Lexington High School

Permanent Building Committee Meeting

02/13/2025

rescheduled to
02/20/2025

SD Decision Matrix Updates

	PBC		SBC	School Dept.	DPF	TOL
	PBC	SLC				
Programming (School Department)						
Establish Programmatic Adjacencies	☐	☐	☐	☑	☐	☐
Confirm Food Service equipment (no gas to building)	☑	☑	☐	☑	☐	☐
Confirm Science Lab equipment (no gas to building)	☑	☑	☐	☑	☐	☐
Educational Technology Program (to set the Budget)	☐	☐	☐	☑	☐	☐
Educational Furniture Program (to set the Budget)	☐	☐	☐	☑	☐	☐
Group toilet concept (gender neutral, stall type, etc.?)	☐	☐	☐	☑	☑	☐
Level of Performance Equipment	☐	☐	☐	☑	☐	☐
Confirm list of spaces for community access (daytime versus after school)	☑	☐	☐	☑	☑	☐
Confirm outdoor classrooms inc. roof terrace (locations, materials, security, tech)	☑	☐	☐	☑	☑	☐
Confirm all gymnasium activities (beyond School PE use)	☐	☐	☐	☑	☑	☑
Confirm food service locations (central versus distributed)	☐	☐	☐	☑	☑	☐
Confirm maximum assembly size in Gym/Field House	☐	☐	☑	☑	☐	☐
Confirm all activities in Field House	☐	☐	☐	☑	☑	☑
Confirm bleacher seat count	☑	☐	☐	☑	☑	☑
Decide between 146M or 200M track in Field House	☑	☐	☑	☑	☑	☑
Building Floor Plan Review						
Proposed space layouts and circulation	☑	☐	☑	☑	☐	☐
Confirm location of / access to Central Office	☑	☐	☐	☑	☐	☐
Elevators - count, usage control & roof access	☑	☐	☐	☑	☑	☐
Confirm future expansion GSF	☑	☐	☑	☑	☑	☐

SD Decision Matrix Updates

	PBC		SBC	School Dept.	DPF	TOL
	PBC	SLC				
Safety & Security Features						
Confirm after hours access diagram	☐	☐	☐	☑	☑	☐
Confirm lockdown procedures & locations (WON doors; OH grilles or swinging doors)	☐	☐	☐	☑	☑	☑
Confirm extent of security glazing	☐	☐	☐	☑	☑	☑
Entry sequence & access control (metal detectors, entry cameras, door releases, classroom locks)	☐	☐	☐	☑	☑	☑
Safety & Security tech (AED's, vape detection, intrusion detection, cameras, gunshot detection, etc.)	☐	☐	☐	☑	☑	☑
Site security features (cameras, gates, blue lights, AED's)	☐	☐	☐	☑	☑	☑
Building Design						
Exterior Design (Enclosure systems, Character, Colors, Materials and Patterns, Confirm Red List Materials)	☑	☑	☑	☑	☐	☐
Feature Space Design (Auditorium, Gym, LGI, Dining Commons, Media, etc.)	☑	☑	☑	☑	☑	☑
Add/Reno Field House - Scope and Constructability	☑	☐	☑	☑	☑	☑
Define assumed floor to floor heights and typical ceiling heights	☑	☐	☐	☐	☑	☐
Design of Building Entrances	☐	☐	☑	☑	☑	☑
Mass timber versus Structural Steel	☑	☑	☑	☐	☑	☐
Interior Material Selection & Design						
Confirm Red List Materials category selection and prioritization	☑	☑	☐	☐	☑	☐
Define specialty items (lockers, blinds & shades (manual/motorized), toilet accessories)	☐	☐	☐	☑	☑	☐
Select floor finish material type category (Feature spaces, Corridors; Classrooms; BOH)	☑	☐	☐	☑	☑	☐
Select wall finish material type category (Acoustic design, Feature spaces; Corridors; Classrooms; BOH)	☑	☐	☐	☑	☑	☐
Select ceiling finish material type category (Acoustic design, Feature spaces, Corridors; Classrooms; BOH)	☑	☐	☐	☑	☑	☐
Confirm Experiential Graphic Design (XDG) scope (Wayfinding, Signage, Placemaking)	☐	☐	☐	☑	☑	☐

SD Decision Matrix Updates

	PBC		SBC	School Dept.	DPF	TOL
	PBC	SLC				
Driveways & Circulation						
Confirm materiality	☑	☐	☐	☐	☑	☐
Confirm arrival & dismissal circulation	☐	☐	☐	☑	☐	☑
Confirm bicycle parking - type, count and location (inc. E bikes?)	☐	☑	☐	☑	☐	☑
Confirm alternative modes of transport & infrastructure needed (charging stations for Electric scooters, Mopeds & Motorcycles)	☐	☑	☐	☑	☑	☑
Confirm off-site improvements required (Town project?)	☑	☐	☑	☐	☐	☑
Athletic Fields and Park Program						
Confirm lighted fields	☐	☐	☑	☑	☐	☑
Confirm field material (Seed, SOD or synthetic)	☑	☑	☑	☑	☐	☑
Confirm bleacher system - count & ancillary spaces	☑	☐	☐	☑	☐	☑
Confirm outdoor storage requirements	☐	☐	☐	☑	☐	☑
Confirm fencing - type, heights, extent	☑	☐	☐	☑	☐	☑
Confirm non-athletic field program in Park	☐	☐	☐	☑	☐	☑
Field Irrigation system	☑	☑	☐	☑	☑	☑
Landscaping irrigation system (LEED)	☑	☑	☐	☑	☑	☑
Site Utilities						
Confirm utility connections	☐	☑	☐	☐	☐	☑
Confirm stormwater BMPs, materials, etc.	☐	☐	☐	☐	☐	☑
LCCA for HVAC Options	☑	☑	☐	☐	☐	☐
HVAC Design						
HVAC System Selection - Identify 3 Systems to be Studied	☑	☑	☐	☐	☑	☐
Select Basis of Design HVAC System	☑	☑	☐	☐	☑	☐
Identify spaces to be air conditioned.	☐	☐	☑	☑	☑	☐
Identify systems required to be supported on Standby Power (#Electrical)	☐	☐	☐	☑	☑	☐
Confirm ventilation basis of design CO2 level PPM	☑	☑	☐	☐	☐	☑
Confirm approach for integrated automation systems (BMS + Halo + others)	☑	☑	☐	☑	☑	☐

SD Decision Matrix Updates

	PBC		SBC	School Dept.	DPF	TOL
	PBC	SLC				
Plumbing Design						
Electric water heaters vs domestic heat pump with elec back up	☑	☑	☐	☐	☑	☐
Preferred manufacturers/non preferred	☐	☐	☐	☐	☑	☐
Battery vs hard wired plumbing fixtures (faucets, auto flush, soap dispensers) Flush valves - manual or sensor or sensor with manual override)	☐	☑	☐	☐	☑	☐
Confirm no floor drains at Emergency Showers	☐	☐	☐	☐	☑	☐
Confirm Janitor closet chemical mixing station (backflows required) Town standard for mixing station?	☐	☐	☐	☐	☑	☐
Lab classorooms - confirm list of chemicals that will go down drain	☐	☐	☐	☑	☐	☐
Confirm approach for trap primers at floor drains (type of primer)	☐	☐	☐	☐	☑	☑
Define Town Shelter requirements						
Level 2 - Gymnasium & Field House	☐	☐	☐	☐	☑	☐
Level 3 - Remainder of Building	☐	☐	☐	☐	☑	☐
Electrical Design						
Generator Load List and size of Diesel generator	☐	☑	☐	☐	☑	☐
Electrical Service Calcs - Do we want an Energy Management System?	☐	☑	☐	☐	☑	☐
Confirm Lighting Control preferences	☑	☐	☐	☑	☑	☐
Lightning Protection system? Protection versus Prevention	☑	☐	☐	☐	☑	☐
Confirm classroom lighting (direct/indirect pendants versus recessed fixtures)	☑	☐	☐	☐	☑	☐
Determine interior lighting approach (typical fixture type for each space, decorative fixtures, specialty fixtures, etc.)	☑	☐	☐	☑	☑	☐
Building and Site Lighting Design	☑	☐	☐	☐	☑	☐
Cellular Repeater System	☐	☐	☐	☐	☑	☑
Fire Dept. & Police Dept. BDA being provided. Any other Two-way radio needed? School Dept.	☐	☐	☐	☑	☑	☑
Confirm no Mass Notification System	☐	☐	☐	☐	☑	☑
Confirm extent of doors to have electronic locks (Hardwired, POE or battery)	☐	☐	☐	☑	☑	☐

SD Decision Matrix Updates

	PBC		SBC	School Dept.	DPF	TOL
	PBC	SLC				
Renewable Energy						
Determine final PV size	☑	☑	☐	☑	☐	☐
Determine final energy Storage Battery Size	☑	☑	☐	☐	☐	☐
Confirm location of Energy Storage Battery	☑	☑	☐	☑	☑	☐
Confirm final EV Charging Stations Quantity	☐	☑	☐	☐	☐	☑
Additional Sustainability Options						
Additional Cx for Demand Response (LEED) beyond what MSBA provides	☑	☑	☐	☐	☐	☐
Proprietary Items						
Low Carbon GWB (only 1 manufacturer at this time (USG)	☑	☑	☐	☐	☐	☑
Tectum acoustical panels	☑	☐	☐	☑	☐	☐

Program Confirmation

- ❑ All-electric food service equipment
- ❑ All-electric science lab equipment
- ❑ List of spaces for community access (daytime vs after school)

HVAC Design

- ❑ HVAC system selection
- ❑ Ventilation basis of design CO2 level PPM

Plumbing Design

- ❑ Electric water heater vs. domestic heat pump with electric back up

Additional Sustainability Options

- ❑ Additional CX for Demand Response (LEED) beyond MSBA

Current Design & Community Submissions

smma

CONFIRM

Natural Gas will not be piped to the new High School.

1) ***How will the Building Project address the need for all-electric cooking equipment in food service areas?***

2) ***How will the Building Project address the need for heating and burning implements used in laboratory experiments?***

CONFIRM

How will the Building Project address the need for all-electric cooking equipment in food service areas?

The design team has discussed the directive to eliminate piped gas with LHS leadership and the Food Service vendor.

Several of SMMA's recent school designs have had all-electric kitchens.

SMMA's Food Service Consultant is currently developing a full all-electric equipment list based on the wide variety of menu options envisioned for the new High School cafeteria.

CONFIRM

How will the Building Project address the need for heating and burning implements used in laboratory experiments?

SMMA has discussed with the Science Department Head, teachers, and LHS Leadership a layered approach that targets different equipment for specific uses:

1) Open-flame, mixed fuel portable gas burners for general use.
2) Electric bunsen burners for heating crucibles
3) Electric hot plates for boiling water

This equipment would be adequate for two classes to access from a shared prep room (scheduling coordination by the educators is needed) . Initial assumption for scoping purposes is to have 6 electric bunsen burners and 6 hot plates in each prep room.

Note: electrical panel and circuit capacity shall be upsized for each room in anticipation of several units being started at the same time.

CONFIRM

Options for Heating/Burning without Natural Gas

1 of 3 Portable Gas Burners for general use

A. Mixed Gas – Safety Bunsen Burner

- Designed for laboratory use
- Available with built-in safety features including gas cutoff and hot surface indicator
- High instant temperature
- Low maintenance
- Not efficient for heating crucibles

B. Propane

- Bare bones – no sensors or safety features
- Cost: $30 / $8 standard propane tank

C. Butane

- Portable and relatively safe
- Produces a very hot but almost invisible flame
- Burns through refills fast
- Cost: $70, with $10 cartridges

CONFIRM

Options for Heating/Burning without Natural Gas

2 of 3 Electric Bunsen Burners for heating crucibles, test tubes and igniting magnesium

Pros:

- No gas, eliminates risk of leaks
- No maintenance
- Carbon free operation

Cons:

- Expensive: ~$1,200
- Flame tests are harder
- Top stays hot for awhile

All Electric Science Lab Equipment

CONFIRM

Options for Heating/Burning without Natural Gas

3 of 3 Electric Hot Plates for boiling water

Pros:

- Can boil large quantities
- No precarious ring stands
- No gas / Carbon free operation

Cons:

- Stays hot for awhile

List of Spaces for Community Access

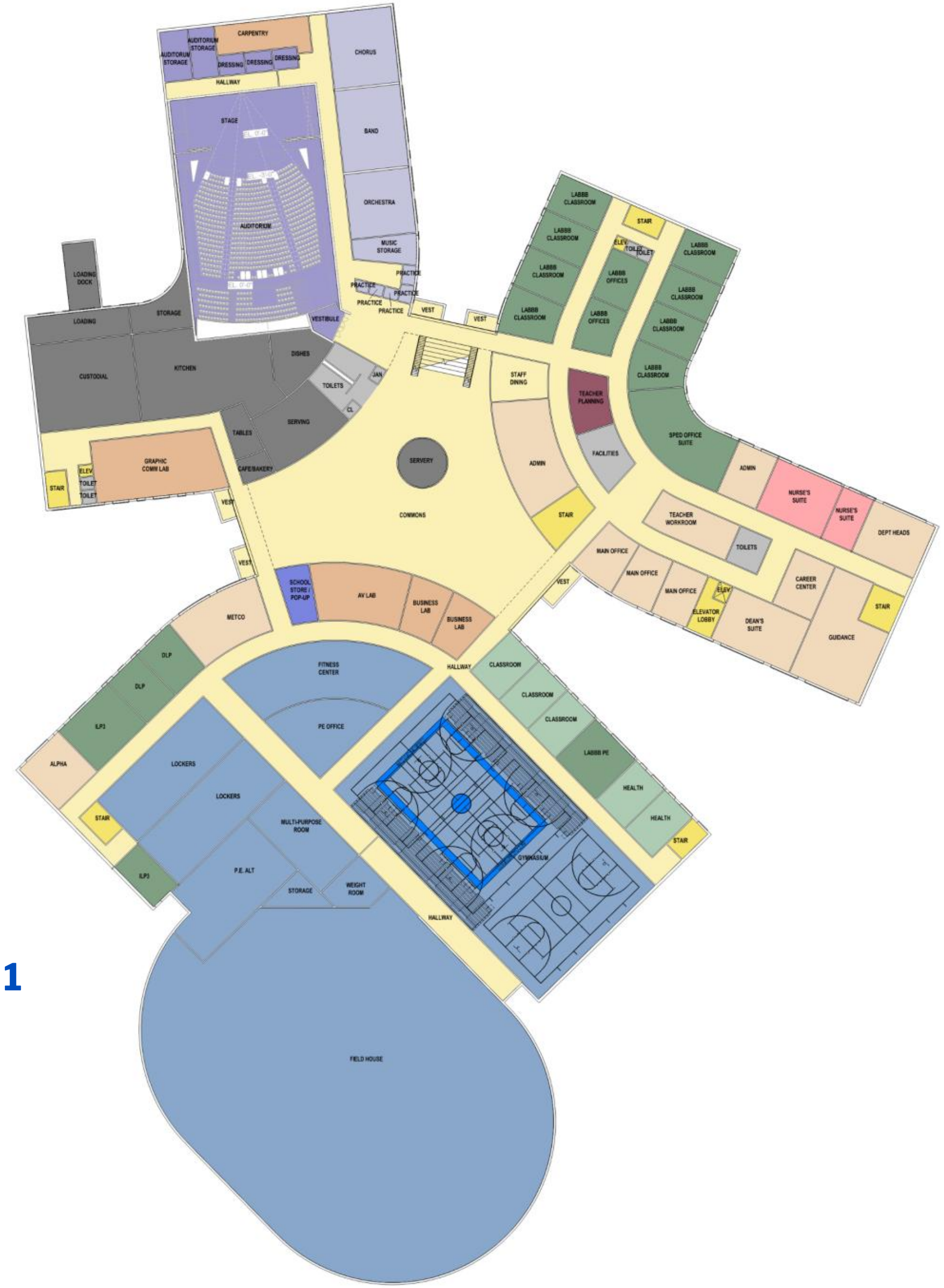
CONFIRM

- Dining Commons
- Gymnasium
- Field House
- Media Center
- Auditorium
- Black Box
- Music Practice Rooms
- Large Group Instruction
- Innovation Labs

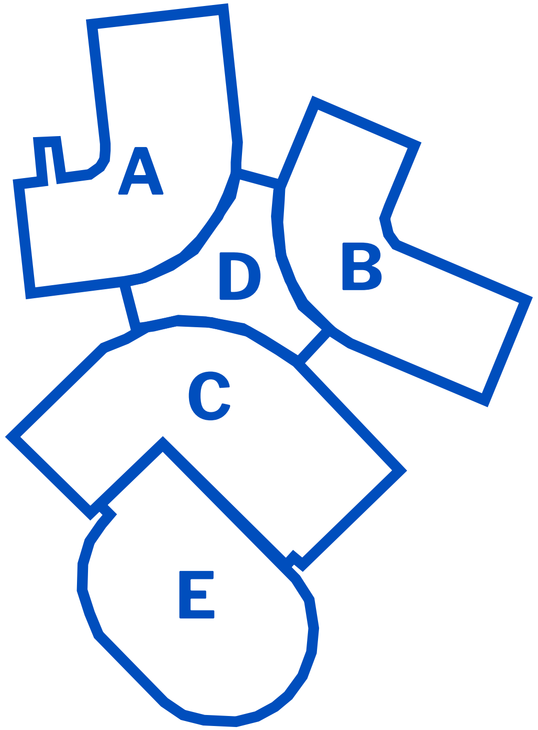
- Administration:
  - Main Office
  - Career Center
  - Lexington Education Association
- Central Office:
  - Family Welcome Center
  - Professional Learning Classrooms
  - Lexington Community Education (also Art Rooms, Music Rooms, some Gen. Ed Classrooms)
- Others... ?

List of Spaces for Community Access

- Core Academic
- Science
- Teacher Planning & Small Group
- Admin, Guidance, ALPHA, METCO, Central Offices
- Auditorium / Drama
- Art & Music
- Media Center
- Vocation & Technology
- Physical Education
- Special Education
- Medical
- Kitchen, Restrooms, Custodial
- Commons
- Circulation
- Vertical Circulation
- Rooftop Open Space
- Other
- Expansion



LEVEL 1



KEY PLAN

smma DORE + WHITTIER

2/10/2025

List of Spaces for Community Access

- Core Academic
- Science
- Teacher Planning & Small Group
- Admin, Guidance, ALPHA, METCO, Central Offices
- Auditorium / Drama
- Art & Music
- Media Center
- Vocation & Technology
- Physical Education
- Special Education
- Medical
- Kitchen, Restrooms, Custodial
- Commons
- Circulation
- Vertical Circulation
- Rooftop Open Space
- Other
- Expansion

LEVEL 1

1 Dining Commons
2 Auditorium
3 Music Practice Rooms
4 Gymnasium
5 Field House
6 Innovation Labs
7 Administration:
- Main Office
- Career Center
- Lexington Education Association

8 Elevator Access to Central Office (on Level 4)
9 Family Welcome Center

Main Entrance

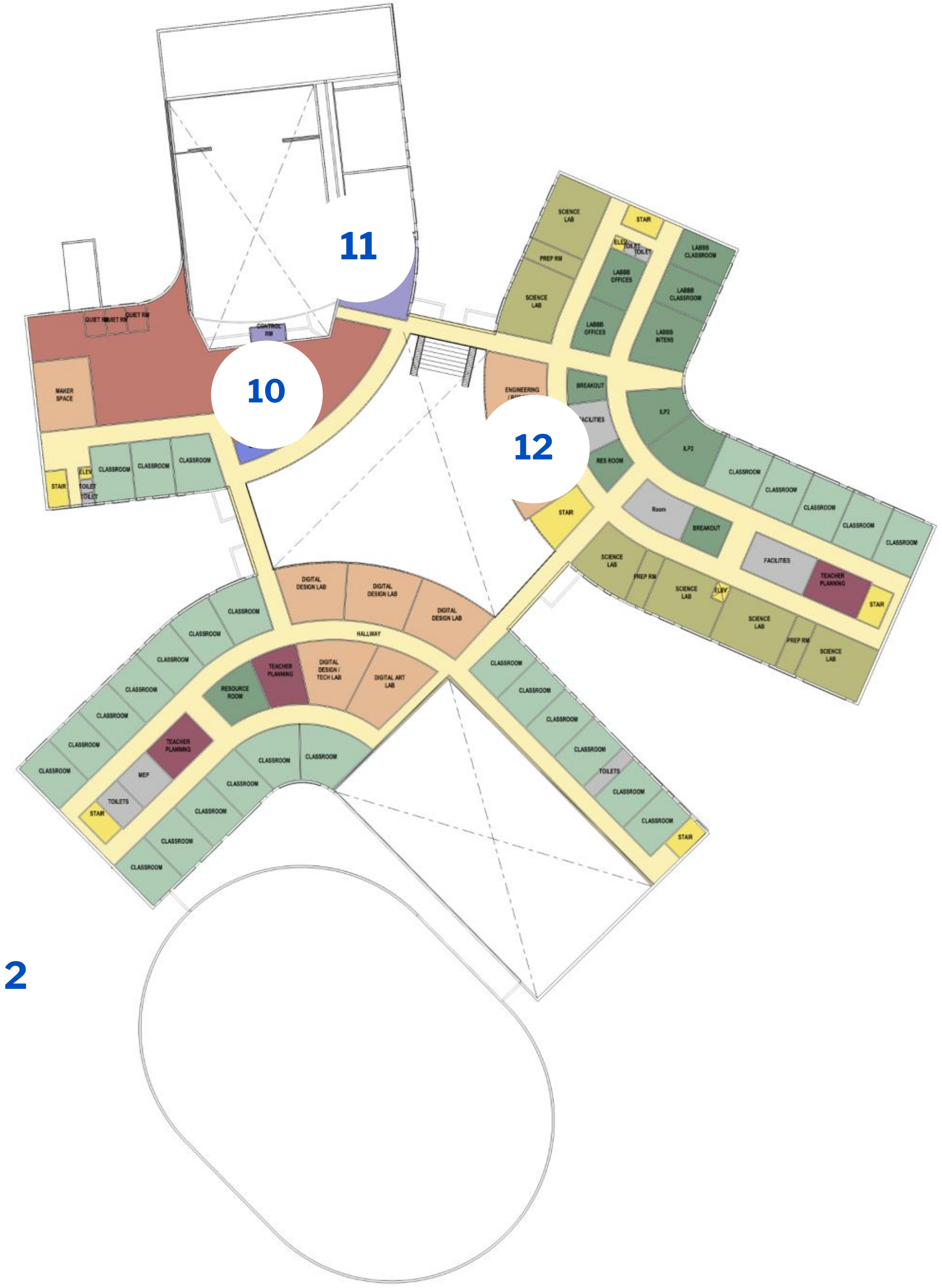
Secondary Entrance

smma dw DORE + WHITTIER

2/10/2025

List of Spaces for Community Access

- Core Academic
- Science
- Teacher Planning & Small Group
- Admin, Guidance, ALPHA, METCO, Central Offices
- Auditorium / Drama
- Art & Music
- Media Center
- Vocation & Technology
- Physical Education
- Special Education
- Medical
- Kitchen, Restrooms, Custodial
- Commons
- Circulation
- Vertical Circulation
- Rooftop Open Space
- Other
- Expansion



LEVEL 2

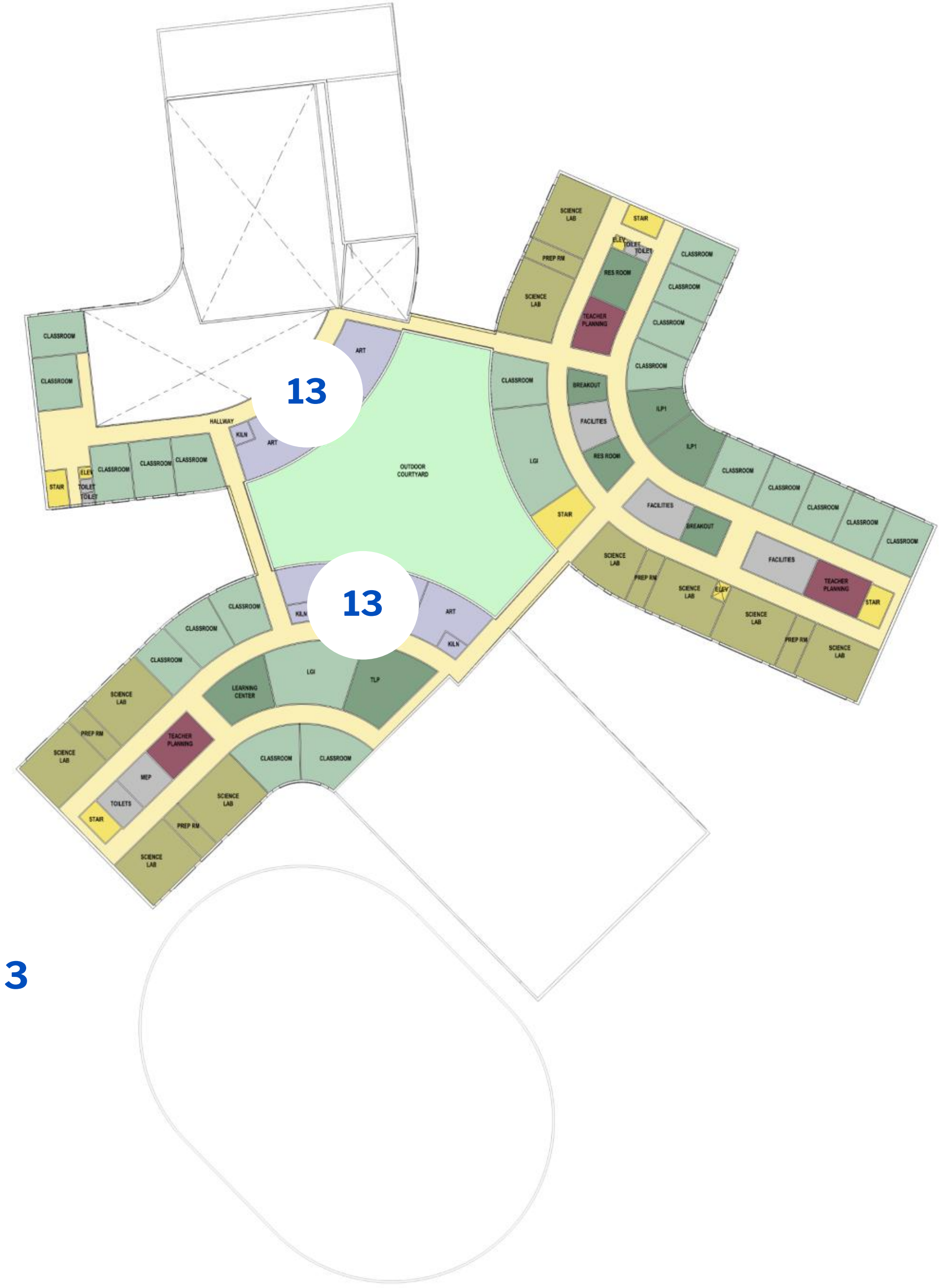
10 Media Center

11 Black Box Theater

12 Innovation Labs

List of Spaces for Community Access

- Core Academic
- Science
- Teacher Planning & Small Group
- Admin, Guidance, ALPHA, METCO, Central Offices
- Auditorium / Drama
- Art & Music
- Media Center
- Vocation & Technology
- Physical Education
- Special Education
- Medical
- Kitchen, Restrooms, Custodial
- Commons
- Circulation
- Vertical Circulation
- Rooftop Open Space
- Other
- Expansion



LEVEL 3

13 Art Classrooms

List of Spaces for Community Access

- Core Academic
- Science
- Teacher Planning & Small Group
- Admin, Guidance, ALPHA, METCO, Central Offices
- Auditorium / Drama
- Art & Music
- Media Center
- Vocation & Technology
- Physical Education
- Special Education
- Medical
- Kitchen, Restrooms, Custodial
- Commons
- Circulation
- Vertical Circulation
- Rooftop Open Space
- Other
- Expansion

LEVEL 4

14 Central Office

- Professional Learning Classrooms
- Lexington Community Education

Program Confirmation

- ❑ All electric food service equipment
- ❑ All electric science lab equipment
- ❑ List of spaces for community access (daytime vs after school)

HVAC Design

- ❑ HVAC system selection
- ❑ Ventilation basis of design CO2 level PPM

Plumbing Design

- ❑ Electric water heater vs. domestic heat pump with electric back up

Additional Sustainability Options

- ❑ Additional CX for Demand Response (LEED) beyond MSBA

Current Design & Community Submissions

smma

HVAC System Selection

Goal

- Select at least 3 systems to study

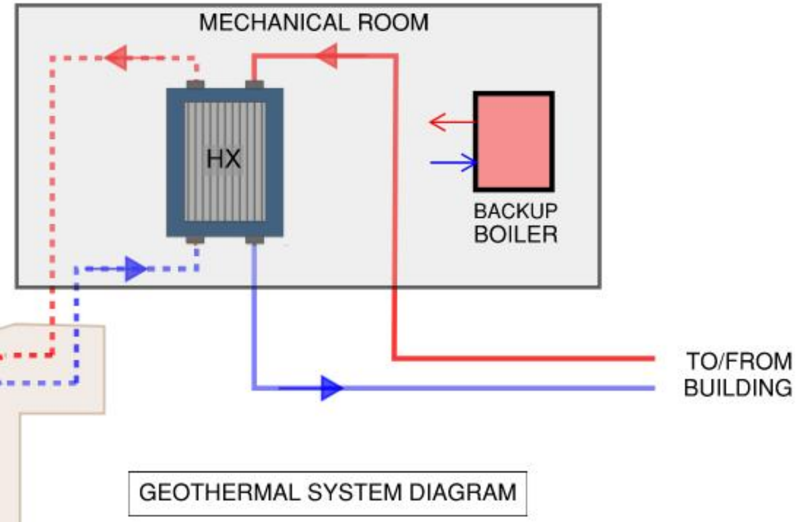
System Types

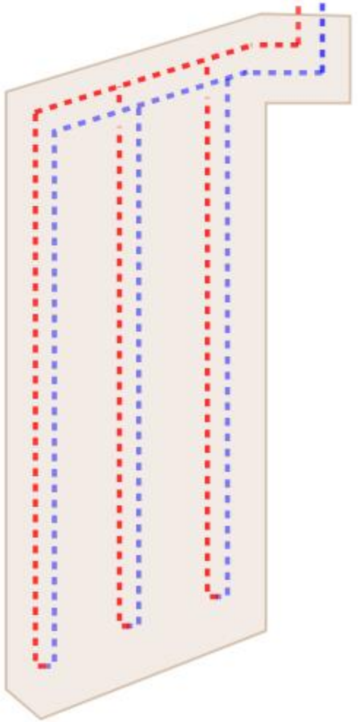
- Ground Source Heat Pumps (Geothermal, GSHP)
- Air Source Heat Pumps (ASHP)

Evaluation Process

- Qualitative – Reliability, Serviceability, Efficiency, Impact on Building
- Quantitative – Construction Cost, Operating Cost, Life Cycle Cost

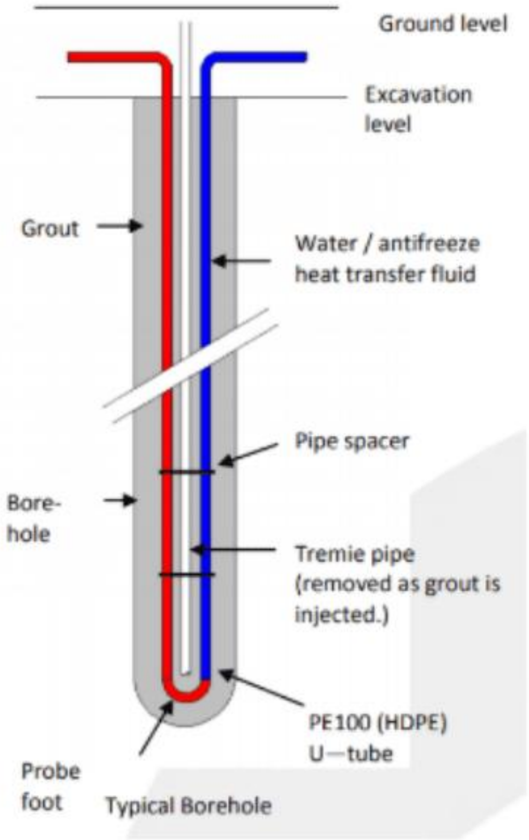
HVAC System Selection / Ground Source System Overview





GEOTHERMAL BOREHOLES & LOOP PIPING
~800 ft, 25 ft grid

DRILL RIG

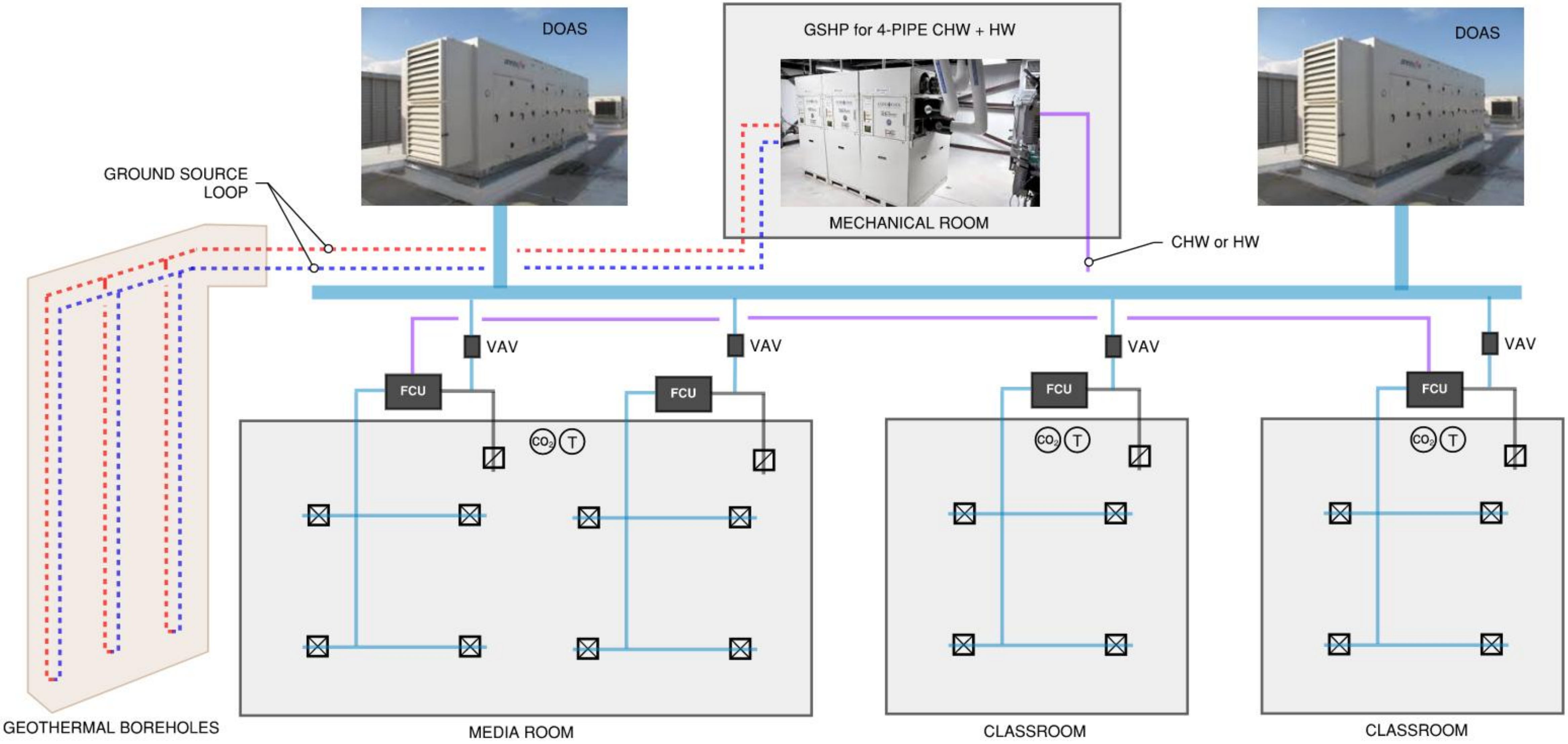


BOREHOLE VERTICAL PIPING

BOREHOLE WITH HORIZONTAL PIPING

TYPICAL BOREHOLE DIAGRAM

HVAC System Selection / Central Ground Source Heat Pump with 4-Pipe CHW/HW



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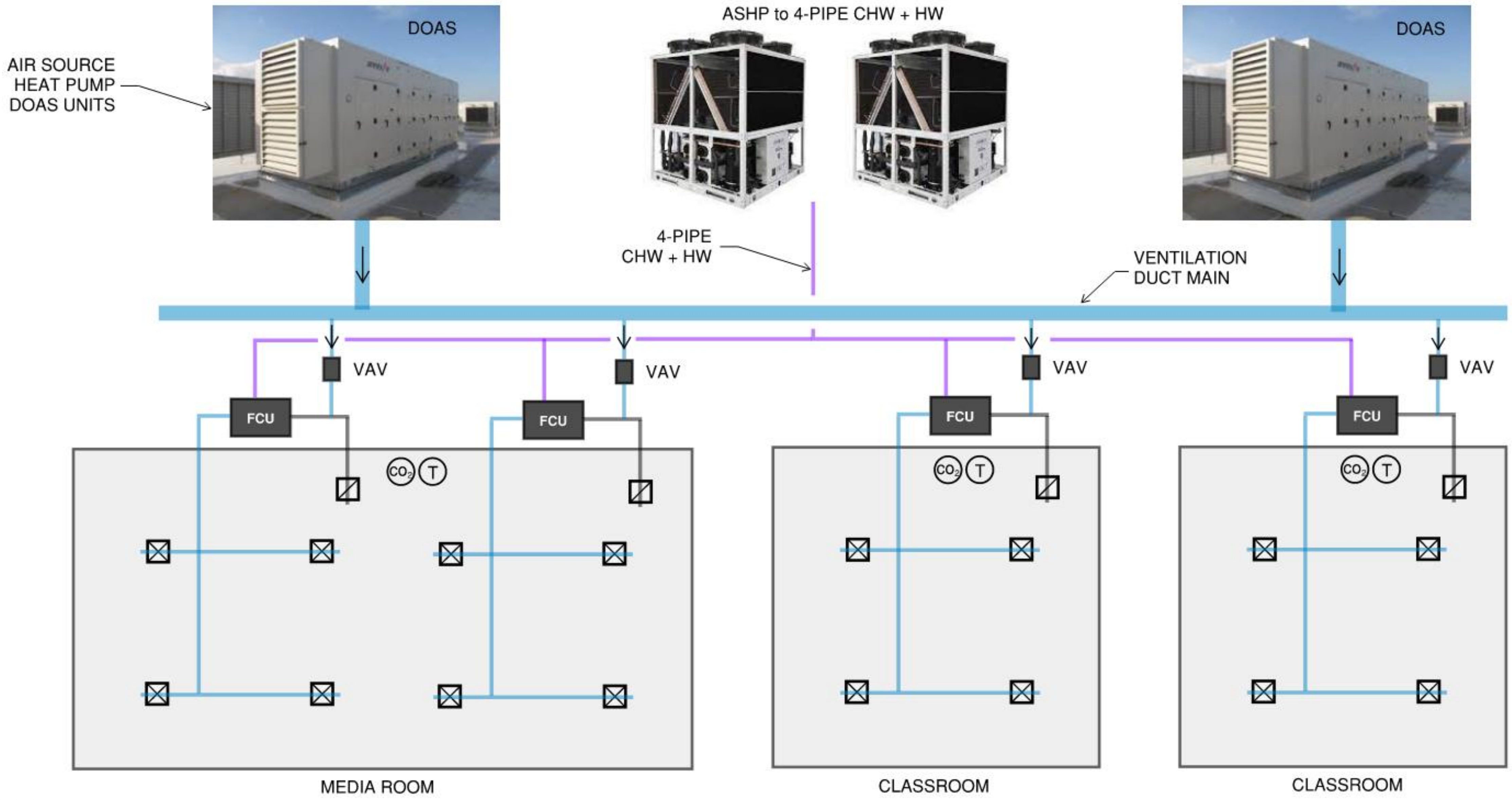
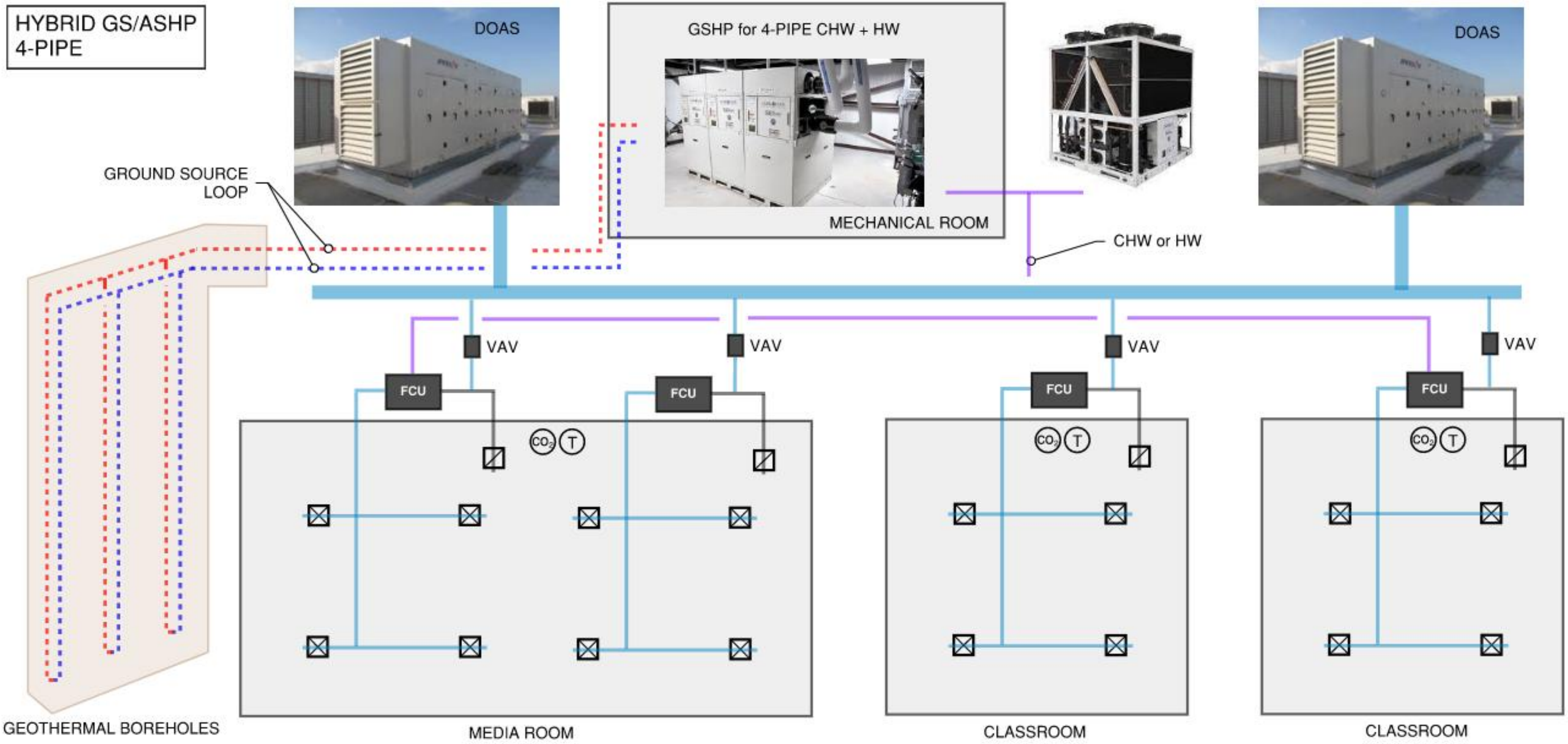
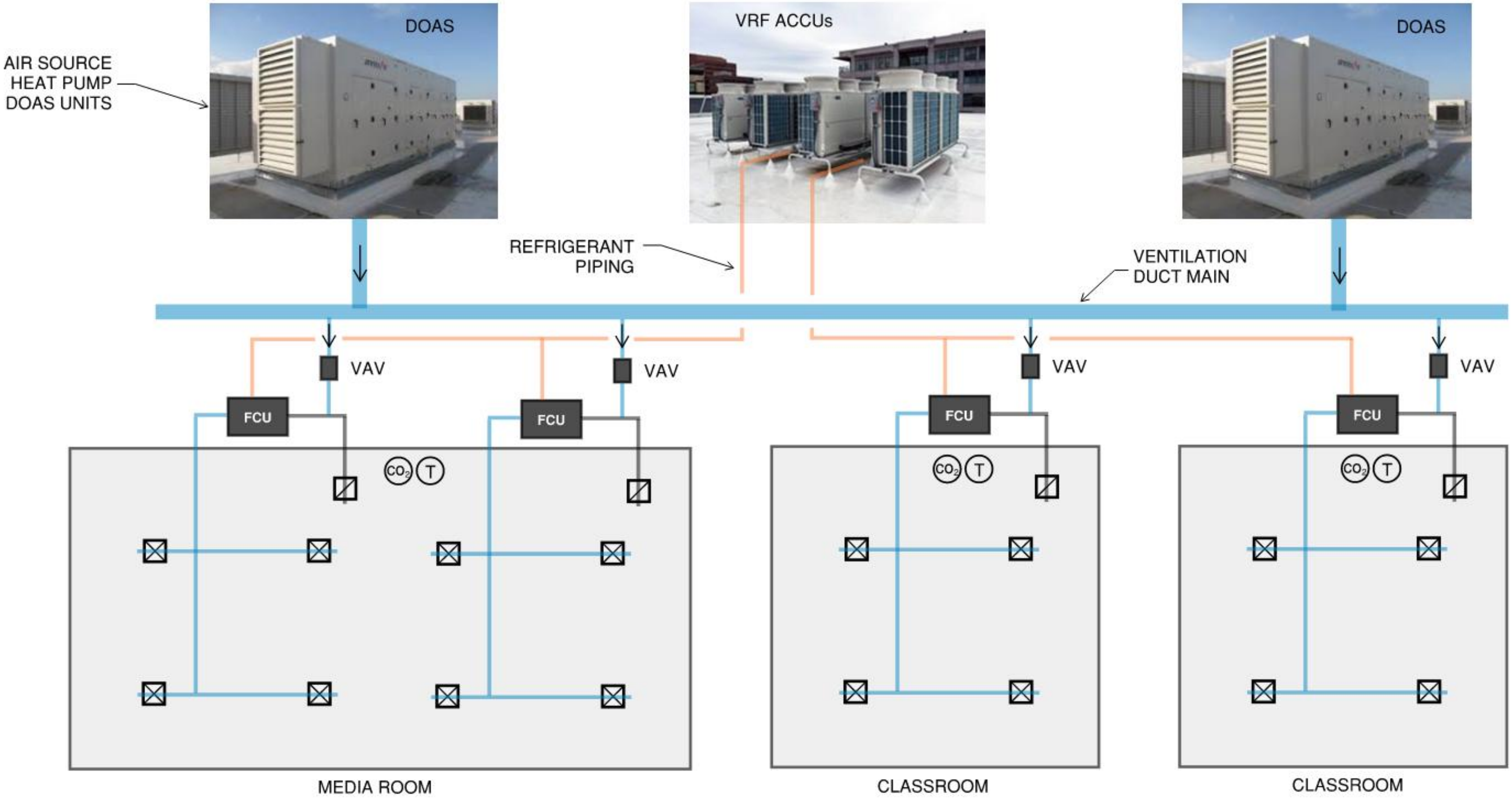
HVAC System Selection / Central Air-to-Water Heat Pump with 4-Pipe CHW/HW



HVAC System Selection / Hybrid Ground Source and Air Source Heat Pumps with 4-Pipe CHW + HW



HVAC System Selection / VRF Air Source Heat Pumps with Distributed FCUs



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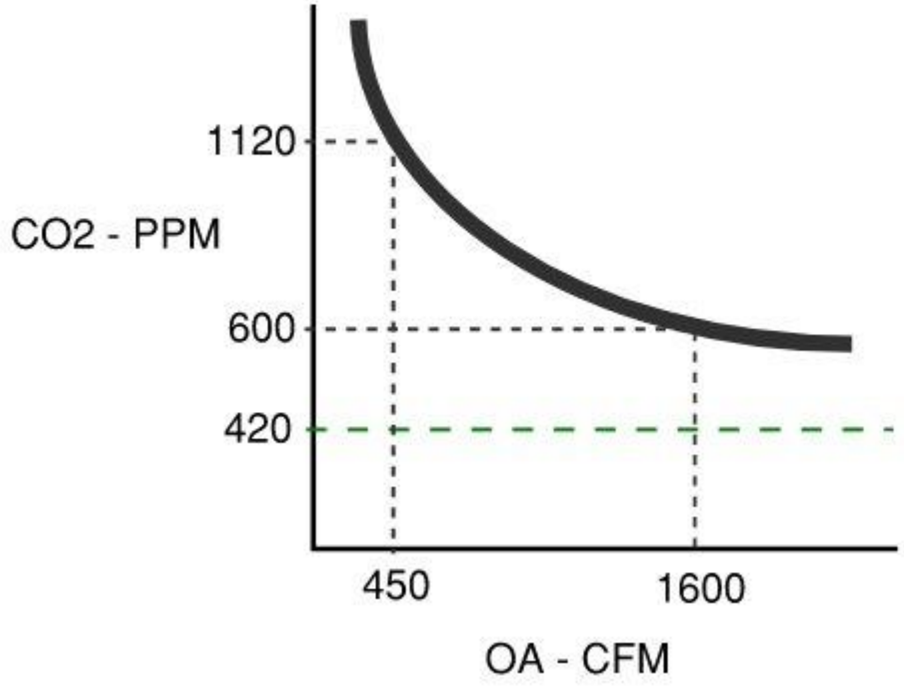
HVAC System Selection / Pros and Cons – Recommended for Study

Option	Pros	Cons
VRF ASHP + FCU	Cost effective Very good efficiency Flexible for different installations Does not require MER space	Extensive refrigeration piping in building New refrigerants are A2L (low flammability rating) ASHP require space on roof or on grade Useful life is ~15 yrs VRF defrost cycles disrupt heating function
Central ASHP + 4-Pipe FCU	Efficiency varies from good to very good Provides CHW or HW (simultaneous as needed) Options for modular configurations improve reliability	Requires glycol for freeze protection Energy efficiency is not as good as some alternatives Defrost cycles disrupt heating function Requires MER space for equipment
Central GSHP + 4-Pipe FCU	Excellent energy efficiency Provides CHW or HW (simultaneous as needed) GSHP are modular which improves reliability Useful life is ~20 yrs IRA incentives may be available.	Requires substantial MER space to house equipment Geothermal system cost is higher
Hybrid GSHP/ASHP + 4-Pipe FCU	Reduced geothermal expense with benefits Excellent energy efficiency Can meet simultaneous heating and cooling needs IRA incentives may be available	Requires MER space to house equipment Geothermal system cost still an impact ASHP expected life is ~15 yrs. System configuration and control is more complex

Ventilation Basis of Design CO2 Level PPM

Acceptable Indoor CO2 Levels

- Massachusetts Department of Public Health
  - 800 PPM
- ASHRAE Standard 62.1
  - Ambient ~400 PPM
  - Indoor Limit = Ambient + 600 PPM = 1,000 PPM [1]



Recommended Target

- 800 PPM

[1] Reference: ASHRAE Standard 62.1, Addendum ab, Table 6-1

Program Confirmation

- ❑ All electric food service equipment
- ❑ All electric science lab equipment
- ❑ List of spaces for community access (daytime vs after school)

HVAC Design

- ❑ HVAC system selection
- ❑ Ventilation basis of design CO2 level PPM

Plumbing Design

- ❑ Domestic Hot Water system selection

Additional Sustainability Options

- ❑ Additional CX for Demand Response (LEED) beyond MSBA

Current Design & Community Submissions

smma

Domestic Hot Water System Selection

System Types

- Electric Element
- Air Source Heat Pump
- Ground Source Heat Pump
- Solar Thermal

Criteria

- Energy Efficiency - COP
- Reliability
- Ease of Maintenance

Domestic Hot Water System Selection

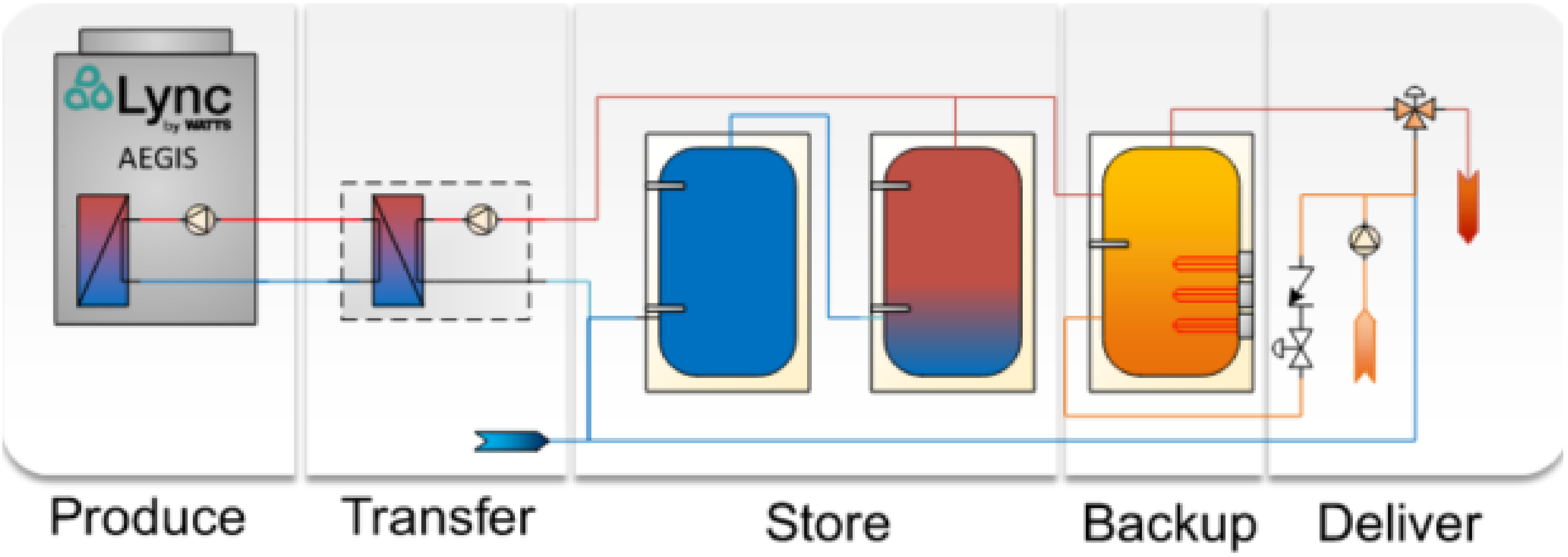
Electric Element DHW Heater

- Central System as base
- Point-of-use as supplemental
- COP = 1

Domestic Hot Water System Selection

Air Source Heat Pump System

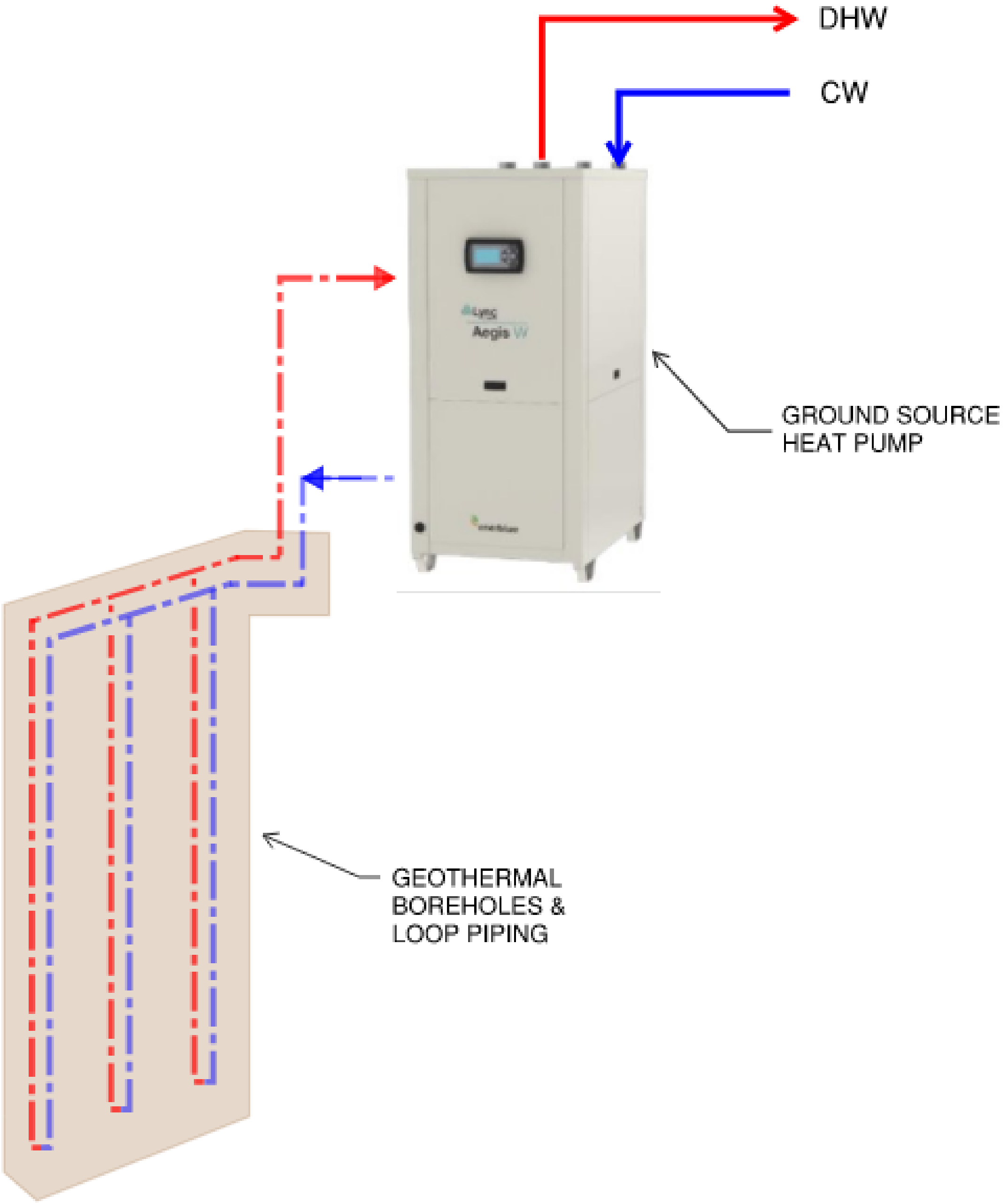
- COP = 3 to 4
- CO_2 or R-454B Refrigerants
- Additional storage tanks required
- Electric element type as backup



Domestic Hot Water System Selection

Ground Source Heat Pump System

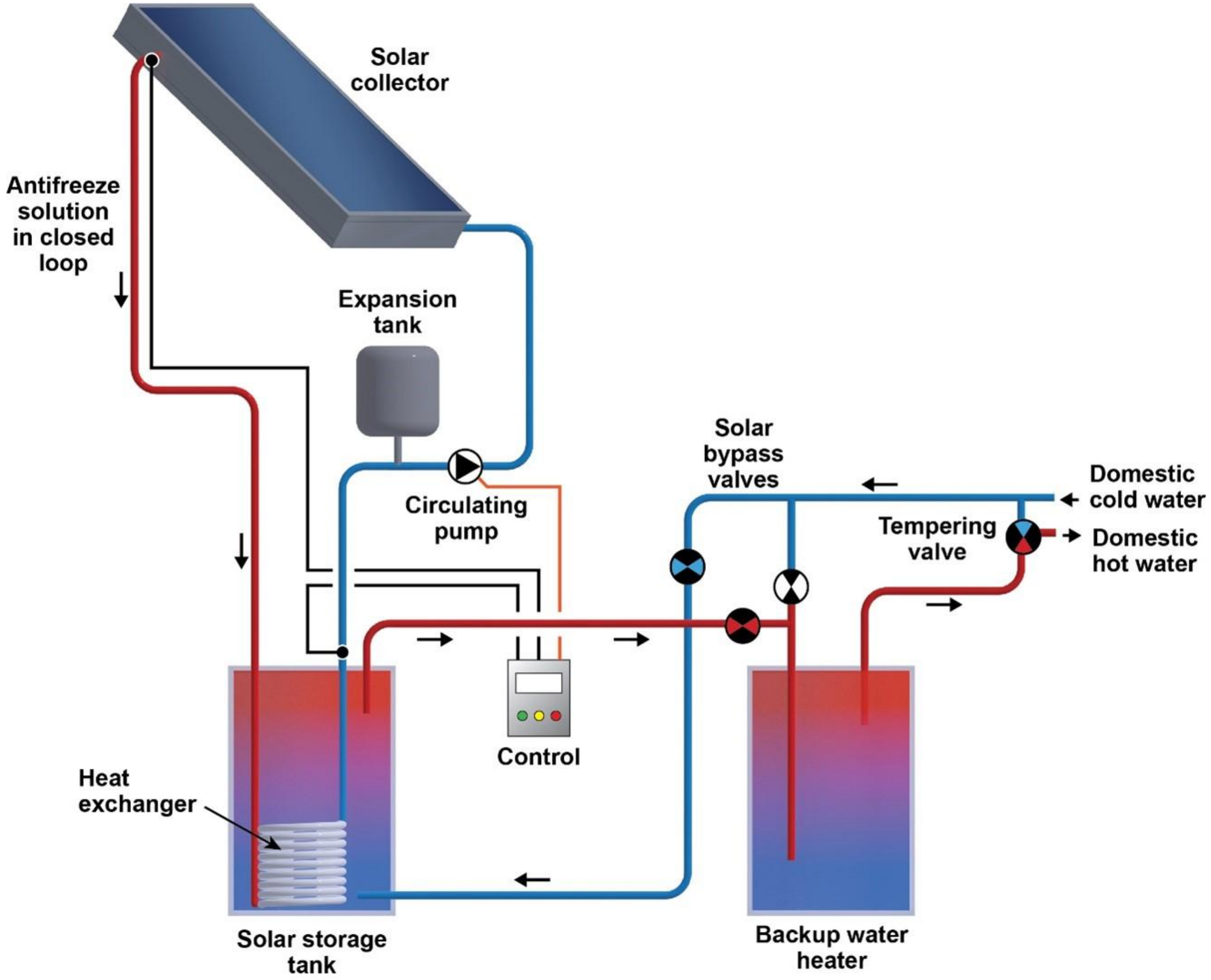
- COP = 3 – 4
- CO2 or R-454B Refrigerants
- Additional storage tanks required
- Electric element type as backup



Domestic Hot Water System Selection

Solar Hot Water System

- Collectors on roof
- Additional storage tanks required
- Electric element type as backup



Domestic Hot Water System Selection / Pros and Cons – Recommended for Study

System Type	Pros	Cons
Electric Element	Cost effective installation Proven technology and simple controls Instantaneous can be used for remote installations	Poor energy efficiency (COP = 1) Requires substantial electric power distribution
Air Source Heat Pump	Very good energy efficiency (COP = 3 to 4) CO2 option is environmentally friendly (GWP = 1)	Very expensive Newer product offering in US; not many installations
Ground Source Heat Pump	Very good energy efficiency (COP = 3 to 4) CO2 option is environmentally friendly (GWP = 1)	Very expensive Newer product offering in US; not many installations
Solar Thermal	Excellent energy efficiency Can be used to supplement an alternate system	Requires a means of rejecting heat when not in use Takes away available space for PV

Program Confirmation

- ❑ All electric food service equipment
- ❑ All electric science lab equipment
- ❑ List of spaces for community access (daytime vs after school)

HVAC Design

- ❑ HVAC system selection
- ❑ Ventilation basis of design CO2 level PPM

Plumbing Design

- ❑ Electric water heater vs. domestic heat pump with electric back up

Additional Sustainability Options

- ❑ Additional CX for Demand Response (LEED) beyond MSBA

Current Design & Community Submissions

smma

- **The LEED Demand Response credit requires to include the DR plan to be tested and observed by a Commissioning Agent.**
- **The MSBA Enhanced Cx LEEDv4 scope does not cover the DR requirements.**
- **Additional Cx scope to be separately added to the Cx agent in order to achieve the Demand Response credit.**

LEEDv4 Demand Response (1 point)

- *Install interval recording meters with communications and ability for the building automation system to accept an external price or control signal.*
- *Develop a comprehensive plan for shedding at least 10% of building estimated peak electricity demand.*
- *Include the demand response processes in the scope of work for the Commissioning Authority (CxA), including participation in at least one full test of the demand response plan.*

Program Confirmation

- ❑ All electric food service equipment
- ❑ All electric science lab equipment
- ❑ List of spaces for community access (daytime vs after school)

HVAC Design

- ❑ HVAC system selection
- ❑ Ventilation basis of design CO2 level PPM

Plumbing Design

- ❑ Electric water heater vs. domestic heat pump with electric back up

Additional Sustainability Options

- ❑ Additional CX for Demand Response (LEED) beyond MSBA

Preferred Option C.5B Bloom

SBC Preferred Option

C.5B Bloom

- Total Project Cost $662,000,000
- After MSBA Contribution **$552,000,000**

Considerations:

- **Fully** addresses **Education Program and adjacencies**
- **Includes** MSBA funding (Approx. $100M)
- Article 97 land swap required
- Impact to Students/Staff - **Low**
- Move into new building Fall 2029
  - Site complete 2030
- Includes Central Offices
- Includes desired parking (onsite)
- Includes Addition/Renovation to Field House
- Does **not** require modulars

D. 2 Weave (not selected)

SMMA Proposed Option

D.2 Weave

Considerations:

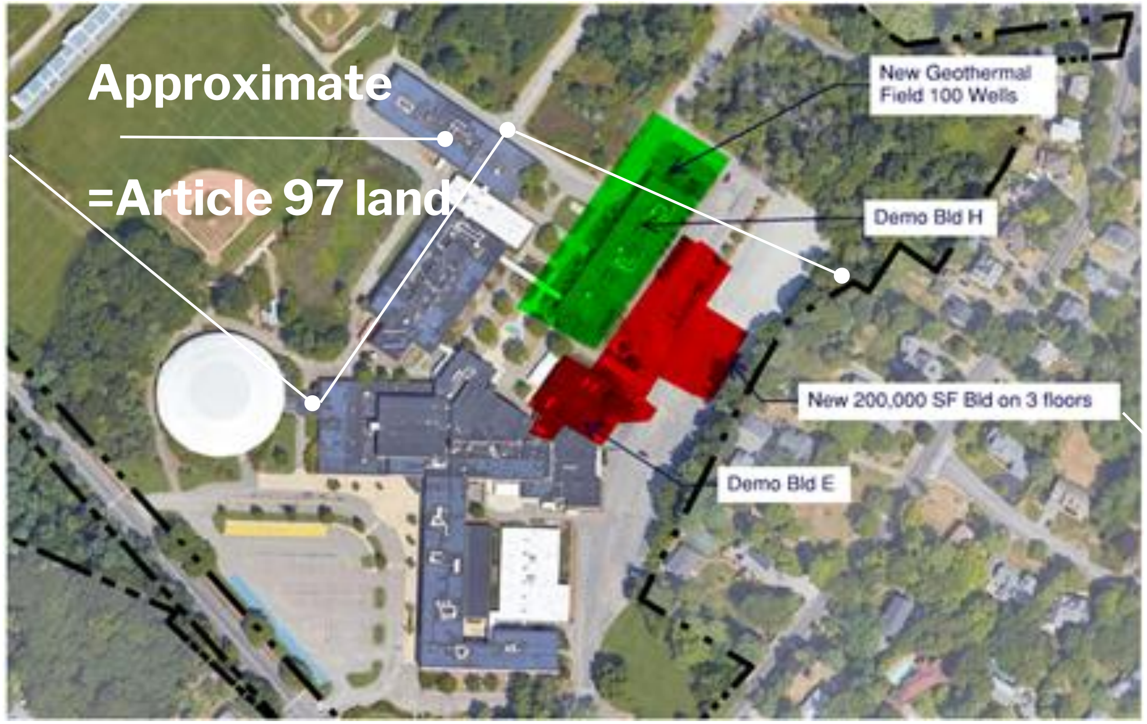
- **Fully** addresses **Education Program and adjacencies**
- **Includes** MSBA funding (Approx. $100M)
- **Article 97 Land swap required**
- Impact to Students/Staff - **High**
- Move into new building 2031
  - Site complete 2032
- Includes Central Offices
- Includes desired parking (onsite)
- Includes Addition/Renovation to Field House
- Requires Modulars

- Total Project Cost $734,710,000
- After MSBA Contribution **$634,710,000**

Community Submissions

Community Submissions

2015 SMMA Master Plan Phased New/Reno



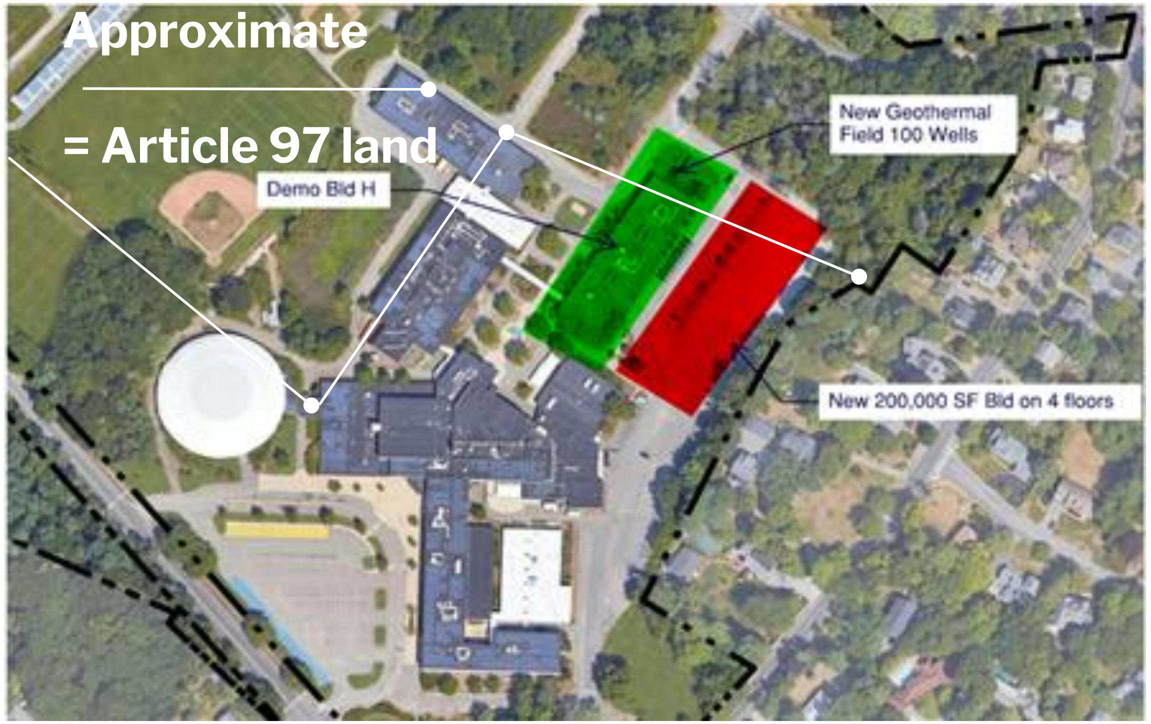
- Phase 1 Project Cost $594,608,000
- Phase 2 Project Costs (assumed) $210,990,000
- **Total Project Cost $862,565,000**
- After zero MSBA Contribution $862,565,000

Considerations:

- Phase 1 - Does **not** address **Educational Program, adjacencies/efficiencies**
- Phase 1 &2 **- Loss of MSBA Funding ($100 million)**
- Phase 1 - Article 97 Land swap required
- Phase 1 & 2 - Impact to Students/Staff- **HIGH**
- Phase 1 & 2 - Completion likely **not before 2035**
- Phase 1 - Requires full code upgrade to the attached existing building
- Phase 1 - Field house receives Code upgrades only
- Phase 2 - Assumes all renovated areas from Phase 1 are replaced with Phase 2.
- Phase 1 -Upgrades to MEP's assumed
- Phase 1 - Does not address Central Office
- Phase 1 -Parking (approx. 200 spaces) would need to be replicated on fields -Cost not included
- Phase 2 -Location for addition would require **additional loss of fields**
- Phase 1 - **Modulars required** at least for Commons II during the code upgrade to all existing during. Costs included for Commons II only
- Phase 1 - Requires gas and water main relocation

Community Submissions

Thrive .1 (without Modular Classrooms)



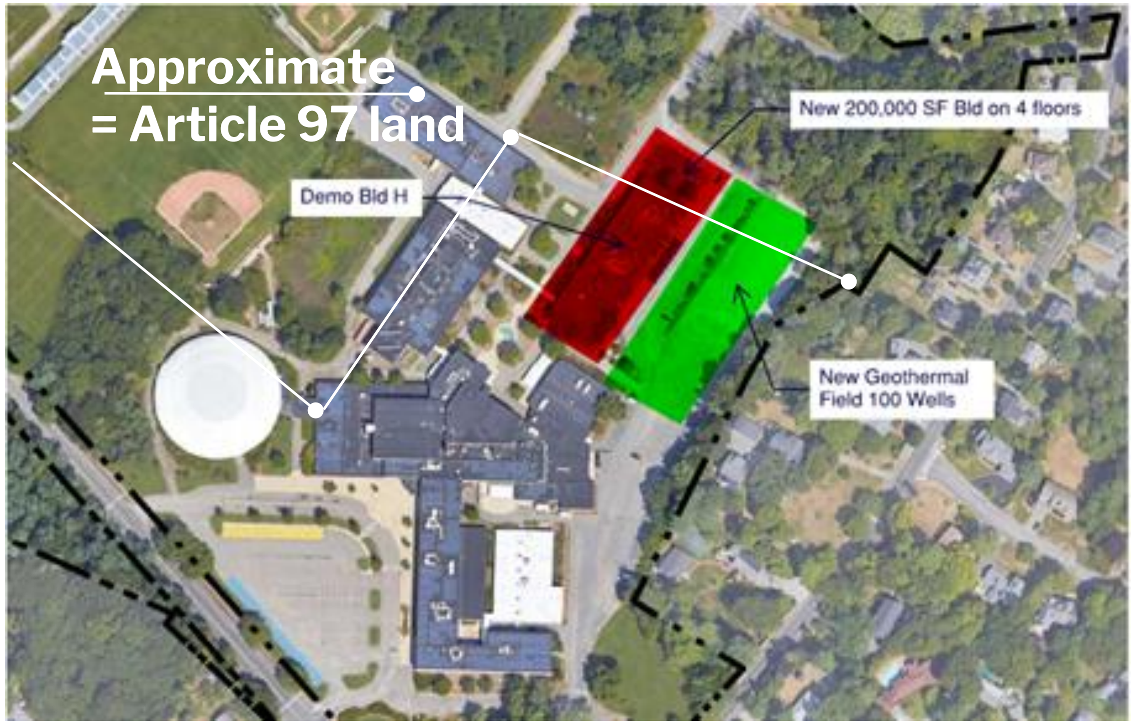
- Phase 1 Project Cost $297,759,000
- Phase 2 Project Costs (assumed) $552,914,000
- **Total Project Cost $850,673,000**
- After zero MSBA Contribution $850,673,000

Considerations:

- Phase 1 - Does **not** address **Educational Program adjacencies/efficiencies**
- Phase 1 & 2 - **Loss of MSBA Funding ($100 million)**
- Phase 1 - Article 97 Land swap **required**
- Phase 1 & 2 - Impact to Students/Staff- **HIGH**
- Phase 1 & 2 - Completion likely **not before 2035**
- Phase 1 - Required ADA only upgrades to existing building and Field House
- Phase 2 - Assumes all renovated areas from Phase 1 are replaced with Phase 2.
- Phase 1 - Retains existing MEP systems (at end of useful life) as is and increasing annual maintenance budget. Costs not included for maintenance.
- Phase 1 - Does not address Central Office
- Phase 1 - Parking (approx. 200 spaces) would need to be replicated on fields -Cost not included
- Phase 2 - Location for addition would require **additional loss of fields**
- Phase 1 & 2 - Assumes no Modulars
- Phase 1 - Requires gas and water main relocation

Community Submissions

Thrive .2 (with Modular Classrooms)



- Phase 1 Project Cost $314,015,000
- Phase 2 Project Costs (assumed) $552,914,000
- **Total Project Cost $866,929,000**
- After zero MSBA Contribution $866,929,000

Considerations:

- Does **not** address **Educational Program adjacencies/efficiencies**
- **Loss of MSBA Funding ($100 million)**
- Phase 1 - Article 97 Land swap **required**
- Phase 1 & 2 - Impact to Students/Staff- **HIGH**
- Phase 1 & 2 - Completion likely **not before 2035**
- Phase 1 - required ADA only upgrades to existing building and Field House
- Phase 2 - Assumes all renovated areas from Phase 1 are replaced with Phase 2.
- Phase 1 - Retains existing MEP systems (at end of useful life) as is and increasing annual maintenance budget. Costs not included for ongoing maintenance.
- Phase 1 - Does not address Central Office
- Phase 1 - Parking (approx. 200 spaces) would need to be replicated on fields -Cost not included
- Phase 2 - Location for phase 2 addition would require **additional loss of fields**
- Phase 1 -Includes Modulars
- Phase 2 – May require Modulars, costs not included
- Phase 1 Requires gas and water main relocation

Thank You!