

SCHOOL BOARD ACTION REPORT



DATE: September 13, 2019
FROM: Denise Juneau, Superintendent
LEAD STAFF: Fred Podesta, Chief Operations Officer
206-252-0636, fhpodesta@seattleschools.org

For Introduction: November 20, 2019
For Action: December 11, 2019

1. TITLE

BEX IV: Resolution 2019/20-11: Acceptance of the Building Commissioning Report for the Cascadia Elementary, Robert Eagle Staff Middle and Licton Springs K-8 Schools (formerly Wilson Pacific) project

2. PURPOSE

The purpose of this action is to accept the building commissioning report for the Cascadia Elementary, Robert Eagle Staff Middle and Licton Springs K-8 Schools project, in accordance with [WAC 392-344-165](#), as required to complete the Office of Superintendent of Public Instruction (OSPI) Form D-11 Application to Release Retainage. Approval of the resolution meets identified requirements.

3. RECOMMENDED MOTION

I move that the School Board adopt Resolution 2019/20-11, accepting the building commissioning report for the Cascadia Elementary, Robert Eagle Staff Middle and Licton Springs K-8 Schools project.

4. BACKGROUND INFORMATION

a. Background

Cascadia Elementary School is located at 1700 North 90th Street, Seattle, Washington 98103.

Robert Eagle Staff Middle School is located at 1300 North 90th Street, Seattle, Washington 98103.

Licton Springs K-8 School is located at 1330 North 90th Street, Seattle, Washington, 98108.

Commissioning is a systematic process of documentation and verification to demonstrate that the building mechanical and electrical systems have been installed and function properly and efficiently and can be maintained to operate and satisfy the engineer's design intent and the district's operational requirements. The commissioning consultant, Engineering Economics, Inc., has satisfactorily completed the commissioning process.

The district’s Capital Projects Mechanical/Electrical Coordinator, Mike McBee, has been involved throughout the commissioning process on the Cascadia Elementary, Robert Eagle Staff Middle and Licton Springs K-8 Schools project. Mr. McBee recommends the acceptance of this effort.

The Office of Superintendent of Public Instruction (OSPI), through the School Construction Assistance Program (SCAP), provides funding assistance to school districts that are undertaking a major new construction or modernization project. The primary documents that form the basis of any agreement between OSPI and the district are the “D-form” documents. These documents, when properly completed and signed by all parties, form the official notices of agreement and intent on behalf of the district and OSPI.

As noted above, the acceptance of the commissioning report is required for Form D-11 for the release of construction retainage. On this project, the contractor submitted a retainage bond. Approval of this motion meets the requirements of OSPI, for the District to receive state funding assistance.

b. Alternatives

Not accepting this motion could put the district in a position subject to litigation and if state funding requirements are not met, the district will not receive state funding assistance that is available for this project. Therefore, this alternative is not recommended.

c. Research

- Office of Superintendent of Public Instruction, Form D-11 Application to Release Retainage
- Wilson Pacific School Commissioning Report, Engineering Economics, Inc.

5. FISCAL IMPACT/REVENUE SOURCE

Action helps to secure approximately \$4.7 million dollars in state funding assistance. This motion does not represent a specific expenditure.

Expenditure: One-time Annual Multi-Year N/A

Revenue: One-time Annual Multi-Year N/A

6. COMMUNITY ENGAGEMENT

With guidance from the District’s Community Engagement tool, this action was determined to merit the following tier of community engagement:

Not applicable

Tier 1: Inform

Tier 2: Consult/Involve

Tier 3: Collaborate

The selection of projects in the Building Excellence IV (BEX IV) Capital levy program went through an extensive community vetting process and ultimately received 72% approval from voters in February 2013.

7. EQUITY ANALYSIS

This motion was not put through the process of an equity analysis. The selection of projects in the BEX IV program was designed to provide equitable access to safe school facilities across the city.

8. STUDENT BENEFIT

This project helps ensure a safe, secure learning environment for every student.

9. WHY BOARD ACTION IS NECESSARY

Amount of contract initial value or contract amendment exceeds \$250,000 (Policy No. 6220)

Amount of grant exceeds \$250,000 in a single fiscal year (Policy No. 6114)

Adopting, amending, or repealing a Board policy

Formally accepting the completion of a public works project and closing out the contract

Legal requirement for the School Board to take action on this matter

Board Policy No. _____, [TITLE], provides the Board shall approve this item

Other: OSPI requires Board acceptance of this report.

10. POLICY IMPLICATION

School Board approval of the commissioning report is consistent with Board Policy No. 6100, Revenues from Local, State and Federal Sources, which states “It is the policy of the Seattle School Board to pursue systematically those funding opportunities that are consistent with district priorities from federal, state and other governmental units, as well as from private and foundation sources,” and “The Board agrees to comply with all federal and state requirements that may be a condition for the receipt of federal or state funds...”.

11. BOARD COMMITTEE RECOMMENDATION

This motion was discussed at the Operations Committee meeting on November 7, 2019. The Committee reviewed the item and moved it forward to the full Board with a recommendation for approval by the full Board.

12. TIMELINE FOR IMPLEMENTATION

Upon approval of this motion and Final Acceptance, the D-11 Application to Release Retainage will be completed and submitted to OSPI

13. ATTACHMENTS

- Commissioning Completion Letter dated September 19, 2018. Engineering Economics, Inc.
- Commissioning Report dated September 19, 2018, (Executive Summary attached, the full report is available in the Capital Projects and Planning Office)
- Resolution 2019/20-11 for approval



Commissioning Report and Memorandum

Cascadia Elementary, Robert Eagle Staff Middle and Licton Springs K8 Schools

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For questions and more information about this document, please contact the following:

Kristi Jones
Project Assistant, Capital Projects
krjones@seattleschools.org

Memorandum from Engineering Economics, Inc.

Executive Summary of Commissioning Report for Cascade Elementary, Robert Eagle Staff Middle and Licton Springs K8 provided by Engineering Economics, Inc.



Engineering Economics Inc

1201 Western Avenue Suite 325
Seattle, Washington 98101

Telephone : 206 622 1001
Facsimile : 206 622 5747

Memorandum

Date: September 19, 2018

To: Eric Becker – Seattle Public Schools
2445 3rd Ave. South
Seattle, Washington 98134

From: James Sommer

Subject: Wilson Pacific Project
Commissioning Completion
EEI Project No.: 03-14121

Dear Eric,

The purpose of this letter is to document the completion of the building commissioning process for Cascadia Elementary, Robert Eagle Staff Middle and Licton Springs K-8 schools. EEI developed and executed a commissioning plan, including system functional testing that began in the Spring of 2017. Testing, issue troubleshooting, tracking and resolution continued into the Summer of 2018.

The entire process was documented in a Commissioning Record document transmitted to SPS and SOJ dated 9/19/2018. Final resolution status for issues discovered, and details of test findings, are included in the report appendices.

At this point EEI recommends that Seattle Public Schools accept the commissioned building systems, including HVAC, lighting controls, and modifications to the building automation system.

If there are any further questions or concern please let me know.

Sincerely,

A handwritten signature in black ink, appearing to read 'JS', is written over a light blue horizontal line.

James Sommer, CxT



Commissioning Report

**Cascade Elementary, Robert Eagle Staff
Middle and Licton Springs K8 Schools
Seattle, WA**

9/19/18

Rev 1.2 –Final

 **Engineering Economics, Inc.**

1201 Western Avenue, Suite 325
Seattle, Washington 98101
206.622.1001

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Requests for reproduction shall be addressed to:

**Engineering Economics, Inc.
780 Simms Street, Suite 210
Golden, Colorado 80401
(303) 239-8700**

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- APPENDIX H: Installation Completion & Startup Reports
- APPENDIX I: Functional Test Results
- APPENDIX J: Final TAB Report
- APPENDIX K: Indoor Air Quality Reports (IAQ)
- APPENDIX L: Systems Manual

LIST OF ABBREVIATIONS

A/E	Architect/Engineer
AFMS	Air Flow Measuring Station
AHU	Air Handling Unit
B	Boiler
BAS	Building Automation System
BMS	Building Management System
BoD	Basis of Design
Cx	Commissioning
CH	Chiller
CHW	Chilled Water
CW	Condenser Water
CFM	Cubic Feet Per Minute
CT	Cooling Tower
CUH	Cabinet Unit Heater
DAT	Discharge Air Temperature
°F or Deg. F	Degrees Fahrenheit
DHW	Domestic Hot Water
dP	Differential Pressure
EEI	Engineering Economics
EF	Exhaust Fan
ES	Elementary School
FCU	Fan Coil Unit
GPM	Gallons Per Minute
HEX	Heat Exchanger
HVAC	Heating, ventilating and air conditioning
HW	Hot Water
HHW	Heating Hot Water
In.W.C.or "w.c.	Inches of Water Column
LEED	Leadership in Energy and Environmental Design
MAT	Mixed Air Temperature
MUA or MAU	Make-up Air Unit
MEP	Mechanical, Electrical and Plumbing
MS	Middle School
O&M	Operations and Maintenance
OA	Outside Air
OAT	Outside Air Temperature
OPR	Owner's Project Requirements
PSI	Pounds per Square Inch
RAT	Return Air Temperature
RHC	Reheat Coil
RH	Relative Humidity
RF	Return Fan
SF	Supply Fan
SPS	Seattle Public School
TAB	Test, Adjust and Balance
UH	Unit Heater
UV	Unit Ventilator
VAV	Variable Air Volume
VFD	Variable Frequency Drive

I. PROJECT DESCRIPTION

Engineering Economics (EEI) was hired to provide commissioning (Cx) services for the replacement of the Wilson-Pacific campus with a New Elementary and Middle School.

The new Cascadia Elementary School is intended to accommodate up to 660 students, including Seattle Public School's Highly Capable Cohort (formerly known as APP), previously located at the former Lincoln High School. The school is approximately 91,000 square feet and is situated at North 90th Street and Wallingford Avenue North.

The new Robert Eagle Staff Middle School is intended to accommodate up to 850 middle school students, most of whom are drawn from surrounding North Seattle neighborhoods, as well as some middle school age APP students, and Licton Springs K-8. The total building area is approximately 140,000 square feet. The middle school fronts on North 90th Street, near the intersection with Stone Way North.

II. EXECUTIVE SUMMARY

This Final Commissioning Report contains an overview of the Cx process and results of the Cx program for Cascadia Elementary, Robert Eagle Staff Middle and Licton Springs K-8 Schools. Prominent among the Cx services provided was the witnessing of functional testing for all heating/cooling/ventilation equipment, domestic hot water, irrigation and lighting control.

A. Conclusions

Installation and operation of commissioned equipment is consistent with applicable contract documents and meets the intent of the Basis of Design. EEI did not validate non-commissioned equipment or items provided with the project.

B. Commissioning (Cx) Timeline

Design Development Review	06/2014
Construction Document Review	12/2014
Cx Specifications Submitted to Architect/Engineer (A/E)	07/2015
Mechanical, Electrical, Plumbing (MEP) Systems Start-up	03/2017 thru 09/2017
Testing, Adjusting and Balancing (TAB)	04/2017 thru 11/2017
Functional Testing	05/2017 thru 12/2017
100% Outside Air Flush	08/2017 to 09/2017
O&M Manual Review	10/2017 to Current
Operator Training – Contractor Provided	05/2017 to 11/2017
10-Month Warranty Review Meeting	6/28/2018

C. Outstanding Issues & Recommendations

There are a few outstanding items on the issues resolution log at the time of this final report. SPS will be handling the remaining items internally. Please see Appendix G for a complete list of the issues resolution log including issues already closed out.

D. Commissioning (Cx) Process Benefits

The Cx process for Cascadia and Robert Eagle Staff has been beneficial for Seattle Public Schools. The Cx process identified numerous issues and concerns regarding the commissioned equipment. These concerns, identified in Section 4 of this report, were brought to the attention of the design and construction team through written reports and meeting discussion. For each item, an observation and recommendation were prepared. The design and construction teams worked together to address issues when they were identified and few outstanding items remain.

Specific benefits delivered to The Seattle School District by EEI include:

1. Integration of the generator at Robert Eagle Staff into the DDC system. Before Cx, the DDC was not properly wired to the generator and therefore was not monitoring several critical alarms.
2. EEI was able to identify installation issues as well as programming issues which prevented the receptacles from energizing based on a time of day schedule or user override.
3. A lighting control system that functions to allow for maximum energy efficiency. There were occupancy sensors and improper sequencing which prevented lights from turning off when zones were unoccupied.
4. Equipment installations that have required clearances for servicing of the units, such as unit air filter replacement. Also, corrections to equipment labels to accurately identify installed equipment.
5. A complete list is documented in the Cx issue resolution log (see Appendix G)

III. DESIGN PHASE ACTIVITIES

A. Design Development Review

1. Plans and specifications dated: 05-02-2014
2. Representative Comments:
 - a. Replace specification sections 230800 (Mechanical commissioning support), 230800 (Mechanical Commissioning) with sections 019100 (General Commissioning Requirements), 220800 (Commissioning of Plumbing), 230800 (Commissioning of HVAC, 260800 (Commissioning of Electrical Systems), as provided by EEI.
 - b. PSE has energy grant programs to pay for greater energy efficiency of the boilers (70% of upgrade). Is that grant being pursued?
 - c. Please provide a lighting control narrative that identifies each space and integration to the BAS system.
 - d. On the main cold water make up line: suggest identifying the strainer upstream of the RPBD, and providing a shut off valve up stream of it for servicing.
 - e. Recommend that Demand Control Ventilation is utilized for each of the AHU's to improve building energy performance.
3. A/E Responses to EEI Comments:

Note: Written responses to DD comments were never received, but EEI notes from discussion of some items at a design review meeting on 12/17/14 are shown below.

- a. Cx specs have been added.
- b. Hargis will discuss with PSE & SCL.
- c. No update.
- d. No update.
- e. No update.

B. Construction Document Review

1. Plans and specifications dated: Construction Document Permit Set 02.27.15
2. Representative Comments:
 - a. Permit set appears to include all Cx sections listed, except Division 26 which is missing 260800, please insert previously transmitted EEI spec.
 - b. No status update.
 - c. ES/MS lighting plans show occ sensor and photocell devices, should also include prim/sec/skylight daylight zones and foot candle targets by space.

- d. Back check shows this was resolved.
- e. Back check shows this was resolved.

IV. CONSTRUCTION PHASE ACTIVITIES

A. Submittal Review Process:

EEl was involved with the submittal review process of the following:

- ES-MS Div 22 & 23 Submittal Package Review
- ES-MS Generator & Lighting Controls
- ES-MS Power Metering
- ES-MS Various Div 26, 27 & 28 Sections

B. Job Site Observation

EEl performed site walks and general site observations over the duration of the project. Some of these visits were documented in PCRs while others were verbally discussed with the team.

C. History of Deficiencies and Resolution

See the Cx Issue Resolution Log found in Appendix G for complete information regarding the history and resolution of issues discovered during field testing.

V. ACCEPTANCE PHASE ACTIVITIES

A. Pre-functional Tests

As part of the field commissioning process, prior to executing functional tests for any given commissioned system, EEI reviewed for completeness all relevant pre-functional and startup documentation completed by subcontractors, vendors, and manufacturers.

B. Functional Performance Tests

EEI developed and observed execution of functional tests for all commissioned systems. See Appendix I for detailed results of testing.

C. Building Systems Performance

Extensive discussion of building system performance test results and evaluation are included in the notes for functional performance test reports (see Appendix I), as well as in the descriptions, recommendations, and notes for items included on the Cx Issue Resolution Log (see Appendix G).

VI. CLOSE-OUT ACTIVITIES

A. O&M Manual Documentation Review

EEI reviewed the O&M manual documentation for systems that were commissioned. EEI did not take any exception to the documents that were submitted.

B. Training Program Evaluation

EEI reviewed and discussed the general contractor's detailed training schedule for various building systems, and EEI has verified that training for commissioned systems was completed to the satisfaction of the Owner.

C. Systems Manual

EEI has created a Systems Manual. The Systems Manual is intended to be used by maintenance personnel as a supplement to the information contained in the O&M data. It includes the following information:

- System Description
- Operating set points
- BAS Screen Shots
- Recommended schedule for retesting of commissioned system
- Recommended schedule for recalibration of sensors and actuators.

D. 10-Month Post-Occupancy Warranty Review Meeting

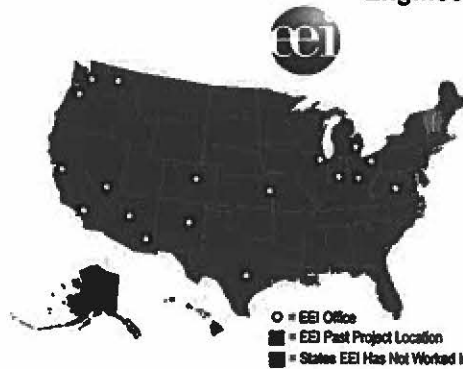
EEI met with SPS, the general contractor Lydig, and the construction management firm SOJ on 6/28/18 to discuss the warranty close-out process as it relates to commissioning. See separate meeting minutes by Lydig.

VII. CONCLUSION

While the commissioning process for Cascadia Elementary, Robert Eagle Staff and Licton Springs K-8 schools was challenging, the resulting building systems function to serve the needs of occupants, with greatly reduced operational challenges for SPS versus similar systems as they would have performed without commissioning. EEI enjoys working with the District's Capital Projects and Facility Operations departments and appreciates the significant effort staff put into these construction projects. They are knowledgeable in the District's standards, occupant needs, and lessons learned from past projects, and their ability to make decisions and give direction for issues as they arise allows the commissioning process to proceed toward successful completion.

EEI looks forward to working with the Seattle Public Schools on future building projects.

Engineering Economics, Inc.



Arizona (Phoenix)

2320 E. Baseline Road, Suite 148-291
Phoenix, AZ 85042
520.780.6263

Arizona (Tucson)

120 S. Houghton Road, Suite 138-255
Tucson, AZ 85748
520.780.6263

California (Northern)

3182 Campus Drive, Ste 214
San Mateo, CA 94553
800.869.6902

California (Southern)

5721 W. Slauson Avenue, Suite 160
Culver City, CA 90230
310.568.0807

Colorado

780 Simms Street, Suite 210
Golden, CO 80401
303.239.8700

Illinois

1425 West Schaumburg, PMB 346
Schaumburg, IL 60194
800.869.6902

Indiana

7915 South Emerson Avenue, PMB 299
Indianapolis, IN 46237
317.464.9593

Kansas/Missouri

8700 Monrovia Street, Suite 310
Lenexa, KS 66215
913.647.7568

Michigan

6632 Telegraph Rd, PMB 252
Bloomfield Hills, MI 48301
800.869.6902

Nevada

5840 W Craig Rd, Suite 120-335
Las Vegas, NV 89130
213.598.2384

New Mexico

11930 Menaul Blvd NE #224C
Albuquerque, NM 87112
503.830.6069

Ohio (Cincinnati)

9674 Colerain Ave, PMB 225
Cincinnati, OH 45251
513.439.4953

Ohio (Columbus)

6956 East Broad Street, PMB 103
Columbus, OH 43213
614.257.9246

Oregon

465 NE 181st Avenue, PMB 618
Portland, OR 97230
360.687.0175

Texas

11765 West Avenue, PMB 204
San Antonio, TX 78216
800.869.6902

Virginia

PO Box 202
Ferrum, VA 24088
800.869.6902

Washington (Western)

1201 Western Avenue, Suite 325
Seattle, WA 98101
206.622.1001

Washington (Eastern)

1324 N. Liberty Lake Road, Suite 263
Liberty Lake, WA 99019
509.998.1021

www.eelengineers.com

**Seattle School District #1
Board Resolution**

Resolution No. 2019/20-11



A RESOLUTION of the Board of Directors of Seattle School District No. 1, King County, Seattle, Washington accepting the Building Commissioning Report by Engineering Economics, Inc, for the Funded BEX IV Program, Cascadia Elementary, Robert Eagle Staff Middle and Licton Springs K-8 School project as part of OSPI D-11 Application to Release Retainage.

WHEREAS, it has been determined that the commissioning report is complete and the building is operating as the commissioning report states; and

WHEREAS, there is no further action necessary by Engineering Economics, Inc. or the General Contractor for the Funded BEX IV Program, Cascadia Elementary, Robert Eagle Staff Middle and Licton Springs K-8 Schools project;

NOW THEREFORE, BE IT

RESOLVED, that the Seattle School Board of Directors, in accordance with the provisions in WAC 392-344-165, accepts the commissioning report by Engineering Economics, Inc. for the Funded BEX IV Program, Cascadia Elementary, Robert Eagle Staff Middle and Licton Springs K-8 Schools project as part of the OSPI D-11 Application to Release Retainage; and

RESOLVED, that duly certified copies of this resolution shall be presented to the Office of Superintendent of Public Instruction.

ADOPTED this 11th day of December, 2019

Zachary DeWolf

Chandra N. Hampson

Leslie Harris

Brandon K. Hersey

Eden Mack

Liza Rankin

Lisa Rivera-Smith

ATTEST:
Denise Juneau, Superintendent
Secretary, Board of Directors
Seattle School District No. 1
King County, WA

Leslie Harris, President

Rick Burke, Vice President

Jill Geary, Member

Zachary DeWolf, Member

Eden Mack, Member

Brandon K. Hersey, Member

Scott Pinkham, Member

ATTEST:

Ms. Denise Juneau, Superintendent

Secretary, Board of Directors

Seattle School District No. 1

King County, WA