

MEETING NOTES

Schematic Design Meeting 03 (SD 03)

Building Systems and LEED

Project: FCPS – ES Prototype
Waverley ES (WAVES) and East County Area ES (ECAES)
 GWWO Project #18045 and #18050

Meeting Date: November 29, 2018
Report Date: December 04, 2018

In Attendance:

Name	Initials	Organization	Email
Roger Fritz	RF	FCPS	Roger.fritz@fcps.org
Beth Pasierb	BP	FCPS	beth.pasierb@fcps.org
Brian Staiger	BS	FCPS	Brian.staiger@fcps.org
Brad Ahalt	BA	FCPS	Brad.ahalt@fcps.org
Holly Nelson	HN	FCPS	Holly.nelson@fcps.org
Steve Raff	SR	FCPS	Stephen.raff@fcps.org
Kathy Prichard	KP	FCPS	Kathy.prichard@fcps.org
Mary Jo Richmond	MR	FCPS	Maryjo.richmond@fcps.org
Amy Cordes	AC	FCPS	Amy.cordes@fcps.org
Todd Englar	TE	FCPS	Todd.englar@fcps.org
Scott Moir	SM	GWWO	smoir@gwwoinc.com
Jason Hearn	JH	GWWO	jhearn@gwwoinc.com
Jeff Alban	JA	Alban Eng	jalban@albanengineering.com

The meeting was held to discuss potential options for the mechanical systems of the new FCPS prototype elementary school, currently in Schematic Design for the replacement of existing Waverley and the new East County Area Elementary Schools. Following a short introduction from BA and roundtable introductions, SM introduced JA, MEP engineer for the Design Team.

SD 03.01 JA reviewed primary HVAC alternatives for sourcing heating/cooling:

- Water-Source Geothermal.
- Air-Source Variable Refrigerant Flow (VRF).

- SD 03.02** **4-Pipe Central Plan (boiler/chiller).**
JA reviewed HVAC subsystems (internal components) and their variations:
- **Water-Source Geothermal**
 - Water-to-Air heat pumps
 - Water-to-Water heat pumps
 - VRF heat pumps
 - DOAS/AHU heat pumps
 - DOAS – Dedicated Outside Air System
 - AHU – Air Handling Unit
 - **Air-Source VRF**
 - Ceiling-mounted cassettes
 - Ducted fan coil units (FCU)
 - Gas-fired DOAS/RTUs
 - RTU – Rooftop Unit
 - **Hybrid Geothermal**
 - Supplemental boilers
 - Supplemental cooling tower
 - Air-Source VRF for year-round spaces
 - Gas-fired RTUs for gymnasium/cafeteria
 - **4-Pipe Central Plant**
 - High-efficiency gas-fired condensing boilers
 - Air-cooled chillers
 - Variable Air Volume (VAV) AHUs
 - FCU with DOAS

- SD 03.03** With WAVES slated to be a large school, BP inquired if there are size limitations to using a geothermal system.
- JA: No. For instance, Frederick HS uses geothermal.

Sloped sites for well-field?

- JA: Not ideal, but can be done.

Split level (sim to Baltimore County's Honeygo ES)?

- JA: No impact

- SD 03.04** JA indicates that a geothermal test well must be drilled on each site to run conductivity test to determine if geothermal is a viable option.

- SD 03.05** BP inquired why a hybrid or non-geothermal system would be considered.
- JA: If the site is small (no room for a well-field), consideration of year-round spaces, etc...

Can assembly spaces be independent of geothermal system if that is chosen for the rest of the building?

- JA: Yes.

- SD 03.06** BA: Current FCPS elementary school under construction (Urbana) is a hybrid geothermal system:
- Assembly – geothermal
 - Classrooms – VRF and DOAS
 - VRF requires DOAS; DOAS requires heat recovery
- SD 03.07** JA indicated one advantage of VRF cassettes is that they are quiet and give spaces individual controls.
- SD 03.08** JA recommends doing everything possible to put selected system on natural gas for fuel (300% cheaper than electric).
- SD 03.09** JA reviewed systemic diagrams for the primary sourcing and subsystems.
- SD 03.10** BP asked if a system is designed for part-year or full-year use.
- JA: Typically, a system is designed based on a 10 hour day for 200 days.
 - JA: Depends on particular school and anticipated summer programs.
 - KP: WAVES will have year-round programs as a Title I school.
 - SF: ECAES unlikely to have year-round programs in spaces other than County Rec-and-Parks.
- SD 03.11** RF indicated that while we are too early in the process to make a determination, it was his expectation that each school would have a different system.
- BA: Looking for efficiency and flexibility in each school.
 - SM: It is the goal of the Design Team to provide a system design INSIDE the buildings that is consistent with each other (the guts), but the sourcing may be different depending on the site.
 - Ultimate flexibility and Consistency from school-to-school for O&M efficiency across the system.
- SD 03.12** Discussion shifted to preliminary review of the LEED process; SM provided introduction and turned over to JH for more detailed discussion.
- SD 03.13** JA briefly reviewed the points available in each category and that the Design Team has started to look at what points are “low hanging fruit” and easily attainable. The remaining discussion was focused on the “maybe” credits.
- SD 03.14** Discussed that there will have to be substantial conversations as the Projects proceed to determine which credits will be pursued; Neither project is yet tracking towards the State mandated LEED Silver and decisions will have to be made as a group on what direction to proceed.
- SD 03.15** Discussion of documentation required as prerequisites, in particular Phase I Environmental Site Assessments (ESA) and Commissioning Agent (CxA).
- HN: Prepared an ESA for State site approval of ECAES; Unknown if one has been prepared for WAVES. Will examine further and advise.

- BA: RFP has been issued to Lutz Engineering to perform as CxA; Will advise.
- SD 03.16** BA indicated that FCPS O&M Staff has directed Facilities to remove dashboards (for LEED as a Teaching Tool) and extended Measurement & Verification installations.
- BS: Will look to Design Team to make a recommendation whether or not to include.
- SD 03.17** JH inquired if FCPS participates in any local utility programs that allow the utility provider to manage energy use (re: Demand Response credit).
- BA: FCPS currently enrolled with Potomac Edison (PE) and participate; will required additional coordination with FCPS Energy Coordinator.
- SD 03.18** BA indicated that it the Team should assume to factor in EV charging stations; This is already being done at Urbana ES.
- SD 03.19** KP/SR reiterated concern that they are tasked with closing an achievement gap and locating toilet rooms outside of the classrooms causes a problem for the Curriculum staff.
- Post Meeting from BP: *As you know, facilities staff has reviewed the need for bathrooms in elementary classrooms and weighed the ability to meet LEED standards as well as the cost savings in removing the bathrooms and replacing with group bathrooms against the concern for the loss of instructional time. We also have discussed this with the Superintendent. At the Superintendent's direction, we are moving forward with the design of the new east county area elementary school and the Waverley ES replacement with toilet rooms in the preK and K classrooms only.*

The foregoing represents the writer's interpretations of what transpired at the meeting. Please forward any changes or corrections within to smoir@gwwoinc.com. Otherwise these notes will stand as the final record of the meeting.

Next Meeting: Thursday, December 13, 2018

- Topic: Preliminary Building Plans and Site Development Options.

Respectfully submitted,
GWWO, Inc./Architects



Scott Moir, AIA, CDT
Associate • Project Manager

CC: All attendees