

25 February 2014

**Lunenburg Middle/High School
Program Meeting Agenda - 2014**

ELECTRICAL SYSTEMS

1. Main Electric Service:

- A. A new primary service will be extended from Utility co services via underground ductbank and manhole system to new Utility Co. pad mounted transformer.
- B. Secondary service from new pad mounted transformer at 480/277V. 3phase, 4 wire to main switchboard.

2. Normal Distribution System:

- A. Main switchboard with surge protection (SPD) and ground fault protection on main.
- B. Distribution system will consist of conduit and wire feeders run from switchboard to panelboards and larger mechanical equipment. Panelboards and dry type transformers will be located in electric closets located throughout the building to serve concentrated loads and manage voltage drop.
- C. Surge protection will be provided on 120/208V receptacle panels.
- D. Provisions will be included to serve proposed Green House.

3. Emergency Distribution System:

- A. An exterior, ground mounted, self contained sound attenuated Diesel emergency generator will power the following:
 - 1) Emergency/Life Safety: egress lighting and exit lighting in corridors, assembly areas, toilets and stairwells.
 - 2) Standby: Miscellaneous systems such as kitchen walk-in coolers and freezers, telephone system, security system, IT head-end, fire alarm system, one boiler and associated circulator pump and controls.
- B. Emergency panels will be located in two-hour rated electric closets.
- C. Non-emergency (standby) panels will be located in separate closets fed via separate automatic transfer switch.
- D. Emergency feeders run outside two-hour electric rooms and shafts will utilize MI Cables.

4. Lighting

- A. Luminaires - Primarily fluorescent with high efficiency, T8 lamp/ ballasts combination.
- B. Classroom Luminaires - Pendant linear direct/indirect, high efficiency T8/lamp and ballasts.
- C. Corridors, Entry Lobbies and Vestibules - LED luminaires. Photo sensor controls where sufficient day lighting is available.
- D. Gymnasium and Cafeteria -Pendant LED luminaires. Photo sensor controls will be provided.
- E. Emergency lighting - Selected luminaires in corridors, interior rooms, stairs and places of assembly will be wired to emergency generator to provide minimum code required light levels.
- F. Exit signs - Illuminated LED type, wired to emergency generator.
- G. Exterior Luminaires - Building mounted, roadway, walkway and parking luminaires will be full cutoff, LED type tied into the building low voltage lighting control system.

5. Lighting Controls:

- A. Occupancy sensors will control lighting in the majority of spaces including classrooms, offices, and utility type spaces.
- B. A low voltage lighting control system will be provided for common areas such as corridors, Cafeteria, Gymnasium, and other areas not controlled by occupancy sensors. Local low voltage override switches will be provided.
- C. Daylight harvesting will be employed in all perimeter classrooms, Gymnasium, Cafeteria, Media Center Stairwells, Corridors, Offices, and other spaces with substantial day lighting.

6. Auditorium:

- A. A professional theatrical lighting system will be provided.

7. Convenience Power:

- A. Duplex receptacles throughout the building in quantities to suit space programming.
- B. Duplex receptacles for cleaning will be provided in corridors and in other large spaces.

8. Fire Alarm:

- A. A fully supervised, addressable, voice evacuation system will be provided.
- B. Fire alarm control panel with integral annunciator will be located in the main entry lobby.
- C. Manual pull stations with Stopper covers and Audio/visual signals will be provided throughout the building.
- D. Visual only units in conference rooms, meeting rooms and small toilets.

John questioned if necessary.

- E. Smoke detector coverage will be provided in corridors, stairwells, Electric Rooms and Closets, Telephone/IT Rooms and closets, and rooms with substantial computer equipment
- F. Duct smoke detectors in respective HVAC units and within 5' of smoke dampers.
- G. Connections to sprinkler fire Protection devices and Kit hood kitchen hood.
- H. Master box (Municipal type), Knox and exterior beacon. —

9. Technology will be provided per Technology Section to include the following:

- A. Tel/data/video; Local sound systems; Clock/Program/Paging/intercom system; Cable TV system.

10. Security Alarm:

- A. System will provide the following:

- 1) System will be web based.
- 2) Magnetic switches on perimeter doors.
- 3) Motion sensors in all perimeter rooms on first floor accessible from grade.
- 4) Motion sensors in corridors, all levels.
- 5) System will have secure-access zoning, and automatic two channel dialer to notify police and/or private monitoring company.
- 6) Card access at designated entries, Main, Secondary and others locations to be determined.
- 7) CCTV coverage - Main Entry and secondary entries and all corridors on all levels. Exterior coverage around the entire perimeter of the building.

*Need Followup meeting
Sort out
Police/Fire walkie Talkie
situation*

11. Additional meetings will be held with respective Police, Fire and School officials to review security and fire alarm systems in more detail.

*Discussion - Electrical temp and permanent
to track & field*

HVAC SYSTEMS

1. Central Plant:

- A. Three gas fired condensing hot water boilers at 40% each and three hot water circulating pumps with VFDs located in the mechanical room.
- B. VE item to provide two boilers and pumps (60% each).
- C. Hot water system will contain 35% propylene glycol for freeze protection.

2. Rooftop Air Handling Unit Types:

- A. Packaged variable air volume DX rooftop air conditioning unit with hydronic heating coil for air conditioned spaces.
 - 1) Administrative Area
 - 2) Interior Spaces

- 3) Special Education Classrooms
 - 4) Cafeteria - VAV
 - 5) Auditorium
 - 6) Media Center - VAV
 - 7) Alt PE/Cardio - VAV
- B. Heating and ventilating unit with hydronic heating
- 1) Exterior music spaces
 - 2) Gymnasium
- C. Dedicated outside air systems with hydronic heating and energy recovery.
- 1) Exterior Classrooms and adjacent corridors
 - 2) Locker/Shower Spaces
- D. Make-up Air Unit for kitchen hood. Dedicated outside air unit with hot water heating coil.
- 1) Kitchen
3. Zoning:
- A. Review air handling unit zoning.
 - B. Verify cooled versus heating and ventilated spaces.
4. Automatic Temperature Controls:
- A. Direct digital control (DDC)
 - B. Central Monitoring station.
 - C. Web interface.
 - D. Alarm Notifications
 - E. Energy Monitoring
5. Special Requirements:
- A. Cooling for all interior spaces.
 - B. ~~Split system heat pump for isolated interior offices.~~
 - C. Split system air conditioning for IT.
 - D. After hours/long hours/summer use
 - E. 3D printing

Plumbing/Fire Protection Systems - AEI

1. Fire Protection:

- 100% coverage*
- A. Fire protection sprinkler zoning
 - B. Fire Department hose connection valves for egress stairs/stage *Requested by LFD*
 - C. Exterior Fire Department connection locations - *Probably will be 2*
 - D. Requirements for special systems (e.g. pre-action sprinklers, clean agent systems)
2. Plumbing:
- A. Fixture selection
 - B. Faucet/flushometer valve selection (sensor operated, hard-wired/battery powered)
 - C. Science laboratory utilities (lab gases, compressed air, vacuum)
 - D. Dedicated lab waste (acid neutralization)
 - E. Dedicated kitchen waste (interior and exterior grease traps)
 - F. Storm water roof drainage/secondary (overflow) drainage
 - G. Temporary domestic water service (Phase 1 and Phase 2 scope)
 - H. Interior sub-metering (natural gas, water)

*Clarify with
HS Science
Gas in all
and location*

[KJA/SPS/KJC-TMP; PF-AEI]

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