

WESTWOOD ELEMENTARY SCHOOLS BUILDING PROJECT COMMITTEE
Westwood, Massachusetts

BUILDING SYSTEMS SUBCOMMITTEE MEETING MINUTES

July 8, 2021

Attendance and Call to Order

The meeting, held remotely¹, was called to order at 9:08am by Chair Maya Plotkin. Also present on the video conference were: Ken Aries, Brian Bayer, John Cummings, Lemma Jn-baptiste, and Michelle Miller. Michelle Miller left prior to adjournment.

Chin Lin of Compass Project Management; Don Walter, Rob Fitzgerald, Steve Haskell, and Dave Mentzer, of Dore and Whittier; David Perreira and Matthew DiSalvo of Garcia, Galuska, DeSousa; Frank Stramaglia of VAV International; Jonathan Patch of McPhail Associates; and Scott Goodrich of Edvance Technology Design were in attendance.

John Cianciarulo recorded the minutes.

Maya Plotkin recognized the live stream of the meeting which was provided for real-time, public access to the activities of the School Building Committee. Members of the public were able to view a live stream of the meeting via the Internet at www.westwood.k12.ma.us/live.

Discussion Items

Various elements of the building system were reviewed by those in attendance.

Geothermal System

- 80 wells, 600-feet deep
- Closed loop, quad-loop
- Below ground, not visible at surface when complete

HVAC (Heating, Ventilation, and Air Conditioning) System

- Geothermal-source heat recovery central plant
- 100% Outdoor air rooftop units
- Displacement ventilation
- Radiant heating/cooling ceiling panels
- Dedicated exhaust systems for toilets, janitors' closets, kilns, etc.
- Building management system control and monitoring of all HVAC equipment
- Building energy use metering

Zones

- Zoned areas designed according to:
 - Building orientation
 - Functional use of space
 - After-hours use
- Entire building has air conditioning with the exception of maintenance and mechanical space; and kitchen

Michelle Miller asked about a plan to cool the kitchen for those working in the space. Matt DiSalvo stated that there is no plan in place to cool the kitchen. The exhaust hood would take the cool air out through the hood and be cost prohibitive. The kitchens in the district's other schools are not currently cooled. The kitchen has a large opening and cool air from adjacent spaces will aid in cooling the kitchen.

Control Sequence for Typical Variable Air Volume Box (VAV)

- Occupied

¹ Remote meeting held in accordance with an Act relative to extending certain COVID-19 measures adopted during the State of Emergency.

- Unoccupied
- Override
- CO2 controls
- Standby mode
- Enthalpy sensor

A diagram of the heat recovery chiller plant control was shared.

Design for Indoor Air Quality

- MERV-14 filtration
- UV-C light (Deduct alternate)
- Displacement ventilation
- 100% Outdoor air delivery
- Building Management System icon for switch to building flush-out mode

Design for Redundancy

- Rooftop Air Handling Unit Ventilation, Cooling, and Heating Capacity
 - Units sized for 100% outside air, but operate as mixed air systems under normal operating condition
 - Fan arrays continue to operate if one or some are in fault
 - MERV-8 filters upstream of MERV-14 filters to extend life of MERV-14s
- Primary/Standby Pumping for chilled and hot water (Primary and Secondary), heating hot water, GCW (dual fluid)
 - Upon a pump or variable frequency drive fault/failure, the standby pump will be commanded to takeover by the Building Management System
 - Pumps are cycled weekly based on duty-time through Building Management System programming
- Modular Heat Recovery Chiller
 - Plant designed with six modules when only five are needed for building load; one redundant module
 - Multiple-module design allows for reduced capacity heating/cooling operation if one or more modules have faulted/failed

John Cummings asked about any maintenance requirements for the wells. Jonathan Patch of McPhail Associates stated that there is none. While there is no independent well monitoring system, there is a method to monitor the entire well field.

Chair Maya Plotkin asked about the status of the request to the MSBA for a commissioning agent. Rob Fitzgerald reported that a kickoff meeting is being scheduled.

Electrical System

Power Distribution

- Power switchgear
- Power panelboard
- Transient voltage surge suppressor (TVSS)
- K-13 transformer (oversized copper transformers)
- KYZ meter

Addressable Fire Alarm System

- Fire alarm control panel
- Fire alarm annunciator
- Pull station
- Smoke detector
- Addressable mass notification: Speaker, strobe/visual “ADA” compliant signal

High Efficiency LED Lighting with Occupancy Sensor and Daylight Harvesting

- Dual technology occupancy sensor and daylight photosensor
- Lighting control system
- LPD target of .4 to .5
- Low light power density (LPD) 40% beyond code
- Lower LPD improves HVAC system efficiency
- Energy reduction by harvesting natural daylight
- 90% reflective ceiling surface for improved light levels

Addressable Lighting Control System

Components include:

- Occupancy sensor
- Daylight sensor
- BMS (Building Management System) integration
- Addressable groups
- Integration to future demand response program

400kW Natural Gas Generator with Sound Attenuated Weatherproof Enclosure

The load breakdown for life safety equipment was discussed. All exit signs and emergency lighting in the areas listed below are fed by life safety emergency power:

- Corridors
- Electrical rooms
- Gymnasium/cafeteria
- Media Center
- Lobbies
- Central Administration area
- Health suite/Nurse's office
- Toilets
- Cafetorium
- Data rooms, "Head End" room, and IDF closets
- Kitchen and server
- Exterior building-mounted lights over doors required for egress lighting
- Where required by code (egress areas)

The load breakdown for option standby equipment was discussed. The equipment listed below are fed by optional standby power:

- Boilers, water pumps
- Door access controls, security system, CCTV
- ATC controls
- Strategically located receptacles in the following areas:
 - Cafeteria
 - Kitchen/server
 - Central Administration
 - Electric rooms and emergency electric rooms, mechanical rooms
- Electronic faucets and sinks (where applicable)
- Heating and ventilation systems required for freeze protection
- Cooling unit serving head end room and IDF rooms
- Unit heater serving water service room
- Equipment within the Heat End and IDF rooms, including:
 - Paging/intercom system
 - Telephone system
 - Network electronics

- Servers
- Telephone system
- Clock system
- Fire alarm system (full battery backup)
- Refrigeration

Plumbing System

Water faucet and toilet fixtures were discussed.

- Low flow type: Automatic flush valves
- Powered by batteries that are recharged using water
- Hands-free
- Required changing of batteries after they expire

Automatic flush is not required by code. Chair Maya Plotkin will speak with the district to determine a preference.

Bottle fill/Water fountains:

- High/low fountains with bottle fill
- Supplemental by individual bottle fill stations

Fire Protection System is being designed as a wet sprinkler system throughout. There is a question regarding the main IT room and whether to use a wet system or a pre-action system, which requires two events to set off the sprinkler head. When the valve senses heat, smoke, or flame, to open it then fills with water and activates once the head element is melted.

Data and Security Systems

Data/Communications

Structured cabling

- CAT-6A voice/ data with fiber optic backbone, racks, and patch panels

Distributed Communication

- Public address system, hands-free call buttons, synchronized clock system in all academic and administration areas, common space, door video intercom/control

Audio-Visual Systems

- A/V for cafeteria and gym
- Classroom speech reinforcement
 - Amplifier, speaker in ceiling with wireless technology at instructional spaces

Network Infrastructure

- Network switches, wireless access equipment

Conduits will be run to the pole for fiber cabling. A fiber vendor is then separately hired to tie it into the system. Chin Lin will coordinate a meeting with the Town's Technology Director to facilitate. There is an allowance in the budget for such work. Chin will confirm that it is covered in the overall umbrella of the project.

Security

Integrated Security System

- Intrusion detection
- Video surveillance (interior and exterior) with 30-day recorder

Access Control

- Main entry and maintenance
 - Video intercom with two-step access control at main entry
- All other exterior doors
 - Electronic card access readers
 - Access control between public and private areas

Loose Technology Procurement

Core IT Networking Equipment

- Servers, storage, firewalls

Telephone and Voicemail

- VOIP telephone system

User IT Equipment

- Tablets, Chromebooks, iPads, laptops
- Computer carts and lockers
- Copiers, printers, and point-of-sale registers

Instructional Display

- Interactive projectors, flat panels, document cameras to support instruction
- Portable projectors

Unless significant redesign is required, there will be no need for a follow-up meeting. The only outstanding decision to be made is regarding automatic flush toilets.

Brian Bayer asked about PV panels. Chin Lin responded that there is preparation in the design. The roof is designed for the weight of the panels. Additionally, there is a provision in the electrical system.

New Business

There was no new business.

Adjournment

MOTION made by Ken Aries to adjourn the meeting. Seconded by John Cummings.

Roll-call vote:

Maya Plotkin: **Yes**

Ken Aries: **Yes**

Brian Bayer: **Yes**

John Cummings: **Yes**

Lemma Jn-baptiste: **Yes**

Michelle Miller: Absent

Result: 5-0-0 – Approved

The meeting adjourned at 10:22am.

List of Documents and Exhibits Used at Meeting:

- Slideshow presentation by Dore and Whittier, dated July 8, 2021