

**Exhibit A**

# **GUARANTEED MAXIMUM PRICE BID PACKAGE**

Construction Documentation Phase Progress Submission



## **Friendship Public Charter School**

**GRADES PRE-K3 TO 12**

## **IDEAL CAMPUS EXPANSION V2**

6130 NORTH CAPITOL STREET, NW  
WASHINGTON, DC 20011





**Exhibit A**

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**Exhibit A**

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## Exhibit A

### OVERVIEW

#### SUMMARY OF BID PACKAGE

The following information is provided for the Friendship Public Charter Schools (FPCS) Ideal Campus Expansion V2 Project and contains the Contract Documents via Project Manual and Drawings developed by multiple disciplines to describe the entirety of the project provided within the scope of work.

This package is provided via a public Request for Proposal (RFP) for use in developing a Guaranteed Maximum Price Proposal by Contractors qualified to perform the work as defined within the attached Contract Documents package. The information provided is accurate to approximately 85% Contract Document level and shall be updated as the design and documentation progresses. Where information necessary to develop a comprehensive bid is unclear or incomplete, FPCS expects the bidding contractor to submit Requests for Information (RFI's) in order to obtain the necessary direction. Refer to the Contract Documents section below for a list of Project Manual Sections as well as a List of Drawings provided within the Contract Documents Package. The current Project Manual and Drawings are attached via **Exhibit X** and **Exhibit Y** respectively.

The proposed Contract is attached via Exhibit 1, and a live Microsoft Excel document consisting of the Bid Form is available via Exhibit 2.

#### SUMMARY OF PROPOSAL EXPECTATIONS

The Proposal developed in response to the RFP is expected to clearly define the proposed team of General and Sub-Contractors, all monetary costs, scheduled duration of time, and logistics required to complete the Scope of Work defined by the attached Contract Documents.

#### SUMMARY OF EXISTING CONDITIONS

The Project is located at 6130 North Capitol Street, NW, Washington, DC and serves the community of Ward 4 as one of the newest locations of Friendship Public Charter School's Pre-kindergarten 3 through Eighth Grade Elementary and Middle School campuses. The property was purchased from Ideal Public Charter School, and has been designated as the Friendship Public Charter School Ideal Campus in honor of that institution. The campus is located within the ANC 4B boundary, but outside of any economic development, overlay, or historic zones designated by the District.

The site is bounded by an adjacent property to the North, Chillum Place, NW to the East, Kansas Avenue, NW to the South, and WMATA Metro Rail Line to the West. The lot is recorded as Parcel 115/238 with a site area of One hundred twenty thousand thirty-nine square feet (120,039 SF), zoned PDR-1, and is entirely within the Three hundred foot (300'-0") WMATA Metro Rail line buffer. The survey documents, developed by Wiles Mensch in August 2019, indicate a change in elevation of Thirty feet (30'-0") across the site with the high point located in the Northwest corner and the low point at the Southeast edge of the property. A significant portion of the area between the face of the existing building and Kansas Avenue is not within the bounds of the School's Property, but is public space, which continues to fall another Five feet (5'-0") to the intersection of Chillum Place, NW and Kansas Avenue, NW.



## Exhibit A

Two parking lots exist on-site, both accessible from Chillum Place, NW via four existing curb cuts. The smaller of the two, located adjacent to the Primary entrance at the first floor, contains Seventeen (17) parking spaces and includes only minor revisions within the scope of work. The larger lot is located north of the smaller, and provides Forty-one (41) spaces with access to the second level via an existing wood ramp. Building services such as the loading berths, dumpster storage, and storm water treatment system are also located in the larger of the two existing parking lots.

The existing building consists of two levels and totals approximately Thirty-six thousand seven hundred thirty-five square feet (36,735 SF). The Seven thousand two hundred twenty square foot (7,220 SF) first level only exists on the south side of the site and serves as the Early Childhood education area and was renovated in the summer of 2019. This Reggio Emilia suite is expected to remain intact through the completion of the Expansion project with disturbance limited to necessary utility improvements. The existing primary entrance is located at this level, providing access to an entry lobby and monumental stair to the main level. An empty shaft is available for installation of a pit-less elevator/lift system to the main level.

The second level of approximately Twenty-nine thousand five hundred fifteen square feet (29,515 SF) includes the administrative suite, classrooms, and innovation lab/library circling a central cafeteria and warming kitchen. The existing electrical room and IT/Data rooms are located on this level. Access is provided via the monumental stair from the first level as well as by ramp from the loading berths in the larger of the two parking areas as described above. Deliveries are currently carried through the administrative suite in order to service the entire second level, including the kitchen and cafeteria. A warehouse of approximately Twenty-one thousand square feet (21,000 SF) was previously attached to the existing second level to the north. However, the warehouse was demolished in the summer of 2020 in advance of the Expansion project. A description of existing on-site utilities is available in the following report.

The following existing condition studies/investigations have been developed by the Owner's consultants and are included in this package:

1. Boundary / Topographic survey (Wall check and Survey to Mark were excluded from the owner's surveyor's scope)
2. Geotechnical Report
3. Phase I Environmental Site Assessment

## SCOPE OF WORK SUMMARY

The program provides instructional space for Five hundred sixty-five students (565) of Pre-kindergarten 3 through Eighth grades. The complete Project includes multiple phases for the sake of constructability where the Ideal Campus Expansion V2 Project is the penultimate phase of scheduled work on this campus.

The scope of work included under this agreement is limited to a building addition of three (3) levels totaling approximately Thirty-three thousand nine hundred seventy-five square feet (33,975 SF) and limited renovation of approximately eight hundred sixty-five square feet (865 SF) of the existing building as described in more detail below. This project also includes site improvements and utility infrastructure improvements to facilitate daily operation of the new building. The final phase of work



## Exhibit A

scheduled for this campus (excluded from this project) is the complete renovation of the existing second level and requires a separate agreement.

The proposed addition includes a two-story structure with a partial basement. A new pedestrian entrance is provided for the partial basement level with access to the smaller parking lot. The new basement level will contain:

- 1) Four (4) Classrooms
- 2) Bike Storage and associated showers and Lockers

The ground level of the addition will align with the existing second floor level and contain:

- 1) Five (5) classrooms
- 2) Middle school gymnasium
- 3) New Electrical Room
- 4) Support spaces
- 5) New security office
- 6) Primary connection to the existing building

The one elevated level will house:

- 1) Five (5) classrooms
- 2) One (1) office
- 3) One (1) conference room
- 4) Two (2) breakout rooms

The renovation of the existing building is limited to a new stair configuration at the new entrance lobby, floor infill and elevator/lift system selection at the existing empty hoist way, and various modifications for new MEP systems in support of the proposed renovation.

## PERMIT AND CONSTRUCTION SCHEDULE

The following building permit applications have been submitted by the design team. The anticipated approval pending District Agency review is December 2021. Building Permits for the Foundation to Grade and Full Building are under review using the District's Third Party Plan review process. The anticipated construction start date is early January 2022.

- 1) FD2000053 – Foundation to Grade Permit
- 2) B2109705 – [Full] Building Permit
- 3) 21-425889 – DC Water Large Permit Review
- 4) 6629 – DOEE Stormwater Tracking Number
- 5) PA366422 – DDOT Design (Approved)

## DESIGN TEAM AND ASSOCIATED CONTACTS

The Design team included for this project is as follows. Additional contact information is available via the prime agreement. This section is intended as recognition for contributing authors of this document.



**Exhibit A**

- 1) Architect:  
Michael Marshall Design, LLC  
Michael Marshall, AIA
  - 2) Civil Engineer:  
Wiles Mensch Corporation  
Marcelo Lopez
  - 3) Structural Engineer:  
Silman  
Vassil Draganov, PE
  - 4) Mechanical, Electrical, Plumbing, and Fire Protection Engineers:  
GHT Limited  
Aubrey Johnson
  - 5) Acoustical, Low Voltage, and Security:  
Polysonics  
Gordon Jacobs
  - 6) Landscape Architect:  
Wiles Mensch Corporation  
Craig Atkins
  - 7) LEED Consultant  
Ecolmpact, LLC  
Summer Minchew
  - 8) Fundamental Commissioning  
A2 Services  
Adam Shirvinski
  - 9) Land Surveying  
Wiles Mensch Corporation  
Marcelo Lopez
  - 10) Geotechnical Engineers  
ECS Capitol Services, PLLC  
Kevin Hurley
- Environmental Site Assessment  
ECS Capitol Services, PLLC  
Anna Christina Franciosa

**CONTRACT DOCUMENTS – LIST OF DOCUMENTS**

The Contract Documents include both the Project Manual and Drawings attached as Exhibits X & Y respectively. An excerpt from the Specification Section 000110 - Table of Contents is available below to show the specifications included in the Project Manual, and an excerpt from the List of Drawings from sheet G-001 is available as well.

PROJECT MANUAL SUMMARY	
SECT NO.	TITLE
<b>DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS</b>	
00 0101	PROJECT TITLE PAGE
00 0103	PROJECT DIRECTORY
00 0110	TABLE OF CONTENTS
00 3121.13	SITE SURVEY INFORMATION
00 3124	ENVIRONMENTAL SITE ASSESSMENT
00 3132	GEOTECHNICAL DATA
00 3143	PERMIT APPLICATION
00 31 46	PERMITS
<b>DIVISION 01 - GENERAL REQUIREMENTS</b>	
01 1000	SUMMARY

PROJECT MANUAL SUMMARY	
SECT NO.	TITLE
01 1100	SUSTAINABILITY REQUIREMENTS – SUMMARY
01 2000	PRICE AND PAYMENT PROCEDURES
01 2100	ALLOWANCES
01 2200	UNIT PRICES
01 2300	ALTERNATES
01 2500	SUBSTITUTION PROCEDURES
01 2600	CONTRACT MODIFICATION PROCEDURES
01 3000	ADMINISTRATIVE REQUIREMENTS
01 3100	PROJECT MANAGEMENT AND COORDINATION
01 3200	CONSTRUCTION PROGRESS DOCUMENTATION





**Exhibit A**

<b>PROJECT MANUAL SUMMARY</b>	
<b>SECT NO.</b>	<b>TITLE</b>
01 3300	SUBMITTAL PROCEDURES
01 3516	ALTERATION PROJECT PROCEDURES
01 3546	INDOOR AIR QUALITY MANAGEMENT
01 3700	BUILDING INFORMATION MODELING / MANAGEMENT
01 4000	QUALITY REQUIREMENTS
01 5000	TEMPORARY FACILITIES AND CONTROLS
01 6000	PRODUCT REQUIREMENTS
01 7100	CONSTRUCTION TOLERANCE
01 7300	EXECUTION
01 7419	CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
01 7700	CLOSEOUT PROCEDURES
01 7800	CLOSEOUT SUBMITTALS
01 7823	OPERATION AND MAINTENANCE DATA
01 7839	PROJECT RECORD DOCUMENTS
01 7900	DEMONSTRATION AND TRAINING
01 8113	SUSTAINABILITY DESIGN REQUIREMENTS – LEED V4 FOR NEW CONSTRUCTION
01 9000	GENERAL COMMISSIONING REQUIREMENTS
<b>DIVISION 02 – EXISTING CONDITIONS</b>	
02 4119	SELECTIVE DEMOLITION
<b>DIVISION 03 – CONCRETE</b>	
03 3100	CONCRETE
03 5416	HYDRAULIC CEMENT UNDERLAYMENT
<b>DIVISION 04 – MASONRY</b>	
04 2200	CONCRETE UNIT MASONRY
04 2613	MASONRY VENEER
04 7200	CAST STONE MASONRY
<b>DIVISION 05 – METALS</b>	
05 1200	STRUCTURAL STEEL FRAMING
05 3100	STEEL DECKING
05 4000	COLD-FORMED METAL FRAMING
05 5000	METAL FABRICATIONS
05 5113	METAL PAN STAIRS
05 5213	PIPE AND TUBE RAILINGS
05 7000	DECORATIVE METAL
<b>DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES</b>	

<b>PROJECT MANUAL SUMMARY</b>	
<b>SECT NO.</b>	<b>TITLE</b>
06 1053	MISCELLANEOUS ROUGH CARPENTRY
06 1600	SHEATHING
06 4023	INTERIOR ARCHITECTURAL WOODWORK
06 4116	PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS
<b>DIVISION 07 - THERMAL AND MOISTURE PROTECTION</b>	
07 1326	SELF-ADHERING SHEET WATERPROOFING
07 1700	BENTONITE WATERPROOFING
07 2100	THERMAL INSULATION
07 2419	WATER-DRAINAGE EXTERIOR INSULATION AND FINISH SYSTEM (EIFS)
07 2600	VAPOR RETARDERS
07 2616	UNDER-SLAB VAPOR BARRIER
07 2715	NONBITUMINOUS SELF-ADHERING SHEET AIR BARRIERS
07 2726	FLUID-APPLIED MEMBRANE AIR BARRIERS
07 4113.16	STANDING-SEAM METAL ROOF PANELS
07 4243	COMPOSITE WALL PANELS
07 5423	THERMOPLASTIC POLYOLEFIN (TPO) ROOFING
07 6200	SHEET METAL FLASHING AND TRIM
07 7100	ROOF SPECIALTIES
07 7129	MANUFACTURED ROOF EXPANSION JOINTS
07 7200	ROOF ACCESSORIES
07 7273	VEGETATED ROOF SYSTEMS
07 8413	PENETRATION FIRESTOPPING
07 8443	JOINT FIRESTOPPING
07 9200	JOINT SEALANTS
07 9219	ACOUSTICAL JOINT SEALANTS
07 9513.13	INTERIOR EXPANSION JOINT COVER ASSEMBLIES
07 9513.16	EXTERIOR EXPANSION JOINT COVER ASSEMBLIES
<b>DIVISION 08 – OPENINGS</b>	
08 0671	DOOR HARDWARE SCHEDULE
08 1113	HOLLOW METAL DOORS AND FRAMES

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<b>PROJECT MANUAL SUMMARY</b>	
<b>SECT NO.</b>	<b>TITLE</b>
08 3113	ACCESS DOORS AND FRAMES
08 4113	ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS
08 4413	GLAZED ALUMINUM CURTAIN WALLS
08 7100	DOOR HARDWARE (SCHEDULE BY OTHERS)
08 7113	AUTOMATIC DOOR OPERATORS
08 8000	GLAZING
08 8300	MIRRORS
08 8813	FIRE-RESISTANT GLAZING
<b>DIVISION 09 – FINISHES</b>	
09 0561.13	MOISTURE VAPOR EMISSION CONTROL
09 2116.23	GYPSUM BOARD SHAFT WALL ASSEMBLIES
09 2216	NON-STRUCTURAL METAL FRAMING
09 2423	CEMENT PLASTERING (STUCCO)
09 2900	GYPSUM BOARD
09 3013	CERAMIC TILING
09 5113	ACOUSTICAL PANEL CEILINGS
09 6466	WOOD ATHLETIC FLOORING
09 6513	RESILIENT BASE AND ACCESSORIES
09 6516	RESILIENT SHEET FLOORING
09 6519	RESILIENT TILE FLOORING
09 6813	TILE CARPETING
09 7200	WALL COVERINGS
09 8413	FABRIC WRAPPED SOUND-ABSORPTIVE PANELS
09 9113	EXTERIOR PAINTING
09 9123	INTERIOR PAINTING
09 9300	STAINING AND TRANSPARENT FINISHING
09 9600	HIGH-PERFORMANCE COATINGS
<b>DIVISION 10 – SPECIALTIES</b>	
10 1100	VISUAL DISPLAY UNITS
10 1200	DISPLAY CASES
10 1300	DIRECTORIES
10 1419	DIMENSIONAL LETTER SIGNAGE
10 1423.13	ROOM-IDENTIFICATION SIGNAGE
10 1453	TRAFFIC SIGNAGE
102113.19	REINFORCED PLASTIC TOILET COMPARTMENTS
10 2213	WIRE MESH PARTITIONS
10 2600	WALL AND DOOR PROTECTION

<b>PROJECT MANUAL SUMMARY</b>	
<b>SECT NO.</b>	<b>TITLE</b>
10 2800	TOILET, BATH, AND LAUNDRY ACCESSORIES
10 4413	FIRE PROTECTION CABINETS
10 4416	FIRE EXTINGUISHERS
10 5113	METAL LOCKERS
10 7527	PLAZA-MOUNTED FLAGPOLES
<b>DIVISION 11 – EQUIPMENT</b>	
11 1136	VEHICLE CHARGING EQUIPMENT
11 1233	PARKING GATES
11 1313	LOADING DOCK BUMPERS
11 5213	PROJECTION SCREENS
11 6623	GYMNASIUM EQUIPMENT
11 6653	GYMNASIUM DIVIDERS
<b>DIVISION 12 – FURNISHINGS</b>	
12 2413	ROLLER WINDOW SHADES
12 3661.16	SOLID SURFACING COUNTERTOPS
12 4816	ENTRANCE FLOOR GRILLES
12 5600	SPECIAL EQUIPMENT
12 6600	TELESCOPING STANDS
12 9300	SITE FURNISHINGS
<b>DIVISION 14 – CONVEYING EQUIPMENT</b>	
14 2400	HYDRAULIC ELEVATORS
<b>DIVISION 21 – FIRE SUPPRESSION</b>	
21 0500	COMMON WORK RESULTS FOR FIRE SUPPRESSION
21 0548	VIBRATION AND SEISMIC CONTROLS FOR FIRE SUPPRESSION PIPING AND EQUIPMENT
21 0553	IDENTIFICATION FOR FIRE-SUPPRESSION PIPING AND EQUIPMENT
21 1200	FIRE-SUPPRESSION STANDPIPES
21 1313	WET-PIPE SPRINKLER SYSTEMS
<b>DIVISION 22 – PLUMBING</b>	
22 0500	COMMON WORK RESULT FOR PLUMBING
22 0516	EXPANSION FITTINGS FOR PLUMBING PIPING
22 0519	METERS AND GAGES FOR PLUMBING PIPING
22 0523	GENERAL-DUTY VALVES FOR PLUMBING PIPING
22 0529	HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

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<b>PROJECT MANUAL SUMMARY</b>	
<b>SECT NO.</b>	<b>TITLE</b>
22 0548	VIBRATION CONTROLS FOR PLUMBING PIPING AND EQUIPMENT
22 0553	IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT
22 0700	PLUMBING INSULATION
22 1116	DOMESTIC WATER PIPING
22 1119	DOMESTIC WATER PIPING SPECIALTIES
22 1123	DOMESTIC WATER PUMPS
22 1316	STORM, SANITARY WASTE AND VENT PIPING
22 1319	SANITARY WASTE PIPING SPECIALTIES
22 1423	STORM DRAINAGE PIPING SPECIALTIES
22 3400	FUEL-FIRED DOMESTIC WATER HEATERS
22 4000	PLUMBING FIXTURES
22 5195	NATURAL GAS PIPING
<b>DIVISION 23 – HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)</b>	
23 0500	GENERAL REQUIREMENTS FOR DIVISION 23 WORK
23 0510	ELECTRIC MOTORS AND CONTROLLERS
23 0523	HVAC PIPING SYSTEMS AND ACCESSORIES
23 0529	HVAC PIPE HANGERS AND SUPPORTS
23 0548	SOUND AND VIBRATION CONTROL
23 0553	IDENTIFICATION
23 0593	TESTING, ADJUSTING, AND BALANCING FOR HVAC
23 0700	INSULATION
23 0900	AUTOMATIC TEMPERATURE CONTROLS
23 0910	SEQUENCE OF OPERATIONS
23 3300	AIR DISTRIBUTION EQUIPMENT AND ACCESSORIES
23 3413	FANS
23 3600	AIR TERMINAL UNITS
23 4100	FILTERS
23 7200	VARIABLE REFRIGERANT (VRF) AIR CONDITIONING

<b>PROJECT MANUAL SUMMARY</b>	
<b>SECT NO.</b>	<b>TITLE</b>
23 7413	PACKAGED, OUTDOOR, CENTRAL-STATION AIR HANDLING UNITS
23 8239	ELECTRIC HEATING EQUIPMENT AND ACCESSORIES
<b>DIVISION 26 – ELECTRICAL</b>	
26 0500	GENERAL REQUIREMENTS AND COMMON WORK RESULTS FOR ELECTRICAL SYSTEMS
26 0519	LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
26 0526	GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
26 0529	HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS
26 0533	RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS
26 0543	UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS
26 0544	SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING
26 0553	IDENTIFICATION FOR ELECTRICAL SYSTEMS
26 0572	OVERCURRENT PROTECTIVE DEVICE SHORT-CIRCUIT, COORDINATION, AND ARC FLASH STUDIES
26 0600	ELECTRICAL UTILITY SERVICE
26 0615	STAND BY ELECTRICAL SERVICE
26 0923	LIGHTING CONTROL DEVICES
26 0936	MODULAR DIMMING CONTROLS
26 2413	SWITCHBOARDS
26 2416	PANELBOARDS
26 2713	ELECTRICITY METERING
26 2726	WIRING DEVICES
26 2813	FUSES
26 2816	ENCLOSED SWITCHES AND CIRCUIT BREAKERS
26 2913	ENCLOSED CONTROLLERS
26 3213	ENGINE GENERATORS (NATURAL GAS)
26 3600	TRANSFER SWITCHES
26 4113	LIGHTNING PROTECTION FOR STRUCTURES



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<b>PROJECT MANUAL SUMMARY</b>	
<b>SECT NO.</b>	<b>TITLE</b>
26 4313	SURGE PROTECTION FOR LOW-VOLTAGE ELECTRICAL POWER CIRCUITS
26 5100	INTERIOR LIGHTING
26 5600	EXTERIOR LIGHTING
26 7000	ADDRESSABLE FIRE DETECTION AND ALARM SYSTEM – LOW RISE TYPE WITH VOICE SPEAKER
26 7500	TELEPHONE AND COMMUNICATION SYSTEMS ROUGH IN
26 8000	MISCELLANEOUS ELECTRICAL EQUIPMENT
26 9000	ELECTRICAL TESTING
26 9500	SUBMITTAL AND DOCUMENTATION REQUIREMENTS FOR ELECTRICAL SYSTEMS
<b>DIVISION 28 – ELECTRONIC SAFETY AND SECURITY</b>	
28 1500	INTEGRATED ACCESS CONTROL HARDWARE DEVICES
<b>DIVISION 31 – EARTHWORK</b>	

<b>PROJECT MANUAL SUMMARY</b>	
<b>SECT NO.</b>	<b>TITLE</b>
31 1000	SITE CLEARING
31 3116	TERMINTE CONTROL
<b>DIVISION 32 – EXTERIOR IMPROVEMENTS</b>	
32 1216	ASPHALT PAVING
32 1313	CONCRETE PAVING
32 3119	DECORATIVE METAL SECURITY FENCES
32 3300	SITE FURNISHINGS
32 9000	PLANTS
32 9200	TURF AND GRASSES
<b>DIVISION 33 – UTILITIES</b>	
33 1000	WATER UTILITIES
33 3000	SANITARY SEWER UTILITIES
33 4000	STORM DRAINAGE UTILITIES
33 4600	SUBDRAINAGE
<b>APPENDIX</b>	
APP-DNA1 – DESIGN NARRATIVES (FOR REF)	
APP-LEED1 – v4 PRELIM LEED CHECKLIST (FOR REF)	
APP-LEED3 – OWNER’S PROJECT REQUIREMENTS (OPR) (FOR REF)	

<b>DRAWING LIST</b>	
<b>SHEET</b>	<b>DRAWING TITLE</b>
<b>00 GENERAL</b>	
G-000	COVER SHEET
G-001	LIST OF DRAWINGS
G-002	CODE ANALYSIS, DESCRIPTION OF WORK, AND GENERAL NOTES
G-003	FIRST FLOOR LIFE SAFETY AND EGRESS PLAN
G-004	SECOND FLOOR LIFE SAFETY AND EGRESS PLAN
G-005	THIRD FLOOR LIFE SAFETY AND EGRESS PLAN
G-010	LEED SCORECARD AND BOUNDARY PLAN
G-100	COLUMN GRID LAYOUT

<b>DRAWING LIST</b>	
<b>SHEET</b>	<b>DRAWING TITLE</b>
G-110	FIRST FLOOR SLAB EDGE PLAN - OVERALL
G-111	FIRST FLOOR SLAB EDGE PLAN
G-120	SECOND FLOOR SLAB EDGE PLAN - OVERALL
G-121	SECOND FLOOR SLAB EDGE PLAN
G-130	THIRD FLOOR SLAB EDGE PLAN - OVERALL
G-131	THIRD FLOOR SLAB EDGE PLAN
G-140	ROOF EDGE PLAN - OVERALL
G-141	ROOF EDGE PLAN
<b>01 CIVIL</b>	
CIV.001	NOTES LEGEND AND ABBREVIATIONS
CIV.100	EXISTING CONDITIONS PLAN



**Exhibit A**

<b>DRAWING LIST</b>	
<b>SHEET</b>	<b>DRAWING TITLE</b>
CIV.101	EXISTING CONDITIONS PLAN
CIV.200	DEMOLITION PLAN
CIV.201	DEMOLITION PLAN
CIV.300	EROSION AND SEDIMENT CONTROL PLAN
CIV.301	EROSION AND SEDIMENT CONTROL PLAN
CIV.302	EROSION AND SEDIMENT CONTROL NOTES
CIV.303	EROSION AND SEDIMENT CONTROL DETAILS
CIV.400	SITE PLAN
CIV.401	SITE PLAN
CIV.402	SITE DETAILS
CIV.500	UTILITY PLAN
CIV.501	UTILITY PLAN
CIV.502	UTILITY DETAILS
CIV.503	UTILITY DETAILS
CIV.600	GRADING PLAN
CIV.601	GRADING PLAN
CIV.700	UTILITY PROFILES STORM SEWER
CIV.701	UTILITY PROFILES STORM SEWER
CIV.702	UTILITY PROFILES STORM SEWER
CIV.703	UTILITY PROFILES STORM SEWER
CIV.704	UTILITY PROFILES STORM SEWER
CIV.705	UTILITY PROFILES SANITARY SEWER
CIV.706	UTILITY PROFILES WATER LATERALS
CIV.800	DC WATER FORMS
CIV.900	STORMWATER MANAGEMENT PLAN
CIV.901	STORMWATER MANAGEMENT PLAN
CIV.902	STORMWATER MANAGEMENT PLAN
CIV.903	STORMWATER MANAGEMENT PLAN
<b>02 DEMOLITION</b>	
AD-110	FIRST FLOOR DEMOLITION PLAN
AD-120	SECOND FLOOR DEMOLITION PLAN
AD-210	FIRST FLOOR DEMOLITION RCP

<b>DRAWING LIST</b>	
<b>SHEET</b>	<b>DRAWING TITLE</b>
<b>03 STRUCTURAL</b>	
S-001	GENERAL STRUCTURAL NOTES, LEGEND, ABBREVIATIONS
S-002	GENERAL STRUCTURAL NOTES, LEGEND, ABBREVIATIONS
S-003	LOADING PLANS
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S-120	SECOND FLOOR FRAMING AND FOUNDATION PLAN - OVERALL
S-121	ENLARGED SECOND FLOOR FRAMING AND FOUNDATION PLAN
S-122	ENLARGED SECOND FLOOR FRAMING AND FOUNDATION PART PLANS
S-130	THIRD FLOOR FRAMING PLAN - OVERALL
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S-203	STRUCTURAL ELEVATIONS
S-204	STRUCTURAL ELEVATIONS
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S-401	SUPERSTRUCTURE SECTIONS
S-402	SUPERSTRUCTURE SECTIONS
S-403	SUPERSTRUCTURE SECTIONS
S-404	SUPERSTRUCTURE SECTIONS
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S-504	TYPICAL DETAILS
S-505	TYPICAL DETAILS
S-506	TYPICAL DETAILS
S-507	TYPICAL DETAILS
S-508	TYPICAL DETAILS
S-509	TYPICAL DETAILS
S-510	TYPICAL DETAILS
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A-142	ENLARGED ROOF PLAN - GYM AREA
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DRAWING LIST	
SHEET	DRAWING TITLE
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A-302	ENLARGED EXTERIOR ELEVATIONS
A-303	ENLARGED EXTERIOR ELEVATIONS
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A-305	ENLARGED EXTERIOR ELEVATIONS
A-306	ENLARGED EXTERIOR ELEVATIONS
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A-410	WALL SECTIONS
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A-501	ENLARGED PLANS AND ELEVATIONS - STAIR A2 AND SITE STAIR
A-505	ENLARGED PLANS AND ELEVATIONS - CORE RESTROOMS
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A-920	CORE AND SHELL DOOR SCHEDULE, DETAILS AND NOTES
A-930	EXTERIOR SIGNAGE DETAILS
A-990	SCHEDULES, EXTERIOR FINISH, FIXTURE, AND EQUIPMENT LEGEND
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ID-005	DOOR SCHEDULES AND HARDWARE
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ID-120	SECOND FLOOR CONSTRUCTION PLAN
ID-121	SECOND FLOOR CONSTRUCTION PLAN - GYM AREA
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ID-210	FIRST FLOOR CEILING PLAN
ID-220	SECOND FLOOR CEILING PLAN
ID-221	SECOND FLOOR CEILING PLAN - GYM AREA
ID-230	THIRD FLOOR CEILING PLAN
ID-310	FIRST FLOOR DEVICE PLAN
ID-320	SECOND FLOOR DEVICE PLAN
ID-321	SECOND FLOOR DEVICE PLAN - GYM AREA
ID-330	THIRD FLOOR DEVICE PLAN
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ID-421	SECOND FLOOR FINISH PLAN - GYM AREA
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<b>DRAWING LIST</b>	
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M-221	MECHANICAL SECOND FLOOR NEW WORK PLAN - PART 1
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M-502	MECHANICAL DETAIL SHEET
M-601	MECHANICAL SCHEDULES SHEET
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P-202	PLUMBING UNDERSLAB PLAN - FIRST FLOOR - PART 3
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P-401	PLUMBING ENLARGED PLANS
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P-603	PLUMBING STORM WATER RISER
P-604	PLUMBING NATURAL GAS RISER
P-605	FIRE PROTECTION RISER DIAGRAM
P-701	PLUMBING SCHEDULES
<b>08 ELECTRICAL</b>	
E001	ELECTRICAL COVER SHEET
E002	ELECTRICAL LEGEND
E100	ELECTRICAL SITE PLAN
E111	ELECTRICAL FIRST FLOOR LIGHTING PLAN
E121	ELECTRICAL SECOND FLOOR LIGHTING PLAN
E131	ELECTRICAL THIRD FLOOR LIGHTING PLAN
E211	ELECTRICAL FIRST FLOOR POWER PLAN
E221	ELECTRICAL SECOND FLOOR POWER PLAN
E231	ELECTRICAL THIRD FLOOR POWER PLAN
E311	ELECTRICAL FIRST FLOOR HVAC POWER PLAN
E321	ELECTRICAL SECOND FLOOR HVAC POWER PLAN
E331	ELECTRICAL THIRD FLOOR HVAC POWER PLAN
E341	ROOF HVAC POWER PLAN

<b>DRAWING LIST</b>	
<b>SHEET</b>	<b>DRAWING TITLE</b>
E500	ELECTRICAL DETAIL SHEET
E501	ELECTRICAL FIXTURE SCHEDULE & COMCHECK
E502	LIGHTING CONTROL DETAIL
E503	ELECTRICAL PHOTOVOLTAIC DETAIL
E504	ELECTRICAL SWBD DETAIL SHEET
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L102	LANDSCAPE STREETSCAPE LAYOUT PLAN
L103	LANDSCAPE STREETSCAPE PLANTING PLAN
L104	LANDSCAPE STREETSCAPE PLANTING PLAN
L105	CHILLUM PLACE STREETSCAPE ENLARGEMENT PLAN
L106	KANSAS AVE STREETSCAPE ENLARGEMENT PLAN
L111	SCHOOL ADDITION LANDSCAPE SITE PLAN
L112	SCHOOL ADDITION LANDSCAPE LAYOUT PLAN





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DRAWING LIST	
SHEET	DRAWING TITLE
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L114	SCHOOL ADDITION OUTDOOR CLASSROOM
L115	SCHOOL ADDITION OUTDOOR CLASSROOM
L121	LANDSCAPE RENOVATION SITE PLAN
L200	LANDSCAPE ROOF PLAN
L301	LANDSCAPE SITE SECTIONS
L302	LANDSCAPE SITE SECTIONS
L500	TREE PROTECTION DETAILS
L501	PLANT DETAILS
L502	SITE DETAILS
L503	PLANTING DETAILS ON STRUCTURE

DRAWING LIST	
SHEET	DRAWING TITLE
L600	GREEN AREA RATIO PLAN
L601	GREEN AREA RATIO PLAN
L602	GREEN AREA RATION NOTES
11 DRY UTILITIES	
DU-101	PEPCO STRUCTURAL FACILITY DRAWING PLAN
DU-101A	PEPCO TEMPORARY STRUCTURAL FACILITY DRAWING PLAN
DU-102	PEPCO STRUCTURAL FACILITY DRAWING DUCTBANK AND VAULT CONFIGURATION
DU-301	PEPCO STRUCTURAL FACILITY DRAWING DUCTBANK PROFILES
DU-501	PEPCO STRUCTURAL FACILITY DRAWING STANDARD DETAILS

**ARCHITECTURAL DESIGN CONCEPTS**

**GENERAL DESCRIPTION**

The new structure will be connected directly to the existing campus via the second floor of the existing building resulting in a secondary entrance to the campus for the students of the upper grade levels and school staff/administrators. The southern ground floor entrance will be retained for the use by the Early Childhood students, but will be augmented with the installation of a new lift providing accessible connectivity to the campus at large. This access will allow parents with children in both the Early Childcare / lower school grades and middle school students to have a single drop off location with access to the different parts on the campus.

The new Ideal Campus addition will have the required emergency egress to separate the new building from the existing during a fire emergency. There will be an elevator in the new building allowing ADA access throughout the new building from ground level to all three levels of the new building. We have used the stair towers as expressive elements in the composition of the volume allowing the building to act as an urban marker along this busy thoroughfare and as a gateway marker to the campus at each end of the site.

The material selections of the project are meant to complement the existing campus but not to simply copy the existing elements. We wish to use similar types of materials, such as the brick water table and veneer with EIFS detailing and accents in a



**Exhibit A**

softer palate hue. The base of the building will be sheathed in brick at the first floor transitioning to a multi-colored EIFS system. Glazing will comprise of anodized aluminum framed storefront systems with Low-E glazing in punched openings. At the interior we propose the use of high impact gypsum board walls, ceramic tile work in restrooms, open ceilings, exposed structure revealing MEP systems, etc. Info-graphics / murals will be installed where necessary as per consultation with the staff of the school as well as way-finding and signage. High grade VCT is specified for the majority of the flooring, including the gymnasium, classrooms, and hallways. The main structural system of this building will be steel framing for both the floors and the walls.

**APPLICABLE CODES & STANDARDS**

The project will be governed by the Zoning Regulations of the District of Columbia (2016 Regulations) and the 2017 District of Columbia Construction Codes (Subtitles A-L), which includes the following codes:

- 1) DCMR Title 11 – Zoning; Subtitle C – General Rules
- 2) DCMR Title 11 – Zoning; Subtitle J – Production, Distribution, and Repair (PDR) Zones
- 3) 2015 International Building Code as amended by 12-A DCMR
- 4) 2014 NFPA NEC as amended by 12-C DCMR
- 5) 2015 International Fuel Gas Code as amended by 12-D DCMR
- 6) 2015 International Mechanical Code as amended by 12-E DCMR
- 7) 2015 International Plumbing Code as amended by 12-F DCMR
- 8) 2015 International Fire Code as amended by 12-H DCMR
- 9) ANSI/AHRAE/IES 90.1-2013 as amended by DCMR 12-I [CE] DCMR
- 10) 2015 International Existing Building Code as amended by 12-J DCMR
- 11) 2012 International Green Construction Code as amended by 12-K DCMR

**ZONING ANALYSIS SUMMARY**

Zoning Requirement	PDR-1 Matter of Right	Existing	Proposed
<b>HEIGHT</b> 11-J DCMR §203.1 11-B DCMR §307.1	<b>50 ft./no limit in stories</b>	50 ft.	48.75 ft.
<b>PENTHOUSE HEIGHT</b> 11-J DCMR §203.6	Maximum Penthouse Height: 12 ft. except 15ft. for penthouse mechanical space	Height: Unknown at this time	Height: N/A - None proposed.
<b>FLOOR AREA RATIO (“FAR”)</b> 11-J DCMR §202.1 11-J DCMR §202.3	Maximum of 2.0 FAR for Restricted Use		



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Zoning Requirement	PDR-1 Matter of Right	Existing	Proposed
	2.0 FAR = <u>240,078 GFA Max</u> 120,039 Lot Area	<u>0.30 = 36,735 GFA</u> 120,039 Lot Area	<u>0.59 = 70,711 GFA</u> 120,039 Lot Area
<b>LOT OCCUPANCY</b> 11-C DCMR §1603	None Prescribed for public education buildings	24.6% (29,515 sf)	39.2% (47,019 sf)
<b>REAR YARD</b> 11-J DCMR §205.2	12 ft. minimum	12 ft.	No change
<b>SIDE YARD</b> 11-J DCMR §206.1	No side yard is required.	150 ft.	± 132.33 ft.
<b>TRANSITIONAL SETBACK</b> 11-J DCMR §207.1	Not Applicable	N/A	N/A
<b>GREEN AREA RATIO ("GAR")</b> 11-J DCMR §208.1 11-C DCMR Chapter 6	<b>0.3</b>	N/A	0.3
<b>COURT</b> 11-J DCMR §209.1  Definitions: 11-B DCMR §100.2	No court is required. If provided, it shall have the following minimum dimensions:  CLOSED COURT Minimum Width: 2.5 in./ft. of height of court; 12 ft. minimum Minimum Area: Twice the square of the required width of court dimension; 250 sq. ft. minimum.  OPEN COURT Minimum Width: 2.5 in./ft. of height of court; 6 ft. minimum	No Closed Courts provided, N/A  No Open Courts provided, N/A	No Closed Courts provided, N/A  No Open Courts provided, N/A
<b>VEHICLE PARKING SPACES</b> 11-J DCMR §103.1 11-C DCMR §701.5 "Public Education"  11-C DCMR §704.1	0.25 per 1,000 sf. (23 spaces) 70,711sf / 1000sf * 0.25 = 17.7  Addition increases GFA by 27% which is greater than 25%, additional parking required.	49	41 – parking required by use group for entire building is less than existing parking on-site. Planned removal of eight(8) parking spaces.



**Exhibit A**

Zoning Requirement	PDR-1 Matter of Right	Existing	Proposed
11-C DCMR §709.1 Rules of Calculation	Parking can be provided off-site if it is within 600 ft. of the subject property. Restrictions and requirements apply.		
<b>BICYCLE PARKING SPACES</b> 11-C DCMR §802.1 “Public Education”	All non-residential uses with 4,000 sq. ft. or more of GFA shall provide bike spaces.  Long Term Spaces: 1 space for each 7,500 sq. ft.  Short Term Spaces: 1 space for each 2,000 sq. ft.	No bike parking exists on-site	<b>33,976sf / 7,500sf = 4.5 long term spaces req'd</b>  <b>33,976sf / 2,000sf = 16.9 short term spaces req'd</b>



**Exhibit A**

Zoning Requirement	PDR-1 Matter of Right	Existing	Proposed
<b>LOADING</b>			
11-C DCMR §901.1 “Education”	For 30,000 to 100,000 sq. ft. of GFA:		
11-C DCMR §905.2 Loading Berth size	Minimum Loading Berths: 1 At least: 12 ft. wide, 30 ft. deep, and 14 ft. vertical clearance	1 Berth meeting minimums as noted.	1 Berth meeting minimums as noted.
11-C DCMR §901.4 Platform	Minimum Loading Platform: 1	1 Platform meeting minimum	1 Platform meeting minimum as noted.
11-C DCMR §905.4(a) Platform Size	At least: 100 sq. ft. & 8’ wide and 10 ft. vertical clearance	as noted.	noted.
11-C DCMR §901.6 Additional Loading Requirements	Area does not include bicycle storage or support facilities	N/A	N/A – No change in requirements
11-C DCMR §902.4 Calculation of GFA for loading requirements for non- residential uses	Rooftop deck area uses are not included	N/A	Urban garden area not to be included in GFA calcs for Loading requirements
11-C DCMR §903.5	No part of the vehicle shall project over any lot line, front yard setback, or building restriction line	Conforms	Conforms
11-C DCMR §904 Access Requirements	Driveway access to loading at least 12 ft. in width (max 24 ft.) @ 12% max slope	Conforms	Conforms
11-C DCMR §901.1 Service/Delivery Spaces	Minimum Number of Service/Delivery Spaces: 1	Conforms	1 Service/Delivery space meeting minimum as noted.
11-C DCMR §905.3 Size and Layout Requirements	10ft wide x 20ft deep and 10ft vertical clearance		
11-C DCMR §907.1	Designated trash area within the loading berth or accessory building or structure immediately adjacent to the loading area		To be provided within loading berth
11-C DCMR §908.1	Screening not required in PDR zone	Conforms	Conforms

## **Exhibit A**

### **STRUCTURAL DESIGN SUMMARY**

#### **SUBSTRUCTURE**

A geotechnical investigation has shown that a shallow foundation system consisting of spread and continuous footings is acceptable. New building columns will be supported by a shallow foundation system. Foundations will be stepped down to match the elevation of the existing adjacent building to avoid underpinning the existing structure where possible. Retaining walls will be placed at the partial basement for the new lower level classrooms.

#### **SUPERSTRUCTURE**

The roof will consist of steel beams or joists in typical areas and open web joists over the gymnasium. The floors will consist of concrete on steel deck slabs supported by steel beams and columns.

#### **LATERAL SYSTEM**

The lateral system will consist of steel brace frames.

#### **STRUCTURAL DESIGN GUIDELINES**

##### **APPLICABLE CODES & STANDARDS**

The project will be governed by the following codes:

- 1) 2017 District of Columbia Construction Code
- 2) 2015 International Building Code (IBC)
- 3) 2015 International Existing Building Code (IEBC)

The following standards will be followed as specified by the governing codes:

- 1) ASCE 7-10 Minimum Design Loads (and Associated Criteria) for Buildings and Other Structures
- 2) ACI 318-11 Building Code Requirements for Structural Concrete
- 3) ACI 530-11 Building Code Requirements for Masonry Structures
- 4) AISC 360-10 Specification for Structural Steel Buildings
- 5) ASCE 41-13 Seismic Evaluation and Retrofit of Existing Buildings



## Exhibit A

### STRUCTURAL LOADS

Refer to the Design Parameter Table available in the Contract Documents for all design loads.

## MECHANICAL SYSTEM DESCRIPTIONS

### GENERAL DESCRIPTION

- 1) The HVAC system shall be a combination of air-cooled Variable Refrigerant Flow (VRF) heat recovery heat pumps and a Rooftop 100% outside air Energy Recovery Unit.
- 2) A 100% Outside Air Energy Recovery Unit shall supply approximately 7,800 CFM of ventilation air to the central supply air riser, with ventilation air to each floor controlled by a dedicated shutoff VAV box. In a similar manner, toilet exhaust to each floor shall also be controlled by a shutoff VAV box and shall be routed through a heat recovery device at the OA Unit to exchange heat with incoming outside air stream.
- 3) Heating will be accomplished through heat pump heating at VRF condensing units.
- 4) The gym will be provided with a standalone HVAC system consisting of one (1) air-cooled DX gas-fired rooftop unit (RTU) situated centered in the gym proposed gym.

### INDOOR AND OUTDOOR AIR DESIGN AND VENTILATION REQUIREMENTS

- 1) Refer to the Mechanical Schedules sheets available in the Contract Documents for all design parameters.
- 2) Space noise level from HVAC system noise production: Maximum NC 40, with additional sound attenuation likely to achieve LEED for Schools requirements.

### AIR DISTRIBUTION SYSTEM

- 1) Refer to the Mechanical Floor Plans available in the Contract Documents for distribution system layouts and requirements.

### TESTING AND BALANCING

- 1) Air and hydronic testing and balancing will be accomplished by an independent, certified testing agency.

## PLUMBING SYSTEM DESCRIPTIONS

### GENERAL DESCRIPTION

- 1) New domestic water, fire water, natural gas, sanitary and storm water connections will serve the facility from public utilities.
- 2) A single dedicated water service from the public utility shall be provided to serve the entire facility potable and non-potable water systems. A full size backflow preventer approved for use by the authority having jurisdiction shall be located at the service entrance.
- 3) Water distribution throughout the facility will be one pressure zone. All fixtures, appliances and equipment requiring domestic water connections will be supplied from a central piping distribution system. All Equipment and non -potable water systems



## **Exhibit A**

will be supplied from the central potable water system with approved backflow prevention devices. Minimum pressure required at the furthest fixture connection shall be 45 psi. Cold water system shall be sized to not exceed five (5) feet per second/100 feet velocity and hot, hot water return piping shall be sized to not exceed four (4) feet per second/100 feet velocity.

### **DOMESTIC HOT AND COLD WATER SYSTEMS**

- 1) Refer to the Plumbing Drawings and Specifications as provided in the Contract Documents for system parameters.

### **SANITARY AND VENT PIPING SYSTEMS**

- 1) Refer to the Plumbing Drawings and Specifications as provided in the Contract Documents for system parameters.

### **BUILDING FIRE PROTECTION SYSTEMS**

- 1) Refer to the Plumbing and Fire Alarm and Suppression Drawings and Specifications as provided in the Contract Documents for system parameters.

### **ROOF DRAIN AND STORM SYSTEM**

- 1) Refer to the Plumbing Drawings and Specifications as provided in the Contract Documents for system parameters.

### **NATURAL GAS SYSTEMS**

- 1) Refer to the Plumbing Drawings and Specifications as provided in the Contract Documents for system parameters.

### **TESTING**

- 1) Domestic water, storm and sanitary sewers, and gas piping shall be tested per IPC and local codes.

## **ELECTRICAL SYSTEM DESCRIPTIONS**

### **GENERAL ELECTRICAL DISTRIBUTION**

- 1) Electrical System Distribution for the new added 3 story 34,000SF school building shall require a minimum of 1200A, 480/277V Wye Connected, 3Phase, 60HZ, 4W+G service that will be powered from a new site mounted Transformer. The existing building service is to remain.
- 2) Refer to the Electrical Drawings and Specifications for system design parameters.

### **LIGHTING AND LIGHTING CONTROL**

- 1) Refer to Interior Architecture drawings for lighting layout, and electrical drawings for wiring and control requirements. See also electrical Specifications as provided in the Contract Documents.





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### FIRE ALARM SYSTEM

- 1) New Building shall utilize existing building original Fire Alarm Control Panel with upgrade to include additional module, battery capacity, Fire Alarm extender panel with integral battery pack to accommodate both building Fire Alarm devices and circuit connected to the control system. Ideal Building addressable type, voice evacuation low rise type, incorporating activation devices such as pull stations, smoke detectors, heat detectors, sprinkler water flow switches, duct smoke detectors, etc., and audio\visual devices such as speakers/ ADA strobes.

### REQUIRED COMMUNICATION SYSTEMS

- 1) A two-way communication system in spaces designated by the Architectural Design Professional. Communication system shall conform to the Americans with Disabilities Act and IBC 1007.8.
- 2) A two-way communication system shall also be provided within the egress stairs where the doors will be locked every 5th floor.
- 3) A first responder radio repeater system complying with the International Fire Code section 510 shall be provided.

## LANDSCAPE DESIGN CONCEPT

### GENERAL DESCRIPTION

Ideal Academy will include one renovated parking lot and one with revised curb cuts and incidental repairs. The smaller lot is adjacent to the primary entrance and will include a student drop off area. The second floor entrance is accessible from the larger lot, which also includes the loading area. Concrete paths around the site will be used to connect the parking lots to each entrance.

The landscape around Ideal Academy will be a mixture of trees, shrubs, and groundcovers that will provide year-round interest. Green roof and a number of bioretentions will also be included to serve the stormwater management and green area ratio needs of the site. Appropriate bioretention plantings will be provided capable of surviving the extreme wet and dry conditions that occur within these facilities. Landscaping will also be provided to meet all code requirements and needs of the site and project. Refer to the Landscape Plans available in the Contract Documents for planting and hardscape plan layouts and requirements.

## ENVIRONMENTAL DESIGN NARRATIVE

### GENERAL DESCRIPTION

Friendship Public Charter School Ideal Middle School project is pursuing Leadership in Energy and Environmental Design (LEED) Building Design and Construction (BD+C) Schools v4 Certification. The project team has implemented an integrated design approach in order to maximize LEED credit achievement. Key project stakeholders and design team members have been engaged with the LEED process beginning in project planning and schematic design phases and will remain engaged through the construction and certification processes. The integrated team will address elements of the building's design from multiple angles including aesthetic, architectural, functional, high-performing systems, cost, operations, and sustainability. The project team will hold LEED specific integrated design coordination meetings throughout design and construction.



## Exhibit A

At the schematic design stage, the project team has identified LEED credits which can be achieved, may be achieved, and will likely not be achieved. As the design develops, the project team will more clearly identify which credits may be pursued.

The project team will prioritize through design and specification the following sustainability targets:

- 1) Reduce heat island effect through specification of highly reflective roofing material.
- 2) Demonstrate commitment to water conservation:
  - a) Prioritize the installation of native and adaptive plant species requiring no potable water use for landscape irrigation.
  - b) Indoor water use reduction over baseline through low-flush/flow plumbing fixtures.
- 3) Demonstrate commitment to energy conservation:
  - a) Energy improvement against baseline via ASHRAE 90.1-2010 using a simulation model. Project goal 20% will be pursued through:
    - a. optimized building envelope and associated assemblies
    - b. energy efficient HVAC systems
    - c. energy efficient lighting systems
    - d. on-site renewable energy: PV panels to offset of the building energy use
- 4) Specify building materials that demonstrate responsible practices. These materials may:
  - a) contain high recycled content
  - b) be certified by the Forest Stewardship Council
  - c) participate in an Extended Producer Responsibility Program (product take-back at end of useful life)
  - d) demonstrate commitment to building product transparency by disclosing the following:
    - a. product life cycle assessment
    - b. material ingredient reporting
    - c. general emissions evaluation
- 5) Provide enhanced indoor environmental quality to building users and visitors through:
  - e) exceeding ASHRAE 62.1-2010 ventilation requirements
  - f) providing quality views to regularly occupied areas
  - g) employing strategies to reduce occupant exposure to contaminants from construction and building operational activities
  - h) providing interior lighting controls that enable occupants to perform appropriate space use tasks
- 6) Incorporate innovative solutions to promote the concepts of sustainability and wellness in the built environment through sustainable operations and maintenance strategies and occupant and visitor education.

LEED credits deemed appropriate for the project that may carry additional cost will be evaluated by the project team. The design team and the cost estimator will coordinate to generate a rough order of magnitude estimate. Where applicable, a return on investment estimate may also be provided to the Owner for consideration to determine the payback period of a strategy.

LEED is a process that is most successful when each team member is dedicated not only to the resulting LEED Certification but to the larger goal of developing an energy efficient, high-performing building that benefits its owners and occupants throughout its lifetime.

## ACOUSTICAL DESIGN NARRATIVE

## Exhibit A

### GENERAL DESCRIPTION

In recent years, acoustics in schools has risen in prominence with the advent of the LEED Green Building system and new ANSI acoustics for schools performance standards. While each space within the school will have unique acoustical goals and challenges, the overriding design parameters can be broken into two major concepts: architectural acoustics and interior acoustics.

Architectural acoustics can be thought of as designing spaces which keep inside noises in, and outside noises out, often called acoustical isolation. Acoustical isolation is chiefly determined by the walls, floor, and ceiling of a space, this includes windows, doors, thru-wall A/C units, access panels, etc.

Interior acoustics can be thought of as controlling the buildup of noise within a space and the path sound takes as it moves throughout the space. This can be done by using acoustical treatments, such as ceiling tiles, wall panels, baffles, etc.

### DESIGN GUIDELINES

- 1) ANSI S12.60-2010 "Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools"
- 2) LEED for Schools™ Version 4

Polysonics has currently NOT received the Education Specification.

### LOBBY

- 1) The Lobby is to be an area where people may congregatbefore signing into security and entering the building.
- 2) The primary acoustic goals would be to keep the space lively but intelligible. Reverberation must be controlled by providing sound absorption.
- 3) Acoustical ceiling tiles such as Armstrong Optima Open Plan could be used in the Lobby area.
- 4) The ceiling may alternatively be treated with hanging baffles or the seamless acoustical plaster system. Feasibility of hanging perforated metal panels will depend on the desired ceiling height.
- 5) HVAC noise levels of NC 40 should be maintained in the Lobby.

### TYPICAL CLASSROOMS, COMPUTER LABS, AND LABORATORIES

- 1) These areas are to be core learning spaces.
- 2) Per LEED the ceiling treatment is to remain at or below 10' height to be acoustically effective. The higher ceiling height will be considered for our calculation. This adjustment may require the use of acoustical wall panels to compensate for increased ceiling height and reverberation time. Wall panels may be required. Lower ceiling height is preferred for reverberation control as well as providing increased acoustic isolation between vertically-adjacent classrooms.
- 3) Suspended acoustical ceiling tile shall be hung in a grid. LEED requires ceiling tile with a CAC of 35 or higher and NRC of 0.70 or higher.



## Exhibit A

- 4) Ceiling tile shall cover 100% of the ceiling – excluding lights, fixtures, diffusers, and intakes. In rooms where this is not possible, additional analysis will be required to verify LEED conformance.
- 5) If demountable glass wall partitions are used they must be STC 45. To ensure the STC 45 rating and prevent sound from entering classrooms over the top of the partition, a drywall closure piece will be needed to ensure slab-to-slab construction. An entry door (including transom and sidelight) to the classroom must meet STC 30 rating.
- 6) LEED requires maintaining HVAC noise levels of 40 dBA (≈NC 35).
- 7) The wall partitions separating mechanical closets from the classrooms shall be STC 60 and extend from floor to slab. The supply and return air ducts should not penetrate sound rated partitions to directly enter the classrooms and between classrooms.
- 8) If two classrooms are designed with an operable partition to provide the flexibility to expand or contract spaces, we recommend that the partition is rated for STC 56. The operable partition with a door between classrooms will lower the STC rating.

## GYMNASIUM

- 1) This will be a typical gymnasium used to hold indoor athletic events. Emphasis is on reducing the reverberant nature, typical of gymnasiums with hard surfaces, while maintaining highly durable and impact resistant surfaces.
- 2) The acoustics should allow the athletes to hear each other, and to understand instructions from the coaches and referees. Reverberation Time should be at or below 1.5 seconds.
- 3) The design goals can be achieved by adding absorption to the space where possible.
- 4) This typically means a completely absorptive roof (either an acoustical roof deck, baffles, or direct attach panels) and a banner of acoustical panels 4' high extending around the walls, where possible.
- 5) Entry doors shall be STC 40.
- 6) Maintain HVAC noise levels of NC 40.
- 7) Polysonics to coordinate w/ Michael Marshall Design prior to providing formal recommendations.

## IEQ OVERVIEW

### Compliant Space Types for Indoor Environmental Quality Credits

The following list identifies school spaces considered to be regularly occupied for applicability to indoor environmental quality credits. In these spaces, daylight, views, thermal comfort, and/or acoustics affect the quality of occupants' regular use. LEED will evaluate exceptions to these classifications on a case-by-case basis for spaces with atypical uses or those in which the strategies required for compliance may compromise the function of the space.

#### *Regularly Occupied Spaces: Classroom and Core Learning*

This category consists of spaces that are used for at least 1 hour per day for educational activities where the primary functions are teaching and learning:



## Exhibit A

- |                  |                             |                       |
|------------------|-----------------------------|-----------------------|
| a) art           | g) computer lab             | m) media center       |
| b) band          | h) gymnasium                | n) observatory        |
| c) biology lab   | i) instructional technology | o) physical education |
| d) chemistry lab | j) instrument instruction   | p) physics lab        |
| e) chorus        | k) language lab or arts     | q) vocational arts    |
| f) classroom     | l) library                  | r) voice instruction  |

### Other Regularly Occupied Spaces

This category includes all non-learning spaces that are used by occupants for 1 or more hours per day to perform work-related activities:

- |                                   |                           |                                  |
|-----------------------------------|---------------------------|----------------------------------|
| a) administrative conference room | f) counselor's office     | m) school nurse's office         |
| b) administrative office          | g) custodial office       | n) school nurse's treatment room |
| c) administrative staff room      | h) faculty office         | o) school security office        |
| d) cafeteria, cafetorium          | i) faculty workroom       | p) staff dining room             |
| e) counseling conference room     | j) kitchen                | q) staff lounge                  |
|                                   | k) maintenance staff room |                                  |
|                                   | l) natatorium             |                                  |

### Spaces Not Regularly Occupied

Spaces considered not regularly occupied are those that occupants pass through and those that are not regularly used for at least 1 hour per day:

- |                                |                       |                            |
|--------------------------------|-----------------------|----------------------------|
| a) administrative waiting room | f) locker room        | k) stairs                  |
| b) auditorium                  | g) main entrance      | l) students' activity room |
| c) back stage                  | h) receiving area     | m) students' locker room   |
| d) corridor                    | i) secondary entrance |                            |
| e) greenhouse                  | j) stage              |                            |

## ACOUSTIC APPENDIX CODE DETAILS

Details of the codes outlined in the Design Guidelines section of the Acoustic Design Narrative Section are provided below.

### LEED MINIMUM ACOUSTIC PERFORMANCE (PREREQUISITE)

- 1) Based on LEED for Schools™ Version 4 Indoor Environmental Quality Prerequisite (Minimum Acoustic Performance) there are 3 goals for classroom and other core learning areas:
  - a) Background noise level from HVAC systems must be under 40 dB(A).
  - b) Exterior Noise: For high-noise sites (peak-hour  $L_{eq}$  above 60 dBA during school hours), implement acoustic treatment and other measures to minimize noise intrusion from exterior sources and control sound transmission between classrooms and other core learning spaces. Projects at least one-half mile (800 meters) from any significant noise source (e.g., aircraft overflights, highways, trains, industry) are exempt.



## Exhibit A

- c) Reverberation time
  - a. Classrooms and core learning spaces under 20,000 cubic feet:
    - Option 1 - The total surface area of acoustic wall panels, ceiling finishes, and other sound absorbent finishes equals or exceeds the total ceiling area of the room excluding lights, diffusers, and grilles. Materials must have an NRC 0.7 or higher to be included in the calculation. OR
    - Option 2 – Confirm through calculations described in ANSI Standard S12.60- 2010 that rooms are designed to meet reverberation time requirements as specified in that standard.
  - b. Classrooms and core learning spaces over 20,000 cubic feet; reverberation time must be designed as described in the NRC-CNRC Construction Technology Update No. 51, Acoustical Design for Rooms for Speech (2002), or a local equivalent for projects outside the US.

### LEED ACOUSTIC PERFORMANCE (CREDIT)

- 2) Based on LEED for Schools™ Version 4 Indoor Environmental Quality Credit there are 2 goals for classroom and other core learning areas.
  - a) Background noise level from HVAC systems must be under 35 dB(A).
  - b) Design classrooms and other core learning spaces to meet sound transmission class (STC) requirements of ANSI S12.60-2010 Part 1, or a local equivalent. Exterior windows must have an STC rating of at least 35, unless outdoor and indoor noise levels can be verified to justify a lower rating.

### LEED FOR SCHOOLS™ VERSION 4 ACOUSTICS REQUIREMENTS FOR CORE LEARNING SPACES

The LEED for Schools™ Version 4 requirements for acoustics is detailed below.

- 1) LEED for Schools™ Version 4 Indoor Environmental Quality Prerequisite requires design classrooms and other core learning spaces to include sufficient sound-absorptive finishes for compliance with reverberation time presented below:
  - a) Classrooms and core learning spaces over 20,000 cubic feet:
    - a. Option 1 - The total surface area of acoustic wall panels, ceiling finishes, and other sound absorbent finishes equals or exceeds the total ceiling area of the room excluding lights, diffusers, and grilles. Materials must have an NRC 0.7 or higher to be included in the calculation. OR
    - b. Option 2 – Confirm through calculations described in ANSI Standard S12.60-2010 that rooms are designed to meet reverberation time requirements as specified in that standard.
  - b) Classrooms and core learning spaces over 20,000 cubic feet; reverberation time must be designed as described in the NRC-CNRC Construction Technology Update No. 51, Acoustical Design for Rooms for Speech(2002), or a local equivalent for projects outside the US.
- 2) Ceiling tile should remain between 9' and 10' height. Lower ceiling height (9') is preferred for reverberation control as well as providing increased acoustic isolation between vertically-adjacent classrooms.
- 3) If possible, doors to classrooms should be staggered to prevent cross-talk (speaking tube) between classrooms.
- 4) Carpet can be considered for controlling self-noise (chair movement, footfalls, etc.), especially in preschool and lower grade levels.
- 5) The architect should inform and coordinate with Polysonics if deviations from these design standards are necessary.



## Exhibit A

### CHANGES FROM LEED 2009 FOR MINIMUM ACOUSTIC PERFORMANCE (PREREQUISITE):

- 1) The maximum allowable background noise has been revised from 45 dBA to 40 dBA.
- 2) An exterior noise requirement has been added to minimize exterior noise intrusion into classrooms and core learning spaces.
- 3) The ANSI referenced standard has been updated to ANSI S12.60-2010.
- 4) The ASHRAE referenced standard has been updated to 2011 HVAC Applications ASHRAE Handbook, Chapter 48, Noise and Vibration Control.
- 5) For spaces 20,000 cubic feet or larger, the referenced standard for reverberation time has changed to NRC-CNRC Construction Technology Update No. 51. This standard specifies variable reverberation time and total sound absorption values depending of the size of the space.
- 6) Exceptions for projects with limited renovation scopes or strict historic preservation requirements have been added.

### LEED FOR SCHOOLS™ VERSION 4 EQ CREDIT REQUIREMENTS

LEED for Schools™ Version 4 credit requirement for HVAC noise control and acoustics is detailed below.

- 1) LEED for Schools™ Version 4 Indoor Environmental Quality Credit for Acoustic Performance requires the background noise level from HVAC systems under 35 dB(A) or less for classrooms and other core learning spaces.
- 2) Core learning spaces shall not exceed the maximum airflow velocities 1200 FPM in the main duct; 850 FPM in the branch ducts and 350 FPM in the final runouts. The return airflow velocity should not exceed 450 FPM in the return air duct. Polysonics recommends diffuser air flow velocity limits as follows:
  - a) Core learning spaces – Supply: 350 fpm Return: 450 fpm
- 3) LEED for Schools™ Version 4 Indoor Environmental Quality Credit for Acoustic Performance requires building shell, classroom partitions and other core learning spaces as follows:
  - a) STC 50 – This wall type demises classrooms from corridors, offices and conference rooms. For CMU construction, this can be accomplished using an 8” thick CMU wall with all cores filled with grout. If glass walls or windows are considered between the classrooms and the corridors, Polysonics shall be informed to verify conformance.
  - b) STC 50 – This wall type demises classrooms from other classrooms. For gypsum board construction, this can be accomplished using 3-5/8” studs with two layers of 5/8” GWB on both sides of the studs and batt filled cavity.
  - c) STC 50 – Exterior noise control requirements for IEQ Credit are given in the form of STC ratings for exterior wall elements. However, in high noise environments the STC ratings required in IEQ Credit may not be sufficient; additional noise control measures should be taken as required. This wall type demises classrooms from outdoors (exterior walls); greater if the outdoor noise level is higher than 65 dB. The window assemblies on the exterior wall must achieve a minimum STC rating of 35 or higher to meet the LEED for Schools™ Version 4 IEQ Credit.
  - d) Entry doors to classrooms should be solid wood or hollow metal with a laboratory STC rating of 30 or higher. This can be achieved using a solid wood door (or a hollow core steel door constructed of 18 gage steel) with excellent gasketing. Note that gaskets must be maintained or their acoustic effectiveness will decrease over time. Music rooms will require STC 40 door assemblies.
  - e) STC 53 – This wall type demises classrooms from bathrooms/toilets. An example of this, using drywall construction, is a staggered stud wall. For CMU construction, this can be accomplished using a 10” thick CMU with all cores filled with grout.



## Exhibit A

- 7) STC 60 – This wall type demises classrooms, corridors and offices from music rooms, cafeteria, Gym, Natatorium, mechanical room/closets, etc. An example of this, using drywall construction, is a double stud wall.
- 4) All the sound rated walls shall extend from floor to underside of the metal deck or the concrete slab. When details of the existing wall partitions become available, we will evaluate them for sound ratings and flanking transmission.
- 5) If there are instances where loud rooms (mechanical rooms, music rooms, etc.) are directly above or below classrooms, it is strongly recommended that additional noise control measures such as a noise control suspended ceiling be employed.
- 6) Design the floor-ceiling assemblies to achieve a minimum Impact Insulation Class (IIC) rating of 50. For existing school buildings, consider a permanent resilient underlayment or carpet to isolate the finished floor from the structural floor system.
- 7) Comprehensive design guideline for classrooms is based on ANSI/ASA S12.60-2010/Part 1 American National Standard Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools, Part 1: Permanent Schools.
- 8) The Sound Transmission requirement of IEQ Credit provides required design sound transmission class ratings for classrooms and other core learning spaces adjacent to a variety of spaces. The tables below provide required Sound Transmission Class (STC) ratings.



**Exhibit A****Table 1: STC requirements for Classroom Wall Assemblies**

Adjacent Space Type	Minimum STC Rating
Other Classrooms	50
Outdoors	50
Bathrooms	53
Corridor	50
Offices, Conference Rooms	50
Music Rooms	60
Mechanical Equipment Room	60
Cafeteria, Gym, Natatorium	60

**Table 2: STC Ratings for Windows and Doors**

Location	Minimum STC Rating
Classroom Entry Door	30
Music Room Entry Door	40
Exterior Windows	35

**CHANGES FROM LEED 2009 FOR ACOUSTIC PERFORMANCE (CREDIT):**

- 1) The background noise level limit has decreased from 40 dBA to 35 dBA.
- 2) The referenced ANSI S12.60 standard has been updated from 2002 to 2010.
- 3) AHRI Standard 885-2008 has been added as a referenced standard for background noise.
- 4) Equivalent local codes may now be used in place of the national codes specified in the credit requirements.

**LEED FOR SCHOOLS™ VERSION 4 EQ HVAC REQUIREMENTS AND NOISE GUIDELINES**

LEED for Schools™ Version 4 requirement for HVAC noise control is detailed below.

- 1) Based on LEED for Schools™ Version 4 Indoor Environmental Quality Prerequisite the background noise level from HVAC systems for classroom and other core learning areas is presented below:
  - a) Background noise level from HVAC systems must be under 40 dB(A) for core learning spaces which includes, but are not limited to, the classrooms (enclosed or open plan), instructional pods or activity areas, group instruction rooms, conference rooms, libraries, offices, speech clinics, offices used for educational purposes and music rooms for practice and performance.
- 2) Ideally, the core learning spaces shall not exceed the maximum airflow velocities 1200 FPM in the main duct; 900 FPM in the branch ducts and 400 FPM in the final runouts. The return airflow velocity should not exceed 500 FPM in the return air duct. Polysonics recommends diffuser air flow velocity limits as follows:
  - a) Lobby – Supply: 550 fpm Return: 650 fpm
  - b) Corridors – Supply: 550 fpm Return: 650 fpm
  - c) Classrooms, Faculty Offices – Supply: 400 fpm Return: 500 fpm



## Exhibit A

- 3) The design guidelines for HVAC related background noise for performance spaces such as Instrumental Music rooms, Choral rooms, Drama room, Auditorium, etc. shall be Noise Criteria (NC) 25. These recommendations are provided to achieve the established noise criteria per ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers) standard.
  - a) Performance spaces – Supply diffuser: 350 fpm Return register: 400 fpm
- 4) All air-handling units shall be placed away from the sound sensitive spaces such as core learning spaces and performance spaces. The sound power of RTUs, DOAS units and AHUs in any frequency band shall not exceed 84 dB. These levels can be achieved by using backward inclined or plenum fans. We recommend round ducts for performance spaces with 2" sound lining for first 25' of length. Avoid obstructing the inlet or crowding the coils or filters. In addition to the fan isolation, the air handling unit (with casing) shall be vibration isolated. Provide 4" thick housekeeping pad under air-handling units. The total static pressure of the system shall not exceed 3.00 inches. We recommend additional options such as double wall cabinet construction, 4"-3 lb. density liner for the discharge plenum and mount the compressors/motor on the rubber mounts.
- 5) Vibration isolation methods, such as rubber pads or spring systems under the mounting points, should always be employed under rotating machinery to isolate it from floor-ceiling systems and prevent structurally transmitted sound from entering sound sensitive spaces such as learning and performance spaces. This isolation is particularly important for roof-mounted rotating machinery where the deflection of the roof has to be considered in vibration isolation design. The MEP shall provide drawings to Polysonics for design coordination.
- 6) If Cassette type (4-way) ceiling units are used in the classrooms, academic spaces, collaborative areas, conference rooms, offices, etc, design them to operate at or below 35 dBA. It is critical to note that units that are 3 ton or higher will not meet the minimum background sound requirement.
- 7) Locate ducted ceiling VRF units outside learning spaces, preferably in the corridor. Select them at or below 35 dBA. Since VRV/VRF FCU manufacturers do not publish full octave discharge and return sound power/pressure levels, we will not be able to generate acoustical calculation for classrooms as required by LEED for Schools standards. In the absence of these calculation, USGBC may ask for background noise level field measurements/verification for new classrooms and core learning spaces.
- 8) Locate VRF branch selector boxes outside classrooms, offices, conference rooms and other core learning spaces, preferably over the corridors. BS units generate a "click" sound in case any unit operating in the same system (or even if an indoor unit connected to the BS unit is stopped). ME to ensure their locations. Select them for 35 dB(A) or less.
- 9) Variable Refrigerant Flow (VRF) condensing units proposed on the roof are generally quiet but will have a prominent acoustic tone from the compressor(s). The proposed arrangement could likely transmit distinct tonal noise (humming) to spaces below. To minimize any fan or compressor noise transmission through the roof, locate VRF units over the corridor, storage rooms, janitor closets, restrooms, etc. Provide 4" thick normal weight concrete pad extending 12" outside equipment footprint. Install them on 1" deflection restrained springs.
- 10) Provide 2" sound lining for first 10' of duct length from the FCUs and/or VRF ducted ceiling units supplying air to core learning and sound sensitive spaces.
- 11) If fan powered terminal units or VAV terminal units are used in the design, select them for low noise (NC  $\leq$ 35). Try to keep total air volume of the VAV units below 1000 CFM. Install VAV units outside the core learning spaces in the corridors, at least 5-feet from the ceiling openings for light fixtures and linear diffusers. The ductwork entering the fan-powered VAV should be straight for at least 5 equivalent duct diameters upstream of the unit with 2" sound lining. The low-pressure ductwork leaving a



## Exhibit A

fan-powered VAV unit shall have 2" sound lining for 10' length. Install them on spring isolators with minimum 0.75" static deflection.

- 12) Keep the aspect ratio of the supply ducts minimum. Duct transitions should not exceed an included expansion angle of 15°, or the resulting flow separation may produce rumble noise. Use turning vanes in large 90° rectangular elbows and branch takeoffs. This provides a smoother directional transition, thus reducing turbulence.
- 13) No main ducts dropping or running over classrooms. No shafts adjacent to classrooms.
- 14) The District of Columbia Municipal Regulations (DCMR) limits outdoor on-grade/rooftop mechanical equipment at the source property line to 60 dBA.
- 15) The design guidelines for plumbing related background noise for sound sensitive spaces such as classrooms and other core learning spaces shall be 35 dB(A) as per ANSI S12.60- 2010.
- 16) The Mechanical Engineer should provide the octave sound data of mechanical equipment to Polysonics for review. The ME should also coordinate with Polysonics if deviations from the above design standards are necessary.

## GENERAL HVAC NOISE GUIDELINES

General guidelines for HVAC from ANSI S12.60-2010 Annex B are as follows:

- 1) Unducted systems should not be employed since the sound they produce is inherently unable to conform to the background noise level criteria [specified].
- 2) All grilles and diffusers (air devices) should be selected to have a catalog Noise Criteria (NC) rating of NC 18 or less for a single diffuser, providing the NC catalog ratings are based on a correction of 10 dB for sound absorption in the room.
- 3) Airflow velocities in trunk ducts should not exceed 4.1 m/s (800 ft/min). Branch ductwork sizes should match the air device's duct connection size. Duct silencers will be required inside the air-handling unit or in the main supply and return air ducts in most systems.
- 4) All ductwork should be fabricated and installed so as to achieve a low static pressure loss in accordance with procedures in the Sheet Metal & Air-Conditioning Contractors National Association (SMACNA) for HVAC System Duct Design. To achieve the rated performance of air diffusers, the plenum depth should be the equivalent of at least three to four diameters of the duct going to the diffuser.
- 5) All rotating equipment and equipment with static pressure control dampers should be 3.3m (10 ft) or farther if possible, from the classroom. HVAC fan equipment serving more than one classroom should be farther from the classrooms than equipment serving only one classroom.
- 6) Centrifugal fans with airfoil-shaped blades should be used in most cases in order to achieve the background sound levels required for the learning spaces. Centrifugal fans with forward curved blades should be avoided (especially with central air distribution systems) because this fan design typically generates excessive low-frequency noise when the total static pressure is greater than 2 inches of water.
- 7) Ductwork serving adjacent learning spaces should include sound attenuators or sound- absorbing duct lining (if required), or both, to reduce crosstalk through the duct system. The attenuation should be sufficient to preserve the noise isolation between the adjacent learning spaces.



## Exhibit A

- 8) To minimize HVAC noise transmission into core learning spaces, variable air volume (VAV) boxes and fan-powered boxes should be located over these spaces. Instead, the elements should be located over less sensitive spaces, which may include corridors.

### GENERAL PLUMBING NOISE GUIDELINES

General guidelines for plumbing from ANSI S12.60-2010 Annex B are as follows:

## SUBMISSION REQUIREMENTS

### GENERAL REQUIREMENTS

Bids have been solicited via open public bid. The following items are required for Owner's consideration. Bids may be submitted via electronic submission only – hard copies are not required.

- 1) Qualifications and Experience
- 2) Company & Project Organization
- 3) Litigation and Liabilities
- 4) Project Specific Logistics Plan
- 5) Project Schedule
- 6) Guaranteed Maximum Price Budget

### QUALIFICATIONS AND EXPERIENCE

- 1) Demonstrate that Respondent, its member entities, and/or key personnel have successfully served in lead contracting roles for completed projects of a similar scale and scope to the project proposed by Respondent;
- 2) Provide evidence of sufficient organizational capability to ensure successful and timely delivery of the project

### COMPANY & PROJECT ORGANIZATION

- 1) Respondent shall provide an introduction for and description of each member of its team, including but not limited to, Project Administrator / Project Manager, On-Site Foreman, etc.;
- 2) Sub-Contractors, CBE Sub-Contractors/Partners, and any other team members Respondent identifies for consideration by the Owner.
  - a) For each entity identified above, Respondent shall provide the following information for the primary point-of-contact:
    - i) First and last name
    - ii) Title
    - iii) Address



## Exhibit A

- iv) Telephone Number
  - v) Email Address
- 3) Finally, Respondent shall provide information that explains the overall management structure of Respondent, the relationship among Respondent team members, and the team members' respective roles and contributions to the project.

### LITIGATION AND LIABILITIES

- 1) Statement Regarding Debarments, Suspensions, Bankruptcy, or Loan Defaults
- a) Respondent shall provide a statement regarding any debarments, suspensions, bankruptcy, or loan defaults of any of Respondent members' entities or affiliates listed above in "Company & Project Organization".
- 2) Evidence Regarding Tax Liabilities
- a) Respondent shall provide a statement regarding any tax liabilities and other government impositions that are not current for any of Respondent members' entities or affiliates listed above in "Company & Project Organization".

### PROJECT SPECIFIC LOGISTICS PLAN

Respondent shall identify and describe in detail the elements of its proposed development. Respondent must submit a development program along with a construction schedule. Respondent is encouraged to describe in detail how it believes the development program meets or exceeds the Owner's need for continued use of the adjoining property during construction.

### PROJECT SCHEDULE

Respondent shall identify and describe a timetable and milestones from Selection (as defined below) through project completion. Respondent is required to complete and submit with its Proposal a completed Schedule of Performance in Gantt Chart form highlighting the critical path delivery of the project.

### GUARANTEED MAXIMUM PRICE BID

Packages should include the GMP formatted in alignment with **Exhibit 3 Ideal Campus Expansion V2 Bid Template** and a list of Assumptions and Qualifications associated with the Bid. Bid pricing must be divided primarily according to the 16 divisions of the CSI specs. The template provided via Exhibit 3 breaks each division into Bid Packs for use by the Owner in comparing bids at a more detailed level. Additional breakdown of bids is acceptable. Combining / omitting bid packs is also acceptable, but requires an explanation to indicate which items / bid packs are combined. *This document is to be submitted as pdf included in the proposal as well as individually in live Excel file format.*

### ASSUMPTIONS AND CLARIFICATIONS

A description of Assumptions and Clarifications, beyond those provided based on the discretion of the Bidder, must be included as follows:



## **Exhibit A**

- 1) Any allowance included in the Bid package must be described.
- 1) Any combinations of scope included in the bid packs as provided via the bid form in Exhibit 3.

## **DUE DATE**

Reference the original bid document and associated addenda as provided by the Owner for due date and submission requirements.