Instructions or orders of such parties shall be transmitted to the Contractor, through the Owner's Authorized Representative.

B.8 RESERVED

B.9 ACCESS TO RECORDS

- B.9.1 Contractor shall keep, at all times on the Work site, one record copy of the complete Contract Documents, including the Plans, Specifications, Change Orders and addenda, in good order and marked currently to record field changes and selections made during construction, and one record copy of Shop Drawings, Product Data, Samples and similar submittals, and shall at all times give the Owner's Authorized Representative access thereto.
- B.9.2 Contractor shall retain and the Owner and its duly authorized representatives shall have access to, for a period not less than ten (10) years, all Record Documents, financial and accounting records, and other books, documents, papers and records of Contractor which are pertinent to the Contract including records pertaining to Overhead and indirect costs, for the purpose of making audit, examination, excerpts and transcripts. If for

any reason, any part of the Contract is involved in litigation, Contractor shall retain all such records until all litigation is resolved. The Owner and/or its agents shall continue to be provided full access to the records during litigation.

B.10 RESERVED

B.11 SUBCONTRACTS AND ASSIGNMENT

B.11.1 Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound by the terms and conditions of these General Conditions, and to assume toward the Contractor all of the obligations and responsibilities which the Contractor assumes toward the Owner thereunder, unless (1) the same are clearly inapplicable to the subcontract at issue because of legal requirements or industry practices, or (2) specific exceptions are requested by Contractor and approved in writing by Owner. Where appropriate, Contractor shall require each Subcontractor to enter into similar agreements with sub-subcontractors at any level.

B.11.2 At Owner's request, Contractor shall submit to Owner prior to their execution either Contractor's form of subcontract, or the subcontract to be executed with any particular Subcontractor. If Owner disapproves such form, Contractor shall not execute the form until the matters disapproved are resolved to Owner's satisfaction. Owner's review, comment upon or approval of any such form shall not relieve Contractor of its obligations under this Agreement or be deemed a waiver of such obligations of Contractor.

B.11.3 Contractor shall not assign, sell, or transfer its rights, or delegate its responsibilities under this Contract, in whole or in part, without the prior written approval of the Owner. No such written approval shall relieve Contractor of any obligations of this Contract, and any transferee shall be considered the agent of the Contractor and bound to perform in accordance with the Contract Documents. Contractor shall remain liable as between the original parties to the Contract as if no assignment had occurred.

B.12 RESERVED

B.13 OWNER'S RIGHT TO DO WORK

Owner reserves the right to perform other or additional work at or near the project site with other forces than those of the Contractor. If such work takes place within or next to the project site, Contractor will coordinate work with the other contractors or forces, cooperate with all other contractors or forces, carry out the Work in a way that will minimize interference and delay for all forces involved, place and dispose of materials being used so as not to interfere with the operations of another, and join the Work with the work of the others in an acceptable manner and perform it in proper sequence to that of the others. The Owner's Authorized Representative will resolve any disagreements that may arise between or among Contractor and the other contractors over the method or order of doing all work (including the Work). In case of unavoidable interference, the Owner's Authorized Representative will establish work priority (including the Work) which generally will be in the sequence that the contracts were awarded.

B.14 OTHER CONTRACTS

In all cases and at any time, the Owner has the right to execute other contracts related to or unrelated to the Work of this Contract. The Contractor of this Contract will fully cooperate with any and all other contractors without additional cost to the Owner in the manner described in section B.13.

B.15 GOVERNING LAW

This Contract shall be governed by and construed in accordance with the laws of the State of Oregon without regard to principles of conflict of laws.

B.16 LITIGATION

Any Claim between Owner and Contractor that arises from or relates to this Contract and that is not resolved through the Claims Review Process in Section D.3 shall be brought and conducted solely and exclusively within the Circuit Court of Jackson County for the State of Oregon; provided, however, if a Claim must be brought in a federal forum, then it shall be brought and conducted solely and exclusively within the United States District Court for the District of Oregon located in Medford, Oregon. In no event shall this section be construed as a waiver by Owner of any form of defense or immunity, whether governmental immunity or otherwise, from any claim or from the jurisdiction of any court. CONTRACTOR BY EXECUTION OF THIS CONTRACT HEREBY CONSENTS TO THE IN PERSONAM JURISDICTION OF THE COURTS REFERENCED IN THIS SECTION B.16.

B.17 ALLOWANCES

B.17.1 The Contractor shall include in the Contract Price all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct.

B.17.2 Unless otherwise provided in the Contract Documents:

- (a) when finally reconciled, allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- (b) Contractor's costs for unloading and handling at the site, labor, installation costs, Overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Price but not in the allowances;
- (c) whenever costs are more than or less than allowances, the Contract Price shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (i) the difference between actual costs and the allowances under Section B.17.2(a) and (2) changes in Contractor's costs under Section B.17.2(b).
- (d) Unless Owner requests otherwise, Contractor shall provide to Owner a proposed fixed price for any allowance work prior to its performance.

B.18 SUBMITTALS, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

B.18.1 The Contractor shall prepare and keep current, for the Architect's/ Engineer's approval (or for the approval of Owner's Authorized Representative if approval authority has not been delegated to the Architect/Engineer), a schedule and list of submittals which is coordinated with the Contractor's construction schedule and allows the Architect/Engineer reasonable time to review submittals. Owner reserves the right to finally approve the schedule and list of submittals. Submittals include, without limitation, Shop Drawings, Product Data, and Samples which are described below:

- (a) Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor (including any sub-subcontractor), manufacturer, supplier or distributor to illustrate some portion of the Work.
- (b) Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.
- (c) Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

B.18.2 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required by the Contract Documents the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents. Review of submittals by the Architect/Engineer is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, or for approval of safety precautions or, unless otherwise specifically stated by the Architect/Engineer, of any construction means, methods, techniques, sequences or procedures, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect/Engineer's review of the Contractor's submittals shall not relieve the Contractor of its obligations under the Contract Documents. The Architect/Engineer's approval of a specific item shall not indicate approval of an assembly of which the item is a component. Informational submittals upon which the Architect/Engineer is not expected to take responsive action may be so identified in the Contract Documents. Submittals which are not required by the Contract Documents may be returned by the Architect/Engineer without action.

B.18.3 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect/Engineer Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals which are not marked as reviewed for compliance with the Contract Documents and approved by the Contractor may be returned by the Architect/Engineer without action.

B.18.4 By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

B.18.5 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect/Engineer.

B.18.6 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect/Engineer's review or approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect/Engineer in writing of such deviation at the time of submittal and (i) the Architect/Engineer has given written approval to the specific deviation as a minor change in the Work, or (ii) a Change Order has been executed by Owner authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect/Engineer's review or approval thereof.

B.18.7 In the event that Owner elects not to have the obligations and duties described under this Section B.18 performed by the Architect/Engineer, or in the event no Architect/Engineer is employed by Owner on the project, all obligations and duties assigned to the Architect/Engineer hereunder shall be performed by the Owner's Authorized Representative.

B.19 SUBSTITUTIONS

The Contractor may make Substitutions only with the consent of the Owner, after evaluation by the Owner's Authorized Representative and only in accordance with a Change Order. Substitutions shall be subject to the requirements of the bid documents. By making requests for Substitutions, the Contractor represents that the Contractor has personally investigated the proposed substitute product; represents that the Contractor will provide the same warranty for the Substitution that the Contractor would for the product originally specified unless approved otherwise; certifies that the cost data presented is complete and includes all related costs under this Contract including redesign costs, and waives all claims for additional costs related to the Substitution which subsequently become apparent; and will coordinate the installation of the accepted Substitution, making such changes as may be required for the Work to be completed in all respects.

B.20 USE OF PLANS AND SPECIFICATIONS

Plans, Specifications and related Contract Documents furnished to Contractor by Owner or Owner's Architect/Engineer shall be used solely for the performance of the Work under this Contract. Contractor and its Subcontractors and suppliers are authorized to use and reproduce applicable portions of such documents appropriate to the execution of the Work, but shall not claim any ownership or other interest in them beyond the scope of this Contract, and no such interest shall attach. Unless otherwise indicated, all common law, statutory and other reserved rights, in addition to copyrights, are retained by Owner.

B.21 FUNDS AVAILABLE AND AUTHORIZED

Owner reasonably believes at the time of entering into this Contract that sufficient funds are available and authorized for expenditure to finance the cost of this Contract within the Owner's appropriation or limitation. Contractor understands and agrees that, to the extent that sufficient funds are not available and authorized for expenditure to finance the cost of this Contract, Owner's payment of amounts under this Contract attributable to Services performed after the last day of the current fiscal period for which funds have been allocated is contingent on Owner receiving appropriations, limitations or other expenditure authority sufficient to allow Owner, in the exercise of its reasonable administrative discretion, to continue to make payments under this Contract.

B.22 RESERVED

SECTION C WAGES AND LABOR

C.1 MINIMUM WAGE RATES ON PUBLIC WORKS

Contractor shall comply fully with the provisions of ORS 279C.800 through 279C.870. Documents establishing those conditions, as determined by the Commissioner of the Bureau of Labor and Industries (BOLI), are included as attachments to or are incorporated by reference in the Contract Documents. Contractor shall pay workers at not less than the specified minimum hourly rate of wage, and shall include that requirement in all subcontracts.

C.2 PAYROLL CERTIFICATION; ADDITIONAL RETAINAGE; FEE REQUIREMENTS

C.2.1 In accordance with ORS 279C.845, the Contractor and every Subcontractor shall submit written certified statements to the Owner's Authorized Representative, on the form prescribed by the Commissioner of the Bureau of Labor and Industries, certifying the hourly rate of wage paid each worker which the Contractor or the Subcontractor has employed on the project and further certifying that no worker employed on the project has been paid less than the prevailing rate of wage or less than the minimum hourly rate of wage specified in the Contract, which certificate and statement shall be verified by the oath of the Contractor or the Subcontractor that the Contractor or Subcontractor has read the certified statement, that the Contractor or Subcontractor knows the contents of the certified statement and that to the Contractor's or Subcontractor's best knowledge and belief the certified

statement is true. The certified statements shall set out accurately and completely the payroll records for the prior week including the name and address of each worker, the worker's correct classification, rate of pay, daily and weekly number of hours worked, deductions made and actual wages paid. Certified statements for each week during which the Contractor or Subcontractor has employed a worker on the project shall be submitted once a month, by the fifth business day of the following month.

The Contractor and Subcontractors shall preserve the certified statements for a period of ten (10) years from the date of completion of the Contract.

C.2.2 Pursuant to ORS 279C.845(7), the Owner shall retain 25 percent of any amount earned by the Contractor on this public works project until the Contractor has filed the certified statements required by section C.2.1. The Owner shall pay to the Contractor the amount retained under this subsection within 14 days after the Contractor files the required certified statements, regardless of whether a Subcontractor has failed to file certified statements.

C.2.3 Pursuant to ORS 279C.845(8), the Contractor shall retain 25 percent of any amount earned by a first-tier Subcontractor on this public works project until the first-tier Subcontractor has filed with the Owner the certified statements required by C.2.1. Before paying any amount retained under this subsection, the Contractor shall verify that the first-tier Subcontractor has filed the certified statement. Within 14 days after the first-tier Subcontractor files the required certified statement the Contractor shall pay the first-tier Subcontractor any amount retained under this subsection.

C.2.4 In accordance with statutory requirements, and administrative rules promulgated by the Commissioner of the Bureau of Labor and Industries, the fee required by ORS 279C.825(1) will be paid by Owner to the Commissioner.

C.3 PROMPT PAYMENT AND CONTRACT CONDITIONS

C.3.1 Pursuant to ORS 279C.505 and as a condition to Owner's performance hereunder, the Contractor shall:

C.3.1.1 Make payment promptly, as due, to all persons supplying to Contractor labor or materials for the prosecution of the Work provided for in this Contract.

C.3.1.2 Pay all contributions or amounts due the State Industrial Accident Fund from such Contractor or Subcontractor incurred in the performance of the Contract.

C.3.1.3 To the extent timely payment is received, Contractor shall not permit any lien or claim to be filed or prosecuted against the Owner on account of any labor or material furnished. Contractor will not assign any claims that Contractor has against Owner, or assign any sums due by Owner, to Subcontractors, suppliers, or manufacturers, and will not make any agreement or act in any way to give Subcontractors a claim or standing to make a claim against the Owner.

C.3.1.4 Pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.

C.3.1.5 Demonstrate that an employee drug testing program is in place as follows:

(a) Contractor represents and warrants that Contractor has in place at the time of the execution of this Contract, and shall maintain during the term of this Contract, a Qualifying Employee Drug Testing Program for its employees that includes, at a minimum, the following:

(1) A written employee drug testing policy,

(2) Required drug testing for all new Subject Employees or, alternatively, required testing of all Subject Employees every 12 months on a random selection basis, and

(3) Required testing of a Subject Employee when the Contractor has reasonable cause to believe the Subject Employee is under the influence of drugs.

A drug testing program that meets the above requirements will be deemed a "Qualifying Employee Drug Testing Program." For the purposes of this section, an employee is a "Subject Employee" only if that employee will be working on the project job site.

(b) Contractor shall require each Subcontractor providing labor for the project to:

(1) Demonstrate to the Contractor that it has a Qualifying Employee Drug Testing Program for the Subcontractor's Subject Employees, and represent and warrant to the Contractor that the Qualifying Employee Drug Testing Program is in place at the time of subcontract execution and will continue in full force and effect for the duration of the subcontract, or

(2) Require that the Subcontractor's Subject Employees participate in the Contractor's Qualifying Employee Drug Testing Program for the duration of the subcontract.

C.3.2 Pursuant to ORS 279C.515, and as a condition to Owner's performance hereunder, Contractor agrees:

C.3.2.1 If Contractor fails, neglects or refuses to pay promptly a person's claim for labor or services that the person provides to the Contractor or a Subcontractor in connection with the project as such claim becomes due, the proper officer that represents the Owner may pay the amount of the claim and charge the amount of the payment against funds due or to become due Contractor under this Contract. Paying a claim in this manner shall not relieve the Contractor or the Contractor's surety from obligation with respect to an unpaid claim.

C.3.2.2 If the Contractor or a first-tier Subcontractor fails, neglects or refuses to pay a person that provides labor or materials in connection with the public contract for a public improvement within thirty (30) Days after receiving payment from Owner or a contractor, the contractor or first-tier Subcontractor owes the person the amount due plus interest charges that begin at the end of the 10-Day period within which payment is due under ORS 279C.580(3) and that end upon final payment, unless payment is subject to a good faith dispute as defined in ORS 279C.580. The rate of interest on the amount due is nine percent per annum. The amount of interest may not be waived.

C.3.2.3 If the Contractor or a Subcontractor fails, neglects or refuses to pay a person that provides labor or materials in connection with the Contract, the person may file a complaint with the Construction Contractors Board, unless payment is subject to a good faith dispute as defined in ORS 279C.580. Every contract related to this Contract must contain a similar clause.

C.3.3 Pursuant to ORS 279C.580, Contractor shall include in each subcontract for property or services the Contractor enters into with a first-tier Subcontractor, including a material supplier, for the purpose of performing a construction contract:

(a) A payment clause that obligates the Contractor to pay the first-tier Subcontractor for satisfactory performance under the subcontract within ten (10) Days out of amounts the Owner pays to the Contractor under the Contract;

- (b) A clause that requires the Contractor to provide the first-tier Subcontractor with a standard form that the first-tier Subcontractor may use as an application for payment or as another method by which the Subcontractor may claim a payment due from the Contractor;
- (c) A clause that requires the Contractor, except as otherwise provided in this paragraph, to use the same form and regular administrative procedures for processing payments during the entire term of the subcontract. The Contractor may change the form or the regular administrative procedures the Contractor uses for processing payments if the Contractor:
 - (1) Notifies the Subcontractor in writing at least 45 days before the date on which the Contractor makes the change; and
 - (2) Includes with the written notice a copy of the new or changed form or a description of the new or changed procedure.
- (d) An interest penalty clause that obligates the Contractor, if the Contractor does not pay the first-tier Subcontractor within thirty (30) Days after receiving payment from Owner, to pay the first-tier Subcontractor an interest penalty on amounts due in each payment the Contractor does not make in accordance with the payment clause included in the subcontract under paragraph (a) of this subsection. Contractor or first-tier Subcontractor is not obligated to pay an interest penalty if the only reason that the Contractor or first-tier Subcontractor did not make payment when payment was due is that the Contractor or first-tier Subcontractor did not receive payment from Owner or Contractor when payment was due. The interest penalty applies to the period that begins on the day after the required payment date and that ends on the date on which the amount due is paid; and is computed at the rate specified in ORS 279C.515(2).
- (e) A clause which requires each of Contractor's Subcontractors to include, in each of their contracts with lower-tier Subcontractors or suppliers, provisions to the effect that the first-tier Subcontractor shall pay its lower-tier Subcontractors and suppliers in accordance with the provisions of paragraphs (a) through (d) above and requiring each of their Subcontractors and suppliers to include such clauses in their subcontracts and supply contracts.

C.3.4 All employers, including Contractor, that employ subject workers who work under this contract in the State of Oregon shall comply with ORS 656.017 and provide the required Workers' Compensation coverage, unless such employers are exempt under ORS 656.126. Contractor shall ensure that each of its Subcontractors complies with these requirements.

C.4 PAYMENT FOR MEDICAL CARE

Pursuant to ORS 279C.530, and as a condition to Owner's performance hereunder, Contractor shall promptly, as due, make payment to any person, partnership, association or corporation furnishing medical, surgical, and hospital care or other needed care and attention, incident to sickness or injury, to the employees of such Contractor, all sums of which the Contractor agrees to pay for such services and all moneys and sums which the Contractor has collected or deducted from the wages of personnel pursuant to any law, contract or agreement for the purpose of providing or paying for such services.

C.5 HOURS OF LABOR

As a condition to Owner's performance hereunder, Contractor shall comply with ORS 279C.520, as amended from time to time and incorporated herein by this reference:

Pursuant to ORS 279C.520 and as a condition to Owner's performance hereunder, no person shall be employed to perform Work under this Contract for more than ten (10) hours in any one day or forty (40) hours in any one week, except in cases of necessity, emergency or where public policy absolutely requires it. In such instances, Contractor shall pay the employee at least time and a half pay:

- (a) For all overtime in excess of eight (8) hours a day or forty (40) hours in any one week when the work week is five consecutive Days, Monday through Friday; or
- (b) For all overtime in excess of ten (10) hours a day or forty (40) hours in any one week when the work week is four consecutive Days, Monday through Friday; and
- (c) For all Work performed on Saturday and on any legal holiday specified in ORS 279C.540.

This section C.5 will not apply to Contractor's Work under this Contract if Contractor is currently a party to a collective bargaining agreement with any labor organization.

This Section C.5 shall not excuse Contractor from completion of the Work within the time required under this Contract.

SECTION D CHANGES IN THE WORK

D.1 CHANGES IN WORK

D.1.1 The terms of this Contract shall not be waived, altered, modified, supplemented or amended in any manner whatsoever without prior written approval of the Owner's Authorized Representative, and then only in a manner consistent with the Change Order provisions of this Section D.1 and after any necessary approvals required by public contracting laws have been obtained. Otherwise, a formal contract amendment is required, which shall not be effective until its execution by the parties to this Contract and all approvals required by public contracting laws have been obtained.

D.1.2 It is mutually agreed that changes in Plans, quantities, or details of construction are inherent in the nature of construction and may be necessary or desirable during the course of construction. Within the general scope of this Contract, the Owner's Authorized Representative may at any time, without notice to the sureties and without impairing the Contract, require changes consistent with this Section D.1. All Change Order Work shall be executed under the conditions of the Contract Documents. Such changes may include, but are not limited to:

- (a) Modification of specifications and design.
- (b) Increases or decreases in quantities.
- (c) Increases or decreases to the amount of Work.
- (d) Addition or elimination of any Work item.
- (e) Change in the duration of the project.
- (f) Acceleration or delay in performance of Work.
- (g) Deductive changes.

Deductive changes are those that reduce the scope of the Work, and shall be made by mutual agreement whenever feasible, as determined by Owner. In cases of suspension or partial termination under Section J, Owner reserves the right to unilaterally impose a deductive change and to self-perform such Work, for which the provisions of B.13 (Owner's Right to Do Work) shall then apply.

Adjustments in compensation shall be made under the provisions of D.1.3, in which costs for deductive changes shall be based upon a Direct Costs adjustment together with the related percentage markup specified for profit, Overhead and other indirect costs, unless otherwise agreed to by Owner.

D.1.3 The Owner and Contractor agree that Change Order Work shall be administered and compensated according to the following:

- (a) Unit pricing may be utilized at the Owner's option when unit prices or solicitation alternates were provided that established the cost for additional Work, and a binding obligation exists under the Contract on the parties covering the terms and conditions of the additional Work.
- (b) If the Owner elects not to utilize unit pricing, or in the event that unit pricing is not available or appropriate, fixed pricing may be used for Change Order Work. In fixed pricing the basis of payments or total price shall be agreed upon in writing between the parties to the Contract, and shall be established before the Work is done whenever feasible. The mark-ups set forth in D.1.3(c) shall be utilized by the parties as a guide in establishing fixed pricing, and will not be exceeded by Owner without adequate justification. Cost and price data relating to Change Orders shall be supplied by Contractor to Owner upon request, but Owner shall be under no obligation to make such requests.
- (c) In the event that unit pricing and fixed pricing are not utilized, then Change Order Work shall be performed on a cost reimbursement basis for Direct Costs. Such Work shall be compensated on the basis of the actual, reasonable and allowable cost of labor, equipment, and material furnished on the Work performed. Direct costs for labor shall not exceed the labor rate given in the applicable BOLI Prevailing Wage Rates, increased by no more than 60% to cover associated labor burden, and only for the level of service necessary to perform the Work, unless the Work is incidental to other activities being performed by workers already engaged at the site. In addition, the following markups shall be added to the Subcontractor's Direct Costs as full compensation for profit, Overhead and other indirect costs for Work directly performed with the Subcontractor's own forces:

On Labor.....	15%
On Equipment.....	10%
On Materials	10%

When Change Order Work under D.1.3(c) is invoiced by an authorized Subcontractor at any level, each ascending tier Subcontractor or Contractor will be allowed a 5% supplemental mark-up on each piece of subcontract Work covered by such Change Order, unless otherwise stipulated in the Agreement.

Payments made to the Contractor shall be complete compensation for Overhead, profit, and all costs that were incurred by the Contractor or by other forces furnished by the Contractor, including Subcontractors, for Change Order Work. Owner may establish a maximum cost for Change Order Work under this Section D.1.3(c), which shall not be exceeded for reimbursement without additional written authorization from Owner. Contractor shall not be required to complete such Change Order Work without additional authorization.

D.1.4 Any necessary adjustment of Contract Time that may be required as a result of a Change Order must be agreed upon by the parties before the start of the Change Order Work unless Owner's Authorized Representative authorizes Contractor to start the Work before agreement on Contract Time adjustment. Contractor shall submit any request for additional compensation (and additional Contract Time if Contractor was authorized to start Work before an adjustment of Contract Time was approved) as soon as possible but no later than thirty (30) Days after receipt of the Change Order. If Contractor's request for additional compensation or adjustment of Contract Time is not made within the thirty (30) day time limit, Contractor's requests pertaining to that Change Order are barred. The thirty (30) day time limit for making requests shall not be extended for any reason, including without limitation Contractor's claimed inability to determine the amount of additional compensation or adjustment of Contract Time, unless an extension is granted in writing by Owner. If the Owner's Authorized Representative denies Contractor's request for additional compensation or adjustment of Contract Time, Contractor may proceed to file a Claim under Section D.3, Claims Review Process. No other reimbursement, compensation, or payment will be made, except as provided in Section D.1.5 for impact claims.

D.1.5 If any Change Order Work under Section D.1.3 causes an increase or decrease in the Contractor's cost of, or the Contract Time required for the performance of, any other part of the Work under this Contract, the Contractor must submit a written request to the Owner's Authorized Representative, setting forth the nature and specific extent of the request, including all time and cost impacts against the Contract as soon as possible, but no later than thirty (30) Days after receipt of the Change Order by Contractor.

The thirty (30) day time limit applies to claims of Subcontractors, suppliers, or manufacturers that may be affected by the Change Order and that request additional compensation or an extension of Contract Time to perform; Contractor has responsibility for contacting its Subcontractors, suppliers, or manufacturers within the thirty (30) day time limit, and including their requests with Contractor's requests. If the request involves Work to be completed by Subcontractors, or materials to be furnished by suppliers or manufacturers, such requests shall be submitted to the Contractor in writing with full analysis and justification for the compensation and additional Contract Time requested. The Contractor will analyze and evaluate the merits of the requests submitted by Subcontractors, suppliers, and manufacturers to Contractor prior to including those requests and Contractor's analysis and evaluation of those requests with Contractor's requests for additional compensation or Contract Time that Contractor submits to the Owner's Authorized Representative. Failure of Subcontractors, suppliers, manufacturers or others to submit their requests to Contractor for inclusion with Contractor's requests submitted to Owner's Authorized Representative within the time period and by the means described in this section shall constitute a waiver of these Subcontractor claims. The Owner's Authorized Representative and the Owner will not consider direct requests or claims from Subcontractors, suppliers, manufacturers or others not a party to this Contract. The consideration of such requests and claims under this section does not give any person, not a party to the Contract the right to bring a claim against Owner, whether in this claims process, in litigation, or in any dispute resolution process.

If the Owner's Authorized Representative denies the Contractor's request for additional compensation or an extension of Contract Time, the Contractor may proceed to file a Claim under Section D.3, Claims Review Process.

D.1.6 No request or Claim by the Contractor for additional costs or an extension of Contract Time shall be allowed if made after receipt of final payment application under this Contract. Contractor agrees to submit its final payment application within ninety (90) days after Substantial Completion, unless written extension is granted by Owner. Contractor shall not delay final payment application for any reason, including without limitation nonpayment of Subcontractors, suppliers, manufacturers or others not a party to this Contract, or lack of resolution of a dispute with Owner or any other person of matters arising out of or relating to the Contract. If Contractor fails to submit its final payment application within ninety (90) days after Substantial Completion, and Contractor has not obtained written extension by Owner, all requests or Claims for additional costs or an extension of Contract Time shall be waived.

D.1.7 It is understood that changes in the Work are inherent in construction of this type. The number of changes, the scope of those changes, and the effect they have on the progress of the original Work cannot be defined at this time. The Contractor is notified that numerous changes may be required and that there will be no compensation made to the Contractor directly related to the number of changes. Each change will be evaluated for extension of Contract Time and increase or decrease in compensation based on its own merit.

D.2 DELAYS

D.2.1 Delays in construction include "Avoidable Delays", which are defined in Section D.2.1.1, and "Unavoidable Delays", which are defined in Section D.2.1.2. The effect of Avoidable Delays is described in Section D.2.2 and the effect of Unavoidable Delays is described in Section D.2.3.

D.2.1.1 Avoidable Delays include any delays other than Unavoidable Delays, and include delays that otherwise would be considered Unavoidable Delays but that:

- (a) Could have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or its Subcontractors.
- (b) Affect only a portion of the Work and do not necessarily prevent or delay the prosecution of other parts of the Work nor the completion of the whole Work within the Contract Time.
- (c) Do not impact activities on the accepted critical path schedule.
- (d) Are associated with the reasonable interference of other contractors employed by the Owner that do not necessarily prevent the completion of the whole Work within the Contract Time.

D.2.1.2 Unavoidable Delays include delays other than Avoidable Delays that are:

- (a) Caused by any actions of the Owner, Owner's Authorized Representative, or any other employee or agent of the Owner, or by separate contractor employed by the Owner.
- (b) Caused by any site conditions which differ materially from what was represented in the Contract Documents or from conditions that would normally be expected to exist and be inherent to the construction activities defined in the Contract Documents. The Contractor shall notify the Owner's Authorized Representative immediately of differing site conditions before the area has been disturbed. The Owner's Authorized Representative will investigate the area and make a determination as to whether or not the conditions differ materially from either the conditions stated in the Contract Documents or those which could reasonably be expected in execution of this particular Contract. If Contractor and the Owner's Authorized Representative agree that a differing site condition exists, any additional compensation or additional Contract Time will be determined based on the process set forth in Section D.1.5 for Change Order Work. If the Owner's Authorized Representative disagrees that a differing site condition exists and denies Contractor's request for additional compensation or Contract Time, Contractor may proceed to file a Claim under Section D.3, Claims Review Process.
- (c) Caused by Force Majeure acts, events or occurrences that could not have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or its Subcontractors.
- (d) Caused by adverse weather conditions. Any adverse weather conditions must be substantiated by documentary evidence that weather conditions were abnormal for the specific time period claimed, could not have been anticipated by the Contractor, and adversely impacted the project in a manner that could not be avoided by rescheduling the Work or by implementing measures to protect against the weather so that the Work could proceed. A rain, windstorm, high water, or other natural phenomenon for the specific locality of the Work, which might reasonably have been anticipated from the previous 10-year historical records of the general locality of the Work, shall not be construed as abnormal. The parties agree that rainfall greater than the following levels cannot be reasonably anticipated:
 - (i) Daily rainfall equal to, or greater than, 0.50 inch during a month when the monthly rainfall exceeds the normal monthly average by twenty-five percent (25 %) or more.
 - (ii) daily rainfall equal to, or greater than, 0.75 inch at any time.

The Office of the Environmental Data Service of the National Oceanic and Atmospheric Administration of the U.S. Department of Commerce nearest the project site shall be considered the official agency of record for weather information.

D.2.2 Except as otherwise provided in ORS 279C.315, Contractor shall not be entitled to additional compensation or additional Contract Time for Avoidable Delays.

D.2.3 In the event of Unavoidable Delays, based on principles of equitable adjustment, Contractor may be entitled to the following:

- (a) Contractor may be entitled to additional compensation or additional Contract Time, or both, for Unavoidable Delays described in Section D.2.1.2 (a) and (b).
- (b) Contractor may be entitled to additional Contract Time for Unavoidable Delays described in Section D.2.1.2(c) and (d).

In the event of any requests for additional compensation or additional Contract Time, or both, as applicable, arising under this Section D.2.3 for Unavoidable Delays, other than requests for additional compensation or additional Contract Time for differing site conditions for which a review process is established under Section D.2.1.2 (b), Contractor shall submit a written notification of the delay to the Owner's Authorized Representative within two (2) Days of the occurrence of the cause of the delay. This written notification shall state the cause of the potential delay, the project components impacted by the delay, and the anticipated additional Contract Time or the additional compensation, or both, as applicable, resulting from the delay. Within seven (7) Days after the cause of the delay has been mitigated, or in no case more than thirty (30) Days after the initial written notification, the Contractor shall submit to the Owner's Authorized Representative, a complete and detailed request for additional compensation or additional Contract Time, or both, as applicable, resulting from the delay.

If the Owner's Authorized Representative denies Contractor's request for additional compensation or adjustment of Contract Time, the Contractor may proceed to file a Claim under Section D.3, Claims Review Process. If Contractor does not timely submit the notices required under this Section D.2., then unless otherwise prohibited by law, Contractor's Claim shall be barred.

D.3 CLAIMS REVIEW PROCESS

D.3.1 All Contractor Claims shall be referred to the Owner's Authorized Representative for review. Contractor's Claims, including Claims for additional compensation or additional Contract Time, shall be submitted in writing by Contractor to the Owner's Authorized Representative within five (5) Days after a denial of Contractor's initial request for an adjustment of Contract terms, payment of money, extension of Contract Time or other relief, provided that such initial request has been submitted in accordance with the requirements and within the time limits established in these General

Conditions. Within thirty (30) Days after the initial Claim, Contractor shall submit to the Owner's Authorized Representative, a complete and detailed description of the Claim (the "Detailed Notice") that includes all information required by Section D.3.2. Unless the Claim is made in accordance with these time requirements, it shall be waived.

- D.3.2 The Detailed Notice of the Claim shall be submitted in writing by Contractor and shall include a detailed, factual statement of the basis of the Claim, pertinent dates, Contract provisions which support or allow the Claim, reference to or copies of any documents which support the Claim, the dollar value of the Claim, and the Contract Time extension requested for the Claim. If the Claim involves Work to be completed by Subcontractors, the Contractor will analyze and evaluate the merits of the Subcontractor claim prior to forwarding it and that analysis and evaluation to the Owner's Authorized Representative. The Owner's Authorized Representative and the Owner will not consider direct claims from Subcontractors, suppliers, manufacturers, or others not a party to this Contract. Contractor agrees that it will make no agreement, covenant, or assignment, nor will it commit any other act that will permit or assist any Subcontractor, supplier, manufacturer, or other to directly or indirectly make a claim against Owner.
- D.3.3 The Owner's Authorized Representative will review all Claims and take one or more of the following preliminary actions within ten (10) Days of receipt of the Detailed Notice of a Claim: (1) request additional supporting information from the Contractor; (2) inform the Contractor and Owner in writing of the time required for adequate review and response; (3) reject the Claim in whole or in part and identify the reasons for rejection; (4) based on principles of equitable adjustment, recommend approval of all or part of the Claim; or (5) propose an alternate resolution.
- D.3.4 The Owner's Authorized Representative's decision shall be final and binding on the Contractor unless appealed by written notice to the Owner within fifteen (15) Days of receipt of the decision. The Contractor must present written documentation supporting the Claim within fifteen (15) Days of the notice of appeal. After receiving the appeal documentation, the Owner shall review the materials and render a decision within thirty (30) Days after receiving the appeal documents.
- D.3.5 The decision of the Owner shall be final and binding unless the Contractor delivers to the Owner its requests for mediation, which shall be a non-binding process, within fifteen (15) Days of the date of the Owner's decision. The mediation process will be considered to have commenced as of the date the Contractor delivers the request. Both parties acknowledge and agree that participation in mediation is a prerequisite to commencement of litigation of any disputes relating to the Contract. Both parties further agree to exercise their best efforts in good faith to resolve all disputes within sixty (60) Days of the commencement of the mediation through the mediation process set forth herein.
- In the event that a lawsuit must be filed within this sixty (60) day period in order to preserve a cause of action, the parties agree that notwithstanding the filing, they shall proceed diligently with the mediation to its conclusion prior to actively prosecuting the lawsuit, and shall seek from the Court in which the lawsuit is pending such stays or extensions, including the filing of an answer, as may be necessary to facilitate the mediation process. Further, in the event settlements are reached on any issues through mediation, the parties agree to promptly submit the appropriate motions and orders documenting the settlement to the Court for its signature and filing.
- D.3.6 The mediator shall be an individual mutually acceptable to both parties, but in the absence of agreement each party shall select a temporary mediator and the temporary mediators shall jointly select the permanent mediator. Each party shall pay its own costs for the time and effort involved in mediation. The cost of the mediator shall be split equally between the two parties. Both parties agree to exercise their best effort in good faith to resolve all disputes in mediation. Participation in mediation is a mandatory requirement of both the Owner and the Contractor. The schedule, time and place for mediation will be mutually acceptable, or, failing mutual agreement, shall be as established by the mediator. The parties agree to comply with Owner's administrative rules governing the confidentiality of mediation, if any, and shall execute all necessary documents to give effect to such confidentiality rules. In any event, the parties shall not subpoena the mediator or otherwise require the mediator to produce records, notes or work product, or to testify in any future proceedings as to information disclosed or representations made in the course of mediation, except to the extent disclosure is required by law.
- D.3.7 Owner may at any time and at its discretion issue a construction change directive adding to, modifying or reducing the scope of Work. Contractor and Owner shall negotiate the need for any additional compensation or additional Contract Time related to the change, subject to the procedures for submitting requests or Claims for additional compensation or additional Contract Time established in this Section D. Unless otherwise directed by Owner's Authorized Representative, Contractor shall proceed with the Work while any request or Claim is pending, including but not limited to, a request or Claim for additional compensation or additional Contract Time resulting from Work under a Change Order or construction change directive. Regardless of the review period or the final decision of the Owner's Authorized Representative, the Contractor shall continue to diligently pursue the Work as identified in the Contract Documents. In no case is the Contractor justified or allowed to cease Work without a written stop work order from the Owner or Owner's Authorized Representative.

SECTION E PAYMENTS

E.1 SCHEDULE OF VALUES

The Contractor shall submit, at least ten (10) Days prior to submission of its first application for progress payment, a schedule of values ("Schedule of Values") for the contracted Work. This schedule will provide a breakdown of values for the contracted Work and will be the basis for progress payments. The breakdown will demonstrate reasonable, identifiable, and measurable components of the Work. Unless objected to by the Owner's Authorized Representative, this schedule shall be used as the basis for reviewing Contractor's applications for payment. If objected to by Owner's Authorized Representative, Contractor shall revise the schedule of values and resubmit the same for approval of Owner's Authorized Representative.

E.2 APPLICATIONS FOR PAYMENT

- E.2.1 Owner shall make progress payments on the Contract monthly as Work progresses. Payments shall be based upon estimates of Work completed and the Schedule of Values. All payments shall be approved by the Owner's Authorized Representative. A progress payment shall not be considered acceptance or approval of any Work or waiver of any defects therein. Owner shall pay to Contractor interest on the progress payment, not including retainage, due the Contractor. The interest shall commence thirty (30) Days after the receipt of invoice ("application for payment") from the Contractor or fifteen (15) Days after the payment is approved by the Owner's Authorized Representative, whichever is the earlier date. The rate of interest shall be two-thirds of one percent (.00667%) per month. Notwithstanding the foregoing, in instances when an application for payment is filled out incorrectly, or when there is any defect or impropriety in any submitted application or when there is a good faith dispute, Owner shall so notify the Contractor within fifteen (15) Days stating the reason or reasons the application for payment is defective or improper or the reasons for the dispute. A defective or improper application for payment, if corrected by the Contractor within seven (7) Days of being notified by the Owner, shall not cause a payment to be made later than specified in this section unless interest is also paid. Accrual of interest will be postponed when payment on the principal is delayed because of disagreement between the Owner and the Contractor.

Owner reserves the right, instead of requiring the Contractor to correct or resubmit a defective or improper application for payment, to reject the defective or improper portion of the application for payment and pay the remainder of the application for payment that is correct and proper.

Owner, upon written notice to the Contractor, may elect to make payments to the Contractor only by means of Electronic Funds Transfers (EFT) through Automated Clearing House (ACH) payments. If Owner makes this election, the Contractor will be required to arrange to receive EFT/ACH payments.

- E.2.2 Contractor shall submit to the Owner's Authorized Representative, an application for each payment and, if required, receipts or other vouchers showing payments for materials and labor, including payments to Subcontractors. Contractor shall include, in its application for payment, a schedule of the percentages of the various parts of the Work completed, based on the Schedule of Values which shall aggregate to the payment application total, and shall include, on the face of each copy thereof, a certificate in substantially the following form:

"I, the undersigned, hereby certify that the above bill is true and correct, and the payment therefore, has not been received.

Signed: _____ "

- E.2.3 Generally, applications for payment will be accepted only for materials that have been installed. Under special conditions, applications for payment for stored materials will be accepted at Owner's sole discretion. Such a payment, if made, will be subject to the following conditions:

- (a) The request for stored material shall be submitted at least thirty (30) Days in advance of the application for payment on which it appears. Applications for payment shall be entertained for major equipment, components or expenditures only.
- (b) The Contractor shall submit applications for payment showing the quantity and cost of the material stored.
- (c) The material shall be stored in a warehouse approved in advance by Owner and, if required by Owner, the warehouse shall be bonded. Owner's Authorized Representative shall be granted the right to access material stored in any warehouse for the purpose of removal or inspection at any time during the Contract Period.
- (d) The Contractor shall name the Owner as co- insured on the insurance policy covering the full value of the property while in the care and custody of the Contractor until it is installed. A certificate noting this coverage shall be issued to the Owner.
- (e) Payments shall be made for materials only. The submitted amount of the application for payment shall be reduced by the cost of transportation and for the cost of an inspector to check the delivery at out of town storage sites. The cost of said inspection shall be borne solely by the Contractor.
- (f) Within sixty (60) Days of the application for payment, the Contractor shall submit evidence of payment covering the material stored.
- (g) Payment for stored materials shall in no way indicate acceptance of the materials or waive any rights under this Contract for the rejection of the Work or materials not in conformance with the Contract Documents.
- (h) All required documentation must be submitted with the respective application for payment.

- E.2.4 The Owner reserves the right to withhold all or part of a payment, or may nullify in whole or part any payment previously made, to such extent as may be necessary in the Owner's opinion to protect the Owner from loss because of:

- (a) Work that is defective and not remedied, or that has been demonstrated or identified as failing to conform with the Contract Documents,
- (b) third party claims filed or evidence reasonably indicating that such claims will likely be filed unless security acceptable to the Owner is provided by the Contractor;
- (c) failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment (in which case Owner may issue checks made payable jointly to Owner and such unpaid persons under this provision, or directly to Subcontractors and suppliers at any level under Section C.3.2.1);
- (d) reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Price;
- (e) damage to the Owner or another contractor;
- (f) reasonable evidence that the Work will not be completed within the Contract Time required by the Contract, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;
- (g) failure to carry out the Work in accordance with the Contract Documents; or
- (h) assessment of liquidated damages, when withholding is made for offset purposes.

- E.2.5 Subject to the provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- (a) Take that portion of the Contract Price properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the total Contract Price allocated to that portion of the Work in the Schedule of Values, less retainage as provided in Section E.5. Pending final determination of cost to the Owner of changes in the Work, no amounts for changes in the Work can be included in application for payment until the Contract Price has been adjusted by Change Order;
- (b) Add that portion of the Contract Price properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner pursuant to Section E.2.3, suitably stored off the site at a location agreed upon in writing), less retainage as provided in Section E.5;
- (c) Subtract the aggregate of previous payments made by the Owner; and
- (d) Subtract any amounts for which the Owner's Authorized Representative has withheld or nullified payment as provided in the Contract Documents.

- E.2.6 Contractor's applications for payment may not include requests for payment for portions of the Work for which the Contractor does not intend to pay to a Subcontractor or material supplier.

- E.2.7 The Contractor warrants to Owner that title to all Work covered by an application for payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an application for payment all Work for which payments are received from the Owner shall be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

E.2.8 If Contractor disputes any determination by Owner's Authorized Representative with regard to any application for payment, Contractor nevertheless shall continue to prosecute expeditiously the Work. No payment made hereunder shall be or be construed to be final acceptance or approval of that portion of the Work to which such partial payment relates or shall relieve Contractor of any of its obligations hereunder.

E.3 PAYROLL CERTIFICATION REQUIREMENT

Payroll certification is required before payments are made on the Contract. Refer to Section C.2 for this information.

E.4 DUAL PAYMENT SOURCES

Contractor shall not be compensated for Work performed under this Contract from any public body other than Owner.

E.5 RETAINAGE

E.5.1 Retainage shall be withheld and released in accordance with ORS 279C.550 to 279C.580:

- E.5.1.1 Owner may reserve as retainage from any progress payment an amount not to exceed five percent of the payment. As Work progresses, Owner may reduce the amount of the retainage and may eliminate retainage on any remaining monthly Contract payments after 50 percent of the Work under the Contract is completed if, in the Owner's opinion, such Work is progressing satisfactorily. Elimination or reduction of retainage shall be allowed only upon written application by the Contractor, which application shall include written approval of Contractor's surety; except that when the Work is 97-1/2 percent completed the Owner may, at its discretion and without application by the Contractor, reduce the retained amount to 100 percent of the value of the Work remaining to be done. Upon receipt of written application by the Contractor, Owner shall respond in writing within a reasonable time.
- E.5.1.2 In accordance with the provisions of ORS 279C.560 and any applicable administrative rules, unless the Owner finds in writing that accepting a bond, security or other instrument described in options (a) or (c) below poses an extraordinary risk that is not typically associated with the bond, security or instrument, the Owner will approve the Contractor's written request:
 - (a) to be paid amounts which would otherwise have been retained from progress payments where Contractor has deposited acceptable bonds, securities or other instruments of equal value with Owner or in a custodial account or other mutually-agreed account satisfactory to Owner, with an approved bank or trust company to be held in lieu of the cash retainage for the benefit of Owner. Interest or earnings on the bonds, securities or other instruments shall accrue to the Contractor. The Contractor shall execute and provide such documentation and instructions respecting the bonds, securities and other instruments as the Owner may require to protect its interests. To be permissible the bonds, securities and other instruments must be:
 - (i) Bills, certificates, notes or bonds of the United States.
 - (ii) Other obligations of the United States or agencies of the United States.
 - (iii) Obligations of a corporation wholly owned by the federal government.
 - (iv) Indebtedness of the Federal National Mortgage Association.
 - (v) General obligation bonds of the State of Oregon or a political subdivision of the State of Oregon.
 - (vi) Irrevocable letters of credit issued by an insured institution, as defined in ORS 706.008.
 - (b) that retainage be deposited in an interest-bearing account in a bank, savings bank, trust company or savings association for the benefit of Owner, with interest from such account accruing to the Contractor; or
 - (c) that the Contractor be allowed, with the approval of the Owner, to deposit a surety bond for the benefit of Owner, in a form acceptable to Owner, in lieu of all or a portion of funds retained, or to be retained. Such bond and any proceeds therefrom shall be made subject to all claims and liens in the manner and priority as set forth for retainage under ORS 279C.550 to ORS 279C.625.

Where the Owner has accepted the Contractor's election of any of the options above, Owner may recover from Contractor any additional costs incurred through such election by reducing Contractor's final payment. Where the Owner has agreed to Contractor's request to deposit a surety bond under option (c), Contractor shall accept like bonds from Subcontractors and suppliers on the project from which Contractor has required retainage.

- E.5.1.3 The retainage held by Owner shall be included in and paid to the Contractor as part of the final payment of the Contract Price. The Owner shall pay to Contractor interest at the rate of one and one-half percent per month on the final payment due Contractor, interest to commence thirty (30) Days after the Work under the Contract has been completed and accepted and to run until the date Contractor shall notify Owner in writing when the Contractor considers the Work complete and Owner shall, within fifteen (15) Days after receiving the written notice, either accept the Work or notify the Contractor of Work yet to be performed on the Contract. If Owner does not within the time allowed notify the Contractor of Work yet to be performed to fulfill contractual obligations, the interest provided by this subsection shall commence to run thirty (30) Days after the end of the 15-Day period.
- E.5.1.4 In accordance with the provisions of ORS 279C.560, if the Owner accepts bonds, securities or other instruments deposited as provided in paragraphs (a) and (c) of subsection E.5.1.2, the Owner shall reduce the moneys held as retainage in an amount equal to the value of the bonds, securities and other instruments and pay the amount of the reduction to the Contractor in accordance with ORS 279C.570.
- E.5.1.5 Contractor agrees that if Contractor elects to reserve a retainage from any progress payment due to any Subcontractor or supplier, such retainage shall not exceed five percent of the payment, and such retainage withheld from Subcontractors and suppliers shall be subject to the same terms and conditions stated in Subsection E.5 as apply to Owner's retainage from any progress payment due to Contractor. Provided, however, if in accordance with the provisions of ORS 279C.560 the Contractor has deposited bonds, securities or other instruments or has elected to have the Owner deposit accumulated retainage in an interest-bearing account, the Contractor shall comply with the provisions of ORS 701.435 respecting the deposit of bonds, securities or other instruments by Subcontractors and suppliers and the sharing of interest earnings with Subcontractors and suppliers.
- E.5.2 As provided in subsections C.2.2 and C.2.3, additional retainage in the amount of 25% of amounts earned shall be withheld and released in accordance with ORS 279C.845(7) when the Contractor fails to file certified statements as required by section C.2.1.

E.6 FINAL PAYMENT

E.6.1 Upon completion of all the Work under this Contract, the Contractor shall notify the Owner's Authorized Representative, in writing, that Contractor has completed Contractor's part of the Contract and shall request final payment. Upon receipt of such notice the Owner's Authorized Representative will inspect the Work, and if acceptable, submit to the Owner a recommendation as to acceptance of the completed Work and the final estimate of the amount

due the Contractor. If the Work is not acceptable, Owner will notify Contractor within fifteen (15) Days of Contractor's request for final payment. Upon approval of this final estimate by the Owner and compliance by the Contractor with provisions in Section K. 3 AFFIDAVIT/ RELEASE OF LIENS AND CLAIMS, and other provisions as may be applicable, the Owner shall pay to the Contractor all monies due under the provisions of these Contract Documents.

E.6.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Owner's Authorized Representative (1) a notarized affidavit/release of liens and claims in a form satisfactory to Owner that states that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least thirty (30) Days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

E.6.3 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final application for payment.

SECTION F JOB SITE CONDITIONS

F.1 USE OF PREMISES

Contractor shall confine equipment, storage of materials and operation of Work to the limits indicated by Contract Documents, law, ordinances, permits or directions of the Owner's Authorized Representative. Contractor shall follow the Owner's Authorized Representative's instructions regarding use of premises, if any.

F.2 PROTECTION OF WORKERS, PROPERTY, AND THE PUBLIC

F.2.1 Contractor shall maintain continuous and adequate protection of all of the Work from damage, and shall protect the Owner's Authorized Representative, workers and property from injury or loss arising in connection with this Contract. Contractor shall remedy acceptably to the Owner, any damage, injury, or loss, except such as may be directly due to errors in the Contract Documents or caused by authorized representatives or personnel of the Owner. Contractor shall adequately protect adjacent property as provided by law and the Contract Documents.

F.2.2 Contractor shall take all necessary precautions for the safety of all personnel on the job site, and shall comply with the Contract Documents and all applicable provisions of federal, state and municipal safety laws and building codes to prevent accidents or injury to persons on, about or adjacent to the premises where the Work is being performed. Contractor shall erect and properly maintain at all times, as required by the conditions and progress of the Work, all necessary safeguards for protection of workers and the public against any hazards created by construction. Contractor shall designate a responsible employee or associate on the Work site, whose duty shall be the prevention of accidents. The name and position of the person designated shall be reported to the Owner's Authorized Representative. The Owner's Authorized Representative has no responsibility for Work site safety. Work site safety is the responsibility of the Contractor.

F.2.3 Contractor shall not enter upon private property without first obtaining permission from the property owner or its duly authorized representative. Contractor shall be responsible for the preservation of all public and private property along and adjacent to the Work contemplated under the Contract and shall use every precaution necessary to prevent damage thereto. In the event the Contractor damages any property, the Contractor shall at once notify the property owner and make, or arrange to make, full restitution. Contractor shall immediately and in writing, report to the Owner's Authorized Representative, all pertinent facts relating to such property damage and the ultimate disposition of the claim for damage.

F.2.4 Contractor is responsible for protection of adjacent work areas including impacts brought about by activities, equipment, labor, utilities, and materials on the site.

F.2.5 Contractor shall at all times direct its activities in such a manner as to minimize adverse effects on the environment. Handling of all materials will be conducted so no release will occur that may pollute or become hazardous.

F.2.6 In an emergency affecting the safety of life or of the Work or of adjoining property, the Contractor, without special instruction or authorization from the Owner's Authorized Representative, shall act reasonably to prevent threatened loss or injury, and shall so act, without appeal, if instructed by the Owner's Authorized Representative. Any compensation claimed by the Contractor on account of emergency work shall be determined in accordance with Section D.

F.3 CUTTING AND PATCHING

F.3.1 Contractor shall be responsible for coordinating all cutting, fitting, or patching of the Work to make its several parts come together properly and fit to receive or be received by work of other contractors or Subcontractors shown upon, or reasonably implied by, the Contract Documents.

F.3.2 Contractor shall be responsible for restoring all cut, fitted, or patched surfaces to an original condition; provided, however, that if a different condition is specified in the Contract Documents, then Contractor shall be responsible for restoring such surfaces to the condition specified in the Contract Documents.

F.4 CLEANING UP

From time to time as may be ordered by the Owner the Contractor shall, at its own expense, clean up and remove all refuse and unused materials of any kind resulting from the Work. If Contractor fails to do so within twenty-four hours after notification by the Owner the work may be done by others and the cost charged to the Contractor and deducted from payment due the Contractor.

F.5 ENVIRONMENTAL CONTAMINATION

- F.5.1 Contractor will be held responsible for and shall indemnify, defend (with counsel of Owner's choice) and hold harmless Owner from and against any costs, expenses, damages, claims, and causes of action, (including attorney fees), or any of them, resulting from all spills, releases, discharges, leaks and disposal of environmental pollution, including storage, transportation, and handling during the performance of the Contract which occur as a result of, or are contributed by, the negligence or actions of Contractor or its personnel, agents, or Subcontractors or any failure to perform in accordance with the Contract Documents (except to the extent otherwise void under ORS 30.140). Nothing in this section F.5.1 shall limit Contractor's responsibility for obtaining insurance coverages required under Section G.3 of these General Conditions, and Contractor shall take no action that would void or impair such coverages
- F.5.1.1 Contractor agrees to promptly dispose of such spills, releases, discharge or leaks to the satisfaction of Owner and proper regulatory agencies in a manner that complies with applicable federal, state, and local laws and regulations. Cleanup shall be at no cost to the Owner and be performed by properly qualified personnel.
- F.5.1.2 Contractor shall obtain the Owner's written consent prior to bringing onto the Work site any (i) environmental pollutants or (ii) hazardous substances or materials, as the same or reasonably similar terms are used in any applicable federal, state, or local statutes, rules or ordinances. Notwithstanding such written consent from the Owner, the Contractor, at all times, shall:
- (a) properly handle, use and dispose of all environmental pollutants and hazardous substances or materials brought onto the Work site, in accordance with all applicable federal, state, or local statutes, rules, or ordinances;
 - (b) be responsible for any and all spills, releases, discharges, or leaks of (or from) environmental pollutants or hazardous substances or materials which Contractor has brought onto the Work site; and
 - (c) promptly clean up, without cost to the Owner, such spills, releases, discharges, or leaks to the Owner's satisfaction and in compliance with all applicable federal, state, or local statutes, rules or ordinances.
- F.5.2 Contractor shall report all reportable quantity releases to applicable federal, state, and local regulatory and emergency response agencies. Reportable quantities are found in 40 CFR Part 302, Table 302.4 for hazardous substances and in OAR 340-142-0050 for all products addressed therein. Upon discovery, regardless of quantity, Contractor must telephonically report all releases to the Owner. A written follow-up report shall be submitted to Owner within 48 hours of the telephonic report. Such written report shall contain, as a minimum:
- (a) Description of items released (identity, quantity, manifest no., and all other documentation required by law.)
 - (b) Whether amount of items released is EPA/DEQ reportable, and, if so, when it was reported.
 - (c) Exact time and location of release, including a description of the area involved.
 - (d) Containment procedures initiated.
 - (e) Summary of communications about the release Contractor has had with members of the press or State officials other than Owner.
 - (f) Description of cleanup procedures employed or to be employed at the site, including disposal location of spill residue.
 - (g) Personnel injuries, if any, resulting from, or aggravated by, the release.

F.6 ENVIRONMENTAL CLEAN-UP

- F.6.1 Unless disposition of environmental pollution is specifically a part of this Contract, or was caused by the Contractor (reference F.5 Environmental Contamination), Contractor shall immediately notify Owner of any hazardous substance(s) which Contractor discovers or encounters during performance of the Work required by this Contract. "Hazardous substance(s)" means any hazardous, toxic and radioactive materials and those substances defined as "hazardous substances," "hazardous materials," "hazardous wastes," "toxic substances," or other similar designations in any federal, state, or local law, regulation, or ordinance, including without limitation asbestos, polychlorinated biphenyl (PCB), or petroleum, and any substances, materials or wastes regulated in 40 CFR, Part 261 and defined as hazardous in 40 CFR S 261.3. In addition to notifying Owner of any hazardous substance(s) discovered or encountered, Contractor shall immediately cease working in any particular area of the project where a hazardous substance(s) has been discovered or encountered if continued work in such area would present a risk or danger to the health or well-being of Contractor's or any Subcontractor's work force.
- F.6.2 Upon being notified by Contractor of the presence of hazardous substance(s) on the project site, Owner shall arrange for the proper disposition of such hazardous substance(s).

F.7 FORCE MAJEURE

A party to this Contract shall not be held responsible for delay or default due to Force Majeure acts, events or occurrences unless they could have been avoided by the exercise of reasonable care, prudence, foresight, and diligence by that party. The Owner may terminate this Contract upon written notice after determining that delay or default caused by Force Majeure acts, events or occurrences will reasonably prevent successful performance of the Contract.

SECTION G INDEMNITY, BONDING, AND INSURANCE

G.1 RESPONSIBILITY FOR DAMAGES / INDEMNITY

- G.1.1 Contractor shall be responsible for all damage to property, injury to persons, and loss, expense, inconvenience, and delay that may be caused by, or result from, the carrying out of the Work to be done under this Contract, or from any act, omission or neglect of the Contractor, its Subcontractors, personnel, or agents.
- G.1.2 To the fullest extent permitted by law, Contractor shall indemnify, defend (with counsel approved by Owner) and hold harmless the Owner, Owner's Authorized Representative, Architect/Engineer, Architect/Engineer's consultants, and their respective officers, directors, agents, employees, partners, members, stockholders and affiliated companies (collectively "Indemnitees") from and against all liabilities, damages, losses, claims, expenses (including reasonable attorney fees), demands and actions of any nature whatsoever which arise out of, result from or are related to, (a) any damage, injury, loss, expense, inconvenience or delay described in this Section G.1.2, (b) any accident or occurrence which happens or is alleged to have happened in or about the project site or any place where the Work is being performed, or in the vicinity of either, at any time prior to the time the Work is fully completed in all respects, (c) any failure of the Contractor to observe or perform any duty or obligation under the Contract Documents which is to be observed or performed by the Contractor, or any breach of any agreement, representation or warranty of the Contractor contained in the Contract Documents or in any subcontract, (d) the negligent acts or omissions of the Contractor, a Subcontractor or anyone directly or indirectly employed by them or any one of them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder (except to the extent otherwise void under ORS 30.140), and (e) any lien filed upon the project or bond claim in connection with

the Work. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section G.1.2.

- G.1.3 In claims against any person or entity indemnified under this Section G.1.2 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section G.1.2 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

G.2 PERFORMANCE AND PAYMENT SECURITY; PUBLIC WORKS BOND

- G.2.1 When the Contract Price is \$100,000 or more the Contractor shall furnish and maintain in effect at all times during the Contract Period, a performance bond in a sum equal to the Contract Price, and a separate payment bond also in a sum equal to the Contract Price. The bonds may be required if the Contract Price is less than the above thresholds, if required by the Contract Documents.
- G.2.2 Bond forms furnished by the Owner and notarized by awarded Contractor's surety company authorized to do business in Oregon are the only acceptable forms of performance and payment security, unless otherwise specified in the Contract Documents.
- G.2.3 Before execution of the Contract Contractor shall file with the Construction Contractors Board, and maintain in full force and effect, the separate public works bond required by Oregon Laws 2005, Chapter 360, and OAR 839-025-0015, unless otherwise exempt under those provisions. The Contractor shall also include in every subcontract a provision requiring the Subcontractor to have a public works bond filed with the Construction Contractors Board before starting Work, unless otherwise exempt, and shall verify that the Subcontractor has filed a public works bond before permitting the Subcontractor to start Work.

G.3 INSURANCE

- G.3.1 Primary Coverage: Insurance carried by Contractor under this Contract shall be the primary coverage and non-contributory with any other insurance and self- insurance, and the Owner's insurance is excess and solely for damages or losses for which the Owner is responsible. The coverages indicated are minimums unless otherwise specified in the Contract Documents.
- G.3.2 Workers' Compensation: All employers, including Contractor, that employ subject workers who work under this contract in the State of Oregon shall comply with ORS 656.017 and provide the required Workers' Compensation coverage, unless such employers are exempt under ORS 656.126. This shall include Employer's Liability Insurance with coverage limits of not less than \$100,000 for each accident. Contractors who perform the Work without the assistance or labor of any employee need not obtain such coverage if the Contractor certifies so in writing. Contractor shall ensure that each of its Subcontractors complies with these requirements. The Contractor shall require proof of such Workers' Compensation by receiving and keeping on file a certificate of insurance from each Subcontractor or anyone else directly employed by either the Contractor or its Subcontractors.
- G.3.3 Builder's Risk Insurance:
- G.3.3.1 Builder's Risk: During the term of this Contract, for new construction the Contractor shall obtain and keep in effect Builder's Risk insurance on an all risk form, including earthquake and flood, for an amount equal to the full amount of the Contract. Any deductible shall not exceed \$50,000 for each loss, except the earthquake deductible shall not exceed five percent (5%) of total insured value, subject to Earthquake Zones 1 and 2, and flood deductible shall not exceed \$100,000. The policy will include as loss payees the Owner, the Contractor and its Subcontractors as their interests may appear.
- G.3.3.2 Builder's Risk Installation Floater: For other than new construction the Contractor shall obtain and keep in effect during the term of this Contract, a Builder's Risk Installation Floater for coverage of the Contractor's labor, materials and equipment to be used for completion of the Work performed under this Contract. The minimum amount of coverage to be carried shall be equal to the full amount of the Contract. This insurance shall include as loss payees the Owner, the Contractor and its Subcontractors as their interests may appear.
- G.3.3.3 Such insurance shall be maintained until Owner has occupied the facility.
- G.3.3.4 A loss insured under the Builder's Risk insurance shall be adjusted by the Owner and made payable to the Owner for the insureds, as their interests may appear. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner. The Owner shall have power to adjust and settle a loss with insurers.
- G.3.4 Liability Insurance:
- G.3.4.1 Commercial General Liability: Contractor shall obtain, at Contractor's expense, and keep in effect during the term of this Contract, Commercial General Liability Insurance covering bodily injury and property damage in a form satisfactory to Owner and in the amount of not less than \$2,000,000 per occurrence and \$4,000,000 aggregate limit. Said insurance shall include personal injury liability, products and completed operations, and contractual liability coverage for the indemnity provided under this Contract (to the extent contractual liability coverage for the indemnity is available in the marketplace), and shall be issued on an occurrence basis.
- G.3.4.2 Automobile Liability: Contractor shall obtain, at Contractor's expense, and keep in effect during the term of this Contract, Automobile Liability Insurance covering owned, non-owned and/or hired vehicles, as applicable. The coverage may be written in combination with the Commercial General Liability Insurance. Contractor shall provide proof of insurance of not less than \$4,000,000 combined single limit. Contractor and its Subcontractors shall be responsible for ensuring that all non-owned vehicles maintain adequate Automobile Liability insurance while on site.
- G.3.5 "Tail" Coverage: If any of the required liability insurance is arranged on a "claims made" basis, "tail" coverage will be required at the completion of this Contract for a duration of 24 months or the maximum time period available in the marketplace if less than 24 months. Contractor will be responsible for furnishing certification of "tail" coverage as described or continuous "claims made" liability coverage for 24 months following Final Completion. Continuous "claims made" coverage will be acceptable in lieu of "tail" coverage, provided its retroactive date is on or before the effective date of the Contract. This will be a condition of the final acceptance of Work or services and related warranty (if any).
- G.3.6 Excess/Umbrella Insurance: A combination of primary and excess/ umbrella insurance is acceptable to meet the minimum coverage requirements for Commercial General Liability and Automobile Liability Insurance. In such case, the insurance certificate must include a list of the policies that

fall under the excess/umbrella insurance. Sample wording is "The Excess/Umbrella policy is excess over primary Commercial General Liability and primary Automobile Liability Insurance."

- G.3.7 Additional Insured: The liability insurance coverage, except Professional Liability and Workers' Compensation, if included, required for performance of this Contract shall include Owner, its directors, officers, agents and employees, as Additional Insureds but only with respect to the Contractor's activities to be performed under this Contract.
- G.3.8 Certificate(s) of Insurance: As evidence of the insurance coverage required by this Contract, the Contractor shall furnish certificate(s) of insurance to the Owner prior to execution of the Contract. The certificate(s) will specify all of the parties who are Additional Insureds or Loss Payees. Insurance coverage required under this Contract shall be obtained from insurance companies or entities acceptable to the Owner that are allowed to provide such insurance under Oregon law. Eligible insurers include admitted insurers that have been issued a certificate of authority from the Oregon Department of Consumer and Business Services authorizing them to do an insurance business in the state of Oregon, and certain non-admitted surplus lines insurers that satisfy the requirements of applicable Oregon law and are approved by the Owner. The Contractor shall be financially responsible for all deductibles, self-insured retentions and/or self-insurance included hereunder. Any deductible, self-insured retention and/or self-insurance in excess of \$50,000 shall be approved by the Owner in writing prior execution of the Contract and is subject to Owner's approval. Owner acknowledges that Contractor's deductible for General Liability and Workers' Compensation insurance is \$100,000, and the deductible for Contractor's Professional/Pollution insurance is \$500,000. The Contractor shall immediately notify the Owner's Authorized Representative in writing of any change in insurance coverage.

SECTION H **SCHEDULE OF WORK**

H.1 CONTRACT PERIOD

- H.1.1 Time is of the essence on this Contract. The Contractor shall at all times carry on the Work diligently, without delay and punctually fulfill all requirements herein. Contractor shall commence Work within ten (10) Days of Notice to Proceed, unless directed otherwise.
- H.1.2 Unless specifically extended by Change Order, all Work shall be complete by the date contained in the Contract Documents. The Owner shall have the right to accelerate the completion date of the Work, which may require the use of overtime. Such accelerated Work schedule shall be an acceleration in performance of Work under Section D.1.2 (f) and shall be subject to the Change Order process of Section D.1.
- H.1.3 The Owner shall not waive any rights under the Contract by permitting the Contractor to continue or complete in whole or in part the Work after the date described in Section H.1.2 above.

H.2 SCHEDULE

- H.2.1 Contractor shall provide, by or before the pre-construction conference, a detailed schedule for review and acceptance by the Owner. The submitted schedule must illustrate Work by significant project components, significant labor trades, long lead items, broken down by building and/or floor where applicable. Each schedule item shall account for no greater than 5 % of the monetary value of the project or 5 % of the available Contract Time. Schedules with activities of less than one day or valued at less than 1% of the Contract will be considered too detailed and will not be accepted. Schedules lacking adequate detail, or unreasonably detailed, will be rejected. Included within the schedule are the following: Notice to Proceed, Substantial Completion, and Final Completion. Schedules will be updated monthly and submitted with the monthly payment application. Acceptance of the Schedule by the Owner does not constitute agreement by the Owner, as to the Contractor's sequencing, means, methods, or allocated Contract Time. Any positive difference between the Contractor's scheduled completion and the Contract completion date is float owned by the Owner. Owner reserves the right to negotiate the float if it is deemed to be in Owner's best interest to do so. In no case shall the Contractor make a request for additional compensation for delays if the Work is completed within the Contract Time but after Contractor's scheduled completion.

H.3 PARTIAL OCCUPANCY OR USE

- H.3.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage, provided such occupancy or use is consented to by public authorities having jurisdiction over the Work. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have reasonably accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, insurance or self-insurance, maintenance, heat, utilities, and damage to the Work, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents with respect to such portion of the Work. Approval by the Contractor to partial occupancy or use shall not be unreasonably withheld. Immediately prior to such partial occupancy or use, the Owner and Contractor shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work. Partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

SECTION I **CORRECTION OF WORK**

I.1 CORRECTION OF WORK BEFORE FINAL PAYMENT

The Contractor warrants to the Owner that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects, and that the Work will conform to the requirements of the Contract Documents. Work failing to conform to these requirements shall be deemed defective. Contractor shall promptly remove from the premises and replace all defective materials and equipment as determined by the Owner's Authorized Representative, whether incorporated in the Work or not. Removal and replacement shall be without loss or expense to the Owner, and Contractor shall bear the cost of repairing all Work destroyed or damaged by such removal or replacement. Contractor shall be allowed a period of no longer than thirty (30) Days after Substantial Completion for completion of defective (punch list) work, unless otherwise agreed. At the end of that period, or earlier if requested by the Contractor, Owner shall arrange for inspection of the Work by the Architect/Engineer. Should the Work not be complete, and all corrections made, the costs for all subsequent re-inspections shall be borne by the Contractor. If Contractor fails to complete the punch list work within the above time period, Owner may perform such work and Contractor shall reimburse Owner all costs of the same within ten (10) days after demand without affecting Contractor's obligations.

I.2 WARRANTY WORK

- I.2.1 Neither the final certificate of payment nor any provision of the Contract Documents shall relieve the Contractor from responsibility for defective Work and, unless a longer period is specified, Contractor shall correct all defects that appear in the Work within a period of one year from the date of issuance of the written notice of Substantial Completion by the Owner except for latent defects which will be remedied by the Contractor at any time they become apparent.
- The Owner shall give Contractor notice of defects with reasonable promptness. Contractor shall perform such warranty work within a reasonable time after Owner's demand. If Contractor fails to complete the warranty work within such period as Owner determines reasonable, or at any time in the event of warranty work consisting of emergency repairs, Owner may perform such work and Contractor shall reimburse Owner all costs of the same within ten (10) Days after demand without affecting Contractor's obligations.
- I.2.2 This provision does not negate guarantees or warranties for periods longer than one year including without limitation such guarantees or warranties required by other sections of the Contract Documents for specific installations, materials, processes, equipment or fixtures.
- I.2.3 In addition to Contractor's warranty, manufacturer's warranties shall pass to the Owner and shall not take effect until affected Work has been accepted in writing by the Owner's Authorized Representative.
- I.2.4 The one-year period for correction of Work shall be extended with respect to portions of Work performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of the Work, and shall be extended by corrective Work performed by the Contractor pursuant to this Section, as to the Work corrected. The Contractor shall remove from the site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner. I.2.5 Nothing contained in this Section 1.2 shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the period for correction of Work as described in this Section 1.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.
- I.2.6 If the Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Price will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

SECTION J

SUSPENSION AND/OR TERMINATION OF THE WORK

J.1 OWNER'S RIGHT TO SUSPEND THE WORK

- J.1.1 The Owner and/or the Owner's Authorized Representative has the authority to suspend portions or all of the Work due to the following causes:
- (a) Failure of the Contractor to correct unsafe conditions;
 - (b) Failure of the Contractor to carry out any provision of the Contract;
 - (c) Failure of the Contractor to carry out orders;
 - (d) Conditions, in the opinion of the Owner's Authorized Representative, which are unsuitable for performing the Work;
 - (e) Time required to investigate differing site conditions;
 - (f) Any reason considered to be in the public interest.
- J.1.2 The Owner shall notify Contractor and the Contractor's Surety in writing of the effective date and time of the suspension and Owner shall notify Contractor and Contractor's surety in writing to resume Work.

J.2 CONTRACTOR'S RESPONSIBILITIES

- J.2.1 During the period of the suspension, Contractor is responsible to continue maintenance at the project just as if the Work were in progress. This includes, but is not limited to, protection of completed Work, maintenance of access, protection of stored materials, temporary facilities, and clean-up.
- J.2.2 When the Work is recommenced after the suspension, the Contractor shall replace or renew any Work damaged during the suspension, remove any materials or facilities used as part of temporary maintenance, and complete the project in every respect as though its prosecution had been continuous and without suspension.

J.3 COMPENSATION FOR SUSPENSION

- J.3.1 Depending on the reason for suspension of the Work, the Contractor or the Owner may be due compensation by the other party. If the suspension was required due to acts or omissions of Contractor, the Owner may assess the Contractor actual costs of the suspension in terms of administration, remedial work by the Owner's forces or another contractor to correct the problem associated with the suspension, rent of temporary facilities, and other actual costs related to the suspension. If the suspension was caused by acts or omissions of the Owner, the Contractor shall be due compensation which shall be defined using Section D, Changes in Work. If the suspension was required through no fault of the Contractor or the Owner, neither party owes the other for the impact.

J.4 OWNER'S RIGHT TO TERMINATE CONTRACT

- J.4.1 The Owner may, without prejudice to any other right or remedy, and after giving Contractor seven (7) Days' written notice and an opportunity to cure, terminate the Contract in whole or in part under the following conditions:
- (a) If Contractor should voluntarily or involuntarily, seek protection under the United States Bankruptcy Code and Contractor as debtor-in-possession or the Trustee for the estate fails to assume the Contract within a reasonable time;
 - (b) If Contractor should make a general assignment for the benefit of Contractor's creditors;
 - (c) If a receiver should be appointed on account of Contractor's insolvency;
 - (d) If Contractor should repeatedly refuse or fail to supply an adequate number of skilled workers or proper materials to carry on the Work as required by the Contract Documents, or otherwise fail to perform the Work in a timely manner;

- (e) If Contractor should repeatedly fail to make prompt payment to Subcontractors or for material or labor, or should disregard laws, ordinances or the policies or instructions of the Owner or its Authorized Representative; or
- (f) If Contractor is otherwise in material breach of any part of the Contract.

J.4.2 At any time that any of the above occurs, Owner may exercise all rights and remedies available to Owner at law or in equity, and in addition, Owner may take possession of the premises and of all materials and appliances and finish the Work by whatever method it may deem expedient. In such case, the Contractor shall not be entitled to receive further payment until the Work is completed. If the Owner's cost of finishing the Work exceeds the unpaid balance of the Contract Price, Contractor shall pay the difference to the Owner.

J.5 TERMINATION FOR CONVENIENCE

- J.5.1 Owner may terminate the Contract in whole or in part whenever Owner determines that termination of the Contract is in the best interest of the public.
- J.5.2 The Owner will provide the Contractor with seven (7) Days' prior written notice of a termination for public convenience. After such notice, the Contractor shall provide the Owner with immediate and peaceful possession of the premises and materials located on and off the premises for which the Contractor received progress payment under Section E. Compensation for Work terminated by the Owner under this provision will be according to Section E. In no circumstance shall Contractor be entitled to lost profits for Work not performed due to termination.

J.6 ACTION UPON TERMINATION

- J.6.1 Upon receiving a notice of termination, and except as directed otherwise by the Owner, Contractor shall immediately cease placing further subcontracts or orders for materials, services, or facilities. In addition, Contractor shall terminate all subcontracts or orders to the extent they relate to the Work terminated and, with the prior written approval of the Owner, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontracts and orders.
- J.6.2 As directed by the Owner, Contractor shall upon termination transfer title and deliver to the Owner all Record Documents, information, and other property that, if the Contract had been completed, would have been required to be furnished to the Owner.

SECTION K CONTRACT CLOSE OUT

K.1 RECORD DOCUMENTS

As a condition of final payment (refer also to section E.6), Contractor shall comply with the following: Contractor shall provide to Owner's Authorized Representative, Record Documents of the entire project. Record Documents shall depict the project as constructed and shall reflect each and every change, modification, and deletion made during the construction. Record Documents are part of the Work and shall be provided prior to the Owner's issuance of final payment. Record Documents include all modifications to the Contract Documents unless otherwise directed.

K.2 OPERATION AND MAINTENANCE MANUALS

As part of the Work, Contractor shall submit two completed operation and maintenance manuals ("O & M Manuals") for review by the Owner's Authorized Representative prior to submission of any pay request for more than 75% of the Work. No payments beyond 75% will be made by the Owner until the O & M Manuals have been received. The O & M Manuals shall contain a complete set of all submittals, all product data as required by the specifications, training information, phone list of consultants, manufacturers, installer and suppliers, manufacturer's printed data, record and shop drawings, schematic diagrams of systems, appropriate equipment indices, warranties and bonds. The Owner's Authorized Representative shall review and return one O & M Manual for any modifications or additions required. Prior to submission of its final pay request, Contractor shall deliver three (3) complete and approved sets of O & M Manuals to the Owner's Authorized Representative.

K.3 AFFIDAVIT/RELEASE OF LIENS AND CLAIMS

As a condition of final payment, the Contractor shall submit to the Owner's Authorized Representative a notarized affidavit/release of liens and claims form, in a form satisfactory to Owner, which states that all Subcontractors and suppliers have been paid in full, all disputes with property owners have been resolved, all obligations on the project have been satisfied, all monetary claims and indebtedness have been paid, and that, to the best of the Contractor's knowledge, there are no claims of any kind outstanding against the project. The Contractor shall indemnify, defend (with counsel of Owner's choice) and hold harmless the Owner from all claims for labor and materials finished under this Contract. The Contractor shall furnish complete and valid releases or waivers, satisfactory to the Owner, of all liens arising out of or filed in connection with the Work.

K.4 COMPLETION NOTICES

- K.4.1 Contractor shall provide Owner notice of both Substantial and Final Completion. The certificate of Substantial Completion shall state the date of Substantial Completion, the responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and the time within which the Contractor shall finish all items on the punchlist accompanying the Certificate. Both completion notices must be signed by the Contractor and the Owner to be valid. The Owner shall provide the final signature on the notices. The notices shall take effect on the date they are signed by the Owner.
- K.4.2 Substantial Completion of a facility with operating systems (e.g., mechanical, electrical, HVAC) shall be that degree of completion that has provided a minimum of thirty (30) continuous Days of successful, trouble-free operation, which period shall begin after all performance and acceptance testing has been successfully demonstrated to the Owner's Authorized Representative. All equipment contained in the Work, plus all other components necessary to enable the Owner to operate the facility in the manner that was intended, shall be complete on the Substantial Completion date. The Contractor may request that a punch list be prepared by the Owner's Authorized Representative with submission of the request for the Substantial Completion notice.

K.5 TRAINING

As part of the Work, and prior to submission of the request for final payment, the Contractor shall schedule with the Owner's Authorized Representative, training sessions for all equipment and systems, as required in the individual specifications sections. Contractor shall schedule training sessions at least two weeks in advance of the date of training to allow Owner personnel adequate notice.

The O & M Manual shall be used as a basis for training. Training shall be a formal session, held after the equipment and/or system is completely installed and operational in its normal operating environment.

K.6 EXTRA MATERIALS

As part of the Work, Contractor shall provide spare parts, extra maintenance materials, and other materials or products in the quantities specified in the specifications, prior to final payment. Delivery point for extra materials shall be designated by the Owner's Authorized Representative.

K.7 ENVIRONMENTAL CLEAN-UP

As part of the Final Completion notice, or as a separate written notice submitted with or before the notice of Final Completion, the Contractor shall notify the Owner that all environmental pollution clean-up performed as a part of this Contract has been disposed of in accordance with all applicable rules, regulations, laws, and statutes of all agencies having jurisdiction over such environmental pollution. The notice shall reaffirm the indemnification given under Section F.5.1 above.

K.8 CERTIFICATE OF OCCUPANCY

The Contractor shall not be granted Final Completion or receive final payment if the Owner has not received an unconditioned certificate of occupancy from the appropriate state and/or local building officials, unless failure to obtain an unconditional certificate of occupancy is due to the fault or neglect of Owner.

K.9 OTHER CONTRACTOR RESPONSIBILITIES

The Contractor shall be responsible for returning to the Owner all items issued during construction such as keys, security passes, site admittance badges, and all other pertinent items. The Contractor shall be responsible for notifying the appropriate utility companies to transfer utility charges from the Contractor to the Owner. The utility transfer date shall not be before Substantial Completion and may not be until Final Completion, if the Owner does not take beneficial use of the facility and the Contractor's forces continue with the Work.

K.10 SURVIVAL

All warranty and indemnification provisions of this Contract, and all of Contractor's other obligations under this Contract that are not fully performed by the time of Final Completion or termination, shall survive Final Completion or any termination of the Contract.

SECTION L LEGAL RELATIONS & RESPONSIBILITIES

L.1 LAWS TO BE OBSERVED

In compliance with ORS 279C.525, Sections L.2 through L.4 contain lists of federal, state and local agencies of which the Owner has knowledge that have enacted ordinances or regulations relating to environmental pollution and the preservation of natural resources that may affect the performance of the Contract:

L.2 FEDERAL AGENCIES

Agriculture, Department of
Forest Service
Soil Conservation Service
Coast Guard
Defense, Department of
Army Corps of Engineers
Energy, Department of
Federal Energy Regulatory Commission
Environmental Protection Agency
Health and Human Services, Department of
Housing and Urban Development, Department of
Solar Energy and Energy Conservation Bank
Interior, Department of
Bureau of Land Management
Bureau of Indian Affairs
Bureau of Mines
Bureau of Reclamation
Geological Survey
Minerals Management Service
U.S. Fish and Wildlife Service
Labor, Department of
Mine Safety and Health Administration
Occupation Safety and Health Administration
Transportation, Department of
Federal Highway Administration
Water Resources Council

L.3 STATE AGENCIES

Administrative Services, Department of
Agriculture, Department of
Soil and Water Conservation Commission
Columbia River Gorge Commission
Energy, Department of
Environmental Quality, Department of
Fish and Wildlife, Department of
Forestry, Department of
Geology and Mineral Industries, Department of
Human Resources, Department of
Consumer and Business Services, Department of
Land Conservation and Development Commission
Parks and Recreation, Department of
State Lands, Division of
Water Resources Department of

L.4 LOCAL AGENCIES

City Councils
County Courts
County Commissioner, Board of
Design Commissions
Historical Preservation Commission
Planning Commissions

Attachment C.1 - Wage Rates - Jackson County

Contractor: Delta Connects

Position	Line Voltage Electrician Foreman	Line Voltage Electrician (Less than 4 on-site)	Line Voltage Electrician (More than 4 on-site)	Low Voltage Electrician Foreman	Low Voltage Electrician (Less than 4 on-site)	Low Voltage Electrician (More than 4 on-site)	Controls LV Elect/Tech	Controls LV Elect/Tech (65%)	Project Manager	Remote System Engineer	Graphics	On-site System Engineer	HVAC Service Tech
Trade	Line Voltage Electrician Foreman	Line Voltage Electrician (Less than 4 on-site)	Line Voltage Electrician (More than 4 on-site)	Low Voltage Electrician Foreman	Low Voltage Electrician (Less than 4 on-site)	Low Voltage Electrician (More than 4 on-site)	Controls LV Elect/Tech	Controls LV Elect/Tech (65%)	Project Manager	Remote System Engineer	Graphics	On-site System Engineer	HVAC Service Tech
BOLI Rate Schedule Date*	02/01/20	02/01/20	02/01/20	02/01/20	02/01/20	02/01/20	02/01/20	02/01/20	02/01/20	02/01/20	02/01/20	02/01/20	04/01/19
Prevailing Wage (incl. Benefits)	\$ 54.35	\$ 54.35	\$ 54.35	\$ 43.73	\$ 43.73	\$ 43.73	\$ 52.48	\$ 39.79	\$ 61.22	\$ 55.54	\$ 35.42	\$ 55.54	\$ 93.06
1. Hourly Wage Rate	\$ 42.39	\$ 42.39	\$ 42.39	\$ 34.11	\$ 34.11	\$ 34.11	\$ 40.93	\$ 31.04	\$ 47.75	\$ 43.32	\$ 27.63	\$ 43.32	\$ 61.46
2. Hourly Benefits	\$ 11.96	\$ 11.96	\$ 11.96	\$ 9.62	\$ 9.62	\$ 9.62	\$ 11.54	\$ 8.75	\$ 13.47	\$ 12.22	\$ 7.79	\$ 12.22	\$ 31.60
Subtotal	\$ 54.35	\$ 54.35	\$ 54.35	\$ 43.73	\$ 43.73	\$ 43.73	\$ 52.48	\$ 39.79	\$ 61.22	\$ 55.54	\$ 35.42	\$ 55.54	\$ 93.06
Rate													
3. FUI % of 1	0.80%	\$ 0.34	\$ 0.34	\$ 0.27	\$ 0.27	\$ 0.27	\$ 0.33	\$ 0.25	\$ 0.38	\$ 0.35	\$ 0.22	\$ 0.35	\$ 0.49
4. FICA % of 1	6.20%	\$ 2.63	\$ 2.63	\$ 2.11	\$ 2.11	\$ 2.11	\$ 2.54	\$ 1.92	\$ 2.96	\$ 2.69	\$ 1.71	\$ 2.69	\$ 3.81
5. MEDICARE % of 1	1.45%	\$ 0.61	\$ 0.61	\$ 0.49	\$ 0.49	\$ 0.49	\$ 0.59	\$ 0.45	\$ 0.69	\$ 0.63	\$ 0.40	\$ 0.63	\$ 0.89
6. SUI % of 1 (insert correct % to right)	3.00%	\$ 1.27	\$ 1.27	\$ 1.02	\$ 1.02	\$ 1.02	\$ 1.23	\$ 0.93	\$ 1.43	\$ 1.30	\$ 0.83	\$ 1.30	\$ 1.84
7. L&I WC Premium (amount per hour)													
Sub-Total (incl. payroll taxes)	\$ 59.20	\$ 59.20	\$ 59.20	\$ 47.64	\$ 47.64	\$ 47.64	\$ 57.16	\$ 43.35	\$ 66.69	\$ 60.50	\$ 38.58	\$ 60.50	\$ 100.10
8. Vehicle Lease, Maintenance	\$ 4.44	\$ 4.44	\$ 4.44	\$ 3.57	\$ 3.57	\$ 3.57	\$ 4.29	\$ -	\$ 5.00	\$ -	\$ -	\$ 4.54	\$ 8.01
9. Vehicle Inventory	\$ 0.09	\$ 0.09	\$ 0.09	\$ 0.07	\$ 0.07	\$ 0.07	\$ 0.09	\$ -	\$ -	\$ -	\$ -	\$ 0.09	\$ 2.00
10. Training, Tools	\$ 0.89	\$ 0.89	\$ 0.89	\$ 0.71	\$ 0.71	\$ 0.71	\$ 0.86	\$ 0.65	\$ -	\$ -	\$ -	\$ 0.91	\$ 2.50
Sub-Total (incl. payroll taxes)	\$ 64.62	\$ 64.62	\$ 64.62	\$ 51.99	\$ 51.99	\$ 51.99	\$ 62.39	\$ 44.00	\$ 71.69	\$ 60.50	\$ 38.58	\$ 66.03	\$ 112.61
11. Foreman Rate	\$ 6.46	\$ -	\$ -	\$ 5.20	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12. Direct Supervision (NTE 15% of 1a)	\$ -	\$ 9.69	\$ -	\$ -	\$ 7.80	\$ -	\$ 9.36	\$ 6.60	\$ 3.58	\$ 3.02	\$ 2.89	\$ 4.95	\$ -
13. Safety (NTE 2% of lines 1a, b, & c)	\$ 1.29	\$ 1.29	\$ 1.29	\$ 1.04	\$ 1.04	\$ 1.04	\$ 1.25	\$ 0.88	\$ 1.43	\$ 1.21	\$ 0.77	\$ 1.32	\$ 2.25
total	\$ 72.38	\$ 75.61	\$ 65.91	\$ 58.23	\$ 60.83	\$ 53.03	\$ 73.00	\$ 51.48	\$ 76.71	\$ 64.73	\$ 42.25	\$ 72.31	\$ 114.86

Attachment C.2 Margin Rates

Margin Rates

Contractor:		Delta Connects							
Category	Product	Multiplier of List	Cost	Major Projects OH&P	Small Projects OH&P	Service Projects OH&P	Website	Notes	
Equipment	Delta	0.45					Delta Price List	As per Sheet	
Equipment	Belimo	0.25					Delta Price List	As per Sheet	
Equipment	Peripheral Devices	0.28					Delta Price List	As per Sheet	
Gross Margin %				20% >\$100K	27.5% <\$100K and >\$5K	35% <\$5K		Sliding scale based on project scale	
Equipment	Other/Misc		Cost Plus	20.00%	27.50%	35.00%		VFDs, Flow stations, BTU Meters, Battery supplies, etc	
Equipment	Communications		Cost Plus	20.00%	27.50%	35.00%			
Equipment	Security		Cost Plus	20.00%	27.50%	35.00%			
Subcontractors	All		Cost Plus	10.00%	15.00%	20.00%		This is the rate that will be added to subcontract pricing for OH&P	
Project Contingency Budget			Cost Plus	5.00%	7.50%	10.00%		This is a budget account, were funds will be used if agreed upon by the Owner and Contractor, fund returned if not used.	
Bonds	All		Cost Plus	10.00%	10.00%	10.00%			
General Expenses	Freight, Tools, Permits, etc		Cost Plus	20.00%	27.50%	35.00%			
Material	Misc		Cost Plus	20.00%	27.50%	35.00%		construction installation materials; conduit, cable, connectors, boxes, etc	
Labor	Line Voltage Electrician (Foreman)		Cost Plus	20.00%	27.50%	35.00%	BOLI		
Labor	Line Voltage Electrician (4 or less on site)		\$ 72.38	20.00%	27.50%	35.00%	BOLI	Apprentice Rate with by a percentage of this rate.	
Labor	Line Voltage Electrician (More than 4 on site)		\$ 75.61	20.00%	27.50%	35.00%	BOLI	Apprentice Rate with by a percentage of this rate.	
Labor	Low Voltage Electrician LEB (Foreman)		\$ 65.91	20.00%	27.50%	35.00%	BOLI		
Labor	Low Voltage Electrician LEB (4 or less on site)		\$ 58.23	20.00%	27.50%	35.00%	BOLI	Apprentice Rate with by a percentage of this rate.	
Labor	Low Voltage Electrician LEB (More than 4 on site)		\$ 60.83	20.00%	27.50%	35.00%	BOLI	Apprentice Rate with by a percentage of this rate.	
Labor	HVAC Service Technician		\$ 53.03	20.00%	27.50%	35.00%	BOLI		
Labor			\$ 114.86	20.00%	27.50%	35.00%	Union Local 290	Rates will be derived from the current local 290 rate structures. General Foreman Rate	

Labor	Controls LV Elec/Tech	\$	73.00	20.00%	27.50%	35.00%	Rates will be negotiated when BOLI rate schedules are adjusted.
Labor	Controls LV Elec/Tech Apprentice (65%)	\$	51.48	20.00%	27.50%	35.00%	Based on Controls Electrician and Apprentice rate.
Labor	Project Manager	\$	76.71	20.00%	27.50%	35.00%	Rates will be negotiated when BOLI rate schedules are adjusted.
Labor	Remote Systems Engineer	\$	64.73	20.00%	27.50%	35.00%	Rates will be negotiated when BOLI rate schedules are adjusted.
Labor	On-site System Engineer	\$	72.31	20.00%	27.50%	35.00%	Rates will be negotiated when BOLI rate schedules are adjusted.
Labor	Graphics	\$	42.25	20.00%	27.50%	35.00%	Rates will be negotiated when BOLI rate schedules are adjusted.

Attachment C.3 – Delta Price List

Available upon request



Date: March 12, 2021
To: Parkrose SD / Robyn
Project: Alerton DDC Control System Upgrade/Retrofit
Pricing: \$ 705,338

Environmental Controls is pleased to present the following proposal for implementing EEM#1 of the ETO TAS report provided by KFAA Engineering dated 9/2/2019 for Parkrose High School. Our scope of work is detailed below. This project will take place at the Parkrose High School located at 12003 NE Shaver St. in Portland Oregon.

Scope:

Alerton DDC Controls Upgrade:

- ECC will upgrade the existing EBT server to the latest version of the Compass Server software.
 - We will provide one PC workstation
- We will provide and install new ACM area controllers to replace the existing BCM area controllers (obsolete)
- For the VAV Box controls: 113 unit total
 - ECC will provide and install the following components to replace the existing TUX controllers.
 - VAV-SD+F Controller
 - Belimo LMB24-3 Damper Actuator
 - Microset 2 Room Sensor
 - New 10k Discharge Air Sensor
 - Reuse Existing 24VAC Transformers and Heating Relays
 - VAV reheat valves will be replaced with new Belimo valve/actuator assemblies
- ECC will replace the TUX controllers that control the following mechanical systems:
 - HW System:
 - Boiler B-1, B-2,
 - HWP's P-1, -2, -3, -4
 - AHU-15 – Pool unit
 - On-board factory controls remain as-is
 - MAU-1
 - Exhaust Fans EF-1 thru EF-18
 - Fin Tube
- CO2 Sensing:
 - New space CO2 sensors will be installed in all classrooms, office spaces and larger spaces where larger occupancy will occur.
- For McQuay AHU with MicroTech factory controls: AHUs 1-14, 16-18 (17 total)
 - ECC will provide and install one VLCA-1688 BacNet controller to replace the existing MicroTech II controller.
 - The new controller will be configured on the existing MSTP BacNet communications trunk.
 - ECC will provide and install the following:
 - supply air, return air and mixed air temperature sensors.
 - duct static pressure sensor, space static pressure sensor.
 - discharge air pressure high-limit switch
 - interposing relays for monitoring of the refrigeration circuit high and low pressure switches
 - new relays for control of the cooling stages (6)
 - new pressure switches to control the staging of the condenser fans (6)
 - gas heat control





- supply and return fan VFD speed control
- new economizer damper actuators and linkages
- Variable Frequency Drives: During our on-site investigation we discovered that many AHU have already been upgraded to VFDs.
 - For AHU 1-7, 9, 12, 13, 14 and 18
 - supply and return VFDs are currently installed – these will remain as-is
 - For AHU 8, 10, 11, 16 and 17
 - ECC will provide and install new VFDs for the supply and return fans
- AHU inlet guide vanes: During our investigation we discovered that many of the AHU supply and return fan inlet vanes had been removed already.
 - ECC will remove any remaining supply fan inlet guide vanes if we find them.
 - Due to the fact that many of the inlet fan guide vanes are completely inaccessible, we exclude any work associated with those devices – if found.
 - If found, we will lock the vanes 100% open

Check-out and start-up
Engineering
Programming as required by the ETO EEM#1
Installation per code
16 hours of training
One-year warranty

Clarifications / Assumptions

- Pricing is valid for 60 days from the date of the proposal.
- Work shall be performed during normal business hours Monday – Friday 7:30am – 4:30pm.
- We will replace existing 3Kohm temperature sensors (Space, duct, immersion)
- Existing control components such as relays, pressure switches and transmitters, etc will be re-used as-is.
- This work does not include repair/replacement of existing defective or failed components. In the event we find a failed or defective component we will present a proposal to replace the component to the owner. No work will be performed without written acceptance of the proposed pricing.

Exclusions

- This proposal does not include repair or replacement of failed mechanical or control components discovered during the installation of this project.
- Return fan inlet guide vane removal.
- Any work associated with EEM#2 described in the TAS report.

We appreciate the opportunity to provide you with this proposal and look forward to our future involvement together on this project.

If you have any questions, concerns, or additional requests, please do not hesitate to write or call.

Sincerely,

Robert Elton

Bob Elton
Business Development Manager
503-544-9823 cell
BobE@eccportland.com

