

LONGVIEW SCHOOL DISTRICT HVAC REPLACEMENT AND INDOOR AIR QUALITY IMPROVEMENTS

2715 LILAC STREET
LONGVIEW, WA 98632

LONGVIEW SCHOOL DISTRICT

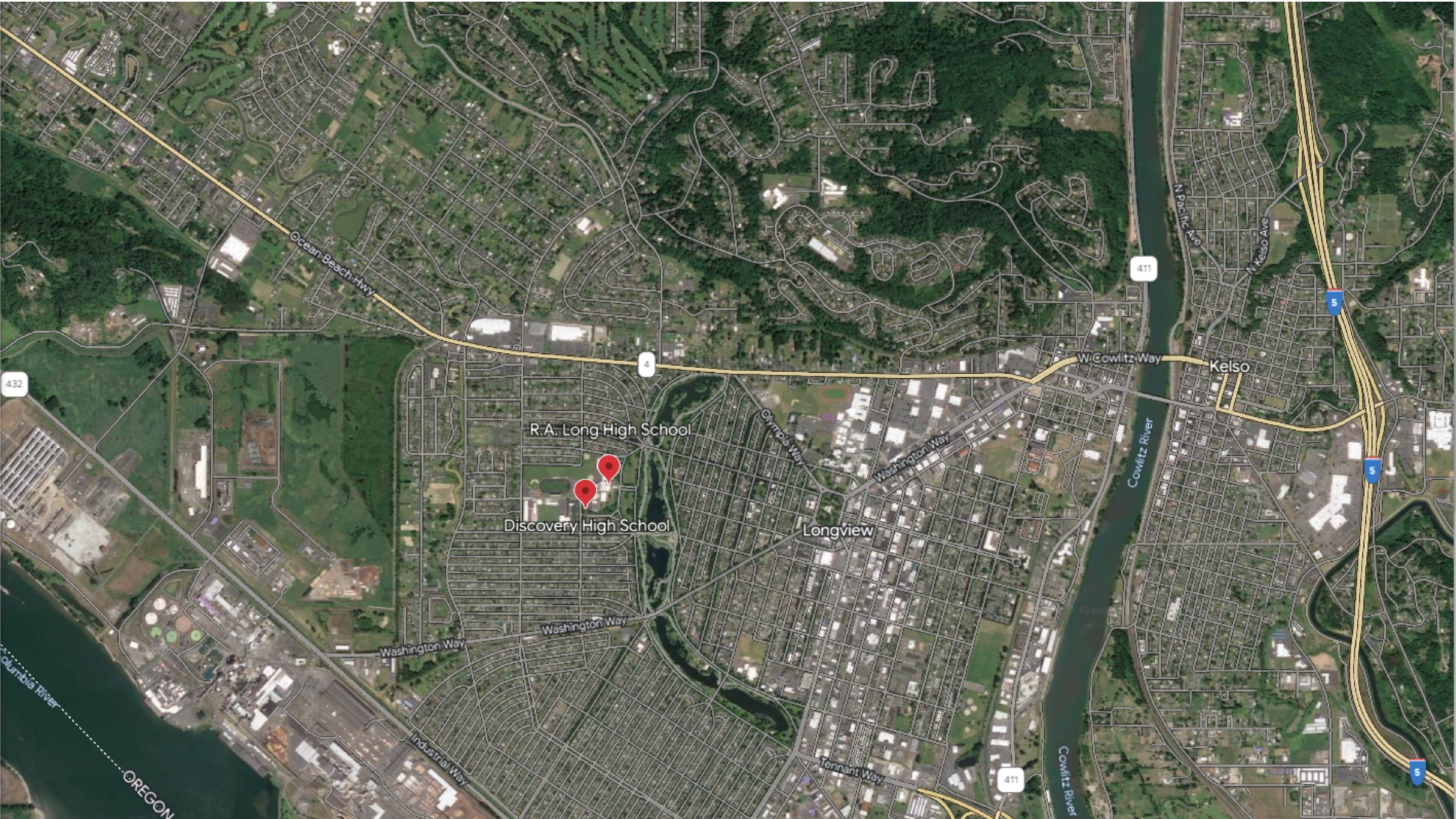
BID SET

INTEGRUS PROJECT NO. 22220.00
OWNER PROJECT NO. 2023-01



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04/26/23

SET NO. _____

GENERAL STRUCTURAL NOTES

These notes shall govern unless otherwise noted in the drawings. Refer to written specifications for further requirements and amplification of these notes.

Codes
International Building Code (IBC), 2018 edition, as adopted and amended by the project jurisdiction.
Project Jurisdiction: City of Longview, State of Washington.

Design Loads
Reference code: ASCE/SEI 7-16, Minimum Design Loads for Buildings and Other Structures.

Dead Loads
Roof - Discovery High School 15 psf (superimposed)
Ceiling - Discovery High School 6 psf (superimposed)
Mechanical Equipment
• Actual operating weight is by manufacturer.
• Weight indicated on drawings is the maximum design load.
• Notify Architect/Engineer if the manufacturer's operating weight of the equipment provided exceeds the maximum design load, prior to installation of the equipment.

Live Loads
(live load reduction is applied as allowed by the reference code)
Roof
Typical Roof 20 psf
Handrails/Guardrails Assembly 200 lbs at any point, in any direction or 50 lbs/ft along top rail in any direction
Snow
Ground snow load Pg = 20 psf
Calculated flat roof snow load Pf = 22 psf
Minimum flat roof snow load Pf = 25 psf
Importance factor (snow) Is = 1.1
Snow exposure factor Ce = 1.0
Thermal factor Ct = 1.0
Other Surcharges per reference code
Unbalanced loads per reference code
Wind
Basic wind speed (3 second gust) V = 85 mph
Exposure Category B
Importance factor (wind) Iw = 1.15
Topographical Factor Kzt = 1.0
Directional Coefficient Kd = 0.85
Gust Effect Factor G = 0.85
Internal pressure coefficient Gcpi = 0.18
Minimum Net Uplift 16 psf

Earth
Reference IBC Table 1806.2 - Presumptive Load-Bearing Values
Allowable Bearing Pressure 1,500 psf (Class 5)
Passive resistance 100 pcf

Refer to drawings for additional loads

- CONSTRUCTION LOADS**
- Reference code: ASCE/SEI 37-14, Design Loads on Structures During Construction
 - The structure represented in these drawings has been designed to resist vertical and lateral loads prescribed by the reference code in its final constructed condition. The sequence of construction is the responsibility of the general contractor. All loads experienced by the structure due to the incomplete nature of the structure are the sole responsibility of the general contractor. The general contractor must design and provide temporary shoring and bracing until the final built condition, as shown in these drawings, is achieved.
 - The structure represented in these drawings has not been designed to resist vertical and lateral loads imparted by construction equipment. All loads experienced by the structure while supporting construction equipment are the sole responsibility of the general contractor. The general contractor must design and provide temporary shoring and bracing where required to support construction equipment.
 - Where temporary shoring or bracing is required, retain the services of a structural engineer registered in the project jurisdiction to design and detail the bracing of that equipment for the gravity and lateral forces prescribed by the reference code. Submit the stamped and signed design documents to the project jurisdiction as a deferred submittal for approval prior to performing the work.

FOUNDATION

Reference Codes
• International Building Code (IBC), 2018 edition, as adopted and amended by the project jurisdiction, Chapter 18

Strength
Reference IBC Table 1806.2 - Presumptive Load-Bearing Values

Allowable soil bearing pressure 1,500 psf (Class 5)
Passive equivalent fluid pressure 100 pcf

Coordination
1. Coordinate grading and excavating requirements with civil/landscape drawings. Foundations are designed to bear on undisturbed native soils or compacted structural fill, as described in the Geotechnical Report, over undisturbed native soils.

Excavation
1. Footing excavations should be cleaned of all loose soil, leveled, and protected from water and construction traffic.
2. Refer to geotechnical report and follow recommendations specific to wet weather earthwork.
3. Refer to geotechnical report and follow recommendations specific to temporary cut slopes.

Submittals
1. Suitability of soils for bearing is as described in the geotechnical report. Soil bearing surfaces must be observed and approved by the geotechnical engineer of record prior to pouring foundation concrete. Submit the written field report by the geotechnical engineer of record to the Architect/Engineer for approval.

GENERAL CONDITIONS

TYPICAL CONDITIONS
1. Typical details are not referenced at all locations for which they apply and may not be referenced at all. Details located on typical detail sheets represent the method of construction to be used at all locations, unless otherwise indicated in the drawings.

- EXISTING CONDITIONS**
- Diagrams and dimensions of the existing conditions are provided for reference only. The general contractor must verify all dimensions and existing conditions prior to commencing work in the area of that existing condition. Notify the Architect/Engineer of any discrepancy prior to fabrication and execution of the work in the area of the discrepancy.
 - Fully coordinate with demolition plans and architect to identify location and extent of structural and non-structural elements to be removed. Where there is a discrepancy between the demolition plans and the structural drawings describing the final built condition, contact the Engineer prior to fabrication and execution of the work in the area of the discrepancy.
 - Coordinate with the owner's representative to minimize disruption to the owner's operation and to provide building user and worker safety.
 - Coordinate with the owner's representative on approval for excessive noise and vibration during hours of building operation.
 - For all existing building materials and equipment to remain, provide protection from damage due to construction operations performed under this contract.
 - Any walls, floors, ceilings and/or equipment damaged as a result of construction operations, shall be repaired or replaced to match existing finish and condition.
 - Where walls, floors, or ceilings are removed only for the purpose of accessing an area of work in this contract, replace the walls, floors, and ceilings to match the original condition. Material and finishes for new walls, floors, and ceilings shall match surrounding surfaces unless noted otherwise. Maintain rating or replace with construction of the same rating at all existing fire and smoke rated construction.
 - Verify and maintain the location of existing plumbing, power, communications and data cables so as to not interrupt the continuity of their services, unless noted otherwise.
 - Leave all areas of work broom and dust clean at hard surfaces and vacuum clean at carpeted surfaces.

- DEMOLITION**
- Refer to demolition drawings for the extent and requirements of demolition work. Coordinate location and extent of demolition work with the structural drawings to achieve the final built condition described therein. Notify Architect/Engineer of any discrepancies between the structural, architectural and demolition drawings describing the final built condition.
 - The general contractor shall be responsible for the sequences of demolition, for providing all temporary shoring and bracing as needed to safely resist all loads which the existing structure may experience during demolition.
 - Where temporary shoring or bracing is required, retain the services of a structural engineer registered in the project jurisdiction to design and detail the bracing of that equipment for the gravity and lateral forces prescribed by the reference code. Submit the stamped and signed design documents to the project jurisdiction as a deferred submittal for approval prior to performing the work.
 - Repair or replace any structural elements damaged during demolition to match the strength, quality, and appearance of the existing condition. Retain the services of a structural engineer registered in the project jurisdiction to design the repair or replacement of a damaged element wherever the strength and quality of the existing element is not evident. Submit the stamped and signed design documents to the project jurisdiction as a deferred submittal for approval prior to performing the work.
 - Sawcut existing concrete and masonry walls at least 1" deep on both faces of wall, all around new openings, prior to removal of material. Do not overcut at corners.
 - Remove all demolition materials from the site unless otherwise noted and dispose of it in a legal manner.

- COORDINATION**
- The written specifications and the drawings of the architectural, mechanical, electrical and civil/landscape disciplines are to be used in conjunction with the structural drawings for bidding and construction.
 - Dimensions for some secondary elements such as windows, doors, walls and floor edges are located only in the architectural drawings. Shop drawing production for structural elements will require dimensional information contained in both the architectural and structural drawings. All requests for dimensions in shop drawing submittals will be referred to the general contractor.
 - The contractor shall coordinate dimensions and conditions between the drawings (including the architectural, mechanical, electrical and civil/landscape disciplines), the specifications, and the site conditions prior to fabrication and construction. Notify Architect/Engineer in writing of any discrepancies in dimensions or conditions found prior to fabricating and executing work in the area of the discrepancy. Architect/Engineer will respond in writing according to the provisions of the general conditions found in the specifications. Any related work performed by the contractor between the discovery of the discrepancy and receipt of the Architect's/Engineer's written response will be done at the contractor's risk.
 - Where the bracing of mechanical, plumbing, fire-protection and/or electrical equipment is not specifically detailed in the mechanical, plumbing, fire-protection and/or electrical drawings or specifications, retain the services of a structural engineer registered in the jurisdiction of this project to design and detail the bracing of that equipment for the gravity and lateral forces prescribed by the governing building code. Submit the stamped and signed design documents to the project jurisdiction as a deferred submittal for approval prior to performing the work.
 - Where the bracing of ceilings and other architectural elements is not specifically detailed in the architectural drawings or specifications, retain the services of a structural engineer registered in the jurisdiction of this project to design and detail the bracing of those elements for the gravity and lateral forces prescribed by the governing building code. Submit the stamped and signed design documents to the project jurisdiction as a deferred submittal for approval prior to performing the work.
 - Provide coordination drawings showing all anticipated penetrations through the structural elements shown in these drawings. No penetrations through structural elements shall be allowed unless already indicated in the structural drawings or approved in writing by the structural engineer.

- SUBMITTALS**
- Construction utilizing any given material shall not occur until the approved submittals for that material are received from the Architect/Engineer.

WOOD

Reference Codes
• International Building Code (IBC), 2018 edition, as adopted and amended by the project jurisdiction, Chapter 23
• West Coast Lumber Inspection Bureau Standard Grading Rules for West Coast Lumber No. 16, latest edition
• ANSI/AWC NDS-2018, National Design Specification (NDS) for Wood Construction, with 2018 Supplement
• ANSI/AWC SDPWS-2015, Special Design Provisions for Wind and Seismic

Strength
2x Joists and Built-Up Members Douglas Fir-Larch No. 2
2x & 3x Beams and Posts Douglas Fir-Larch No. 2
2x Wall Studs Douglas Fir-Larch No. 2
6x & Larger Beams and Stringers Douglas Fir-Larch No. 1
6x & Larger Posts and Timbers Douglas Fir-Larch No. 1
Studs and Plates Douglas Fir-Larch No. 2
Misc. Light Framing Douglas Fir-Larch No. 2
T&G Decking Douglas Fir Commercial Grade

Design
1. Where required by the drawings, design premanufactured wood joist, trusses and connections to resist construction and building loads described in these documents.

Coordination
1. Structural walls are those shown in the structural drawings. Refer to architectural drawings for non-structural walls, partitions and soffits.

- Execution**
- Provide ASTM A307 bolts, unless noted otherwise.
 - Provide standard washers at all bolt heads and nuts.
 - All exterior bolts, nuts and washers shall be galvanized.
 - Provide nails conforming to "Common" specification ASTM F1667.
 - Timber connectors called out by letters and numbers shall be by Simpson Strong Tie Company, Inc. Provide fasteners of the size required by the manufacturer, in each hole.
 - All wood plates, ledgers, and blocking in direct contact with concrete or masonry shall be pressure-treated with an American Wood Preservers Association (AWPA) approved preservative. Alternatives per section 2304.1.1, for some exceptions, impervious moisture barriers may be provided between untreated members and concrete or masonry.
 - All metal fasteners in contact with treated wood shall be G-90 galvanized or stainless steel. When using galvanized fasteners, the contractor shall coordinate the galvanization process with the chemical composition of the wood treatment.
 - At joint areas, provide cross-bridging at 8'-0" on center maximum. Provide solid blocking or continuous rim at all bearing points. Provide solid blocking under all bearing walls above. Provide double joist under all parallel partitions that extend over more than half the joist length. Provide double joists each side of all openings in floors and roofs unless detailed otherwise. Coordinate size and location of all openings with architectural and Mechanical drawings.
 - Provide two 2x10 headers over and double studs each side of all openings in stud bearing walls unless noted otherwise.
 - Provide solid blocking at floors for wood columns and multiple stud posts to pass through.
 - Provide continuous solid blocking at mid-height of all stud walls over 10'-0" in height.
 - All stud walls unless noted otherwise shall be 2x4 at 16 inches on center at interior walls and 2x6 at 16 inches on center at exterior walls.
 - Use full-length studs (balloon frame) on exterior walls at stairways and at vaulted ceilings.
 - All wood stud walls shall have lower wood plates attached to wood framing below with 16d nails at 6 inches on center, staggered or bolted to concrete with 5/8 inch diameter anchor bolts at 4'-0" on center unless noted otherwise on the plans. All anchor bolts shall have 3 x3 x 0.229 inch plate, washers and minimum embedment of 7 inches in concrete.
 - Plywood wall sheathing shall have solid blocking at all edges. Provide the following minimum nailing unless noted otherwise on plans:
 - 10d at 16 inches on center at sheet edge.
 - 10d at 12 inches on center at intermediate bearing points.
 - Where fasteners sizes and/or patterns are note noted, reference IBC Table 2304.10.1 for additional information.

Submittals
1. All designs required to be provided by the manufacturer shall include drawings and calculation, stamped and signed by an engineer registered to work in the jurisdiction of this project.

WOOD STRUCTURAL PANELS

Reference Codes
• International Building Code (IBC), 2018 edition, as adopted and amended by the project jurisdiction, Chapter 23

Strength
Plywood sheathing shall be grade Structural I.
Exterior glue shall be in conformance with the building code, United States Voluntary Product Standards PS-1 or PS-2.

- Execution**
- Stagger panel end joints.
 - Provide approved edge clips at 24 inches on center at unblocked roof and floor sheathing edges.
 - Provide 1/8 inches gap between all abutting panel edges.
 - Provide the following minimum nailing unless noted otherwise on plans:
 - 10d at 6 inches on center at all supported panel edges.
 - 10d at 12 inches on center field nailing.
 - Where replacing damaged existing roof decking and/or sheathing, provide sheathing to match thickness of existing deck/sheathing build-up.

CONCRETE REINFORCING COVER TABLE					
Location	Size	Cover			
Cast against and permanently exposed to earth	All	3"			
	#5 or smaller	1 1/2"			
Exposed to earth or weather	#6 or larger	2"			
	#11 or smaller	3/4"			
Interior Wall Faces	#14 and #18	1 1/2"			
Slab-on-Grade cast against vapor barrier	#11 or smaller	1" (see note 1)			
	#14 and #18	1 1/2"			
Elevated Slabs	#11 or smaller	1" (see note 1)			
	#14 and #18	1 1/2"			
Interior Frames - Beams and Columns (to Ties, Spirals, or stirrups)	All	1 1/2"			
Exterior Frames - Beams and Columns (to Ties, Spirals, or stirrups)	All	2" (see note 2)			

Notes:
1. Can be 3/4 for 1-hour fire - refer to code plan.
2. Can be 1 1/2 for less than 4-hour fire rating, unless exposed to earth or weather - refer to code plan.

CONCRETE

Reference Codes
• International Building Code (IBC), 2018 edition, as adopted and amended by the project jurisdiction, Chapter 19
• ACI 301-10, Specification for Structural Concrete
• ACI SP96 (04), ACI Detailing Manual
• ACI 318-14, Building Code Requirements for Structural Concrete

Strength
Provide concrete mix design in accordance with ACI 301, and meeting the requirements of the CONCRETE MIX DESIGN TABLE.

Coordination
1. Conduits embedded within slabs, walls or beams shall be placed between rebar mats where double mats occur. The outside diameter of the conduit shall be smaller than 1/4 x the member thickness and shall be spaced greater than 4 x the conduit outside diameter.
2. Coordinate reinforcing steel placement details with structural embeds and embeds specified in other disciplines. Utilize templates for placing steel in congested areas.
3. No concrete work shall be penetrated for piping or ducts, unless shown in the drawings or approved by the Engineer in writing.

- Execution**
- Provide bar supports as required in the contract documents. Concrete dobies shall be minimum 4000 psi with cast-in double annealed 16 ga iron wires for tying. Wire chairs shall have Class 1 plastic tips.
 - Provide cover as shown in drawings, with a minimum cover as required by the CONCRETE REINFORCING COVER TABLE.
 - Provide rebar splice lengths as shown in the drawings, with a minimum splice as required by the CONCRETE REINFORCING SPLICE TABLE.
 - Camber concrete forms as shown plus deflection due to the weight of wet concrete.
 - One-way slabs shall be cambered 1/1000 of the span, unless noted otherwise on the drawings. Cambers of less than 1/8" may be neglected.
 - Air Content and Slump shall be measured at the truck discharge or at the end of the pump, wherever concrete is pumped. Slump shall be within +1'-2" of slump specified in the approved mix design submittal.
 - The reinforcement into the correct positions using double annealed 16 ga iron wire. Use wire chairs at maximum 36 inch spacing in formed construction and concrete dobies at maximum 24 inch spacing at concrete cast against grade or rigid insulation to elevate the rebar into the designated positions and to maintain the required concrete cover.
 - Cold Bend bars as noted in drawings to radius specified in ACI 315. Bend bars one time only.
 - Trim bars may be omitted when the opening dimensions are less than the rebar spacing, for opening less than 12"x12". Relocate all interrupted rebar along one side of the opening and place an identical bar on the opposite side of the opening. Alternatively, where the interrupted bar is within 3" of opening edge, rebar may be sprung around the opening with no additional rebar required on the opposite side of the opening.
 - Provide 3/4" chamfer at all exposed concrete edges, unless noted otherwise.

Submittals
1. Mix Designs meeting or exceeding the requirements of the CONCRETE MIX DESIGN TABLE must be submitted to and approved by the Engineer prior to use. Provide mix designs which correspond to anticipated placement requirements and finish conditions. Deviation from the specified mix design must be demonstrated to be in accordance with ACI 318, Chapter 26 and must be submitted a minimum of two weeks prior to use for approval by the Engineer, with a written explanation of the reason for deviating from the specified mix design. Approval of deviation from the specified mix design is at the discretion of the Engineer.
2. Provide coordinated shop drawings with 1/4" scale elevations of all walls with all reinforcing, openings, structural embeds, and embedded items from other disciplines, all shown in conjunction and dimensioned relative to a common datum. Before submitting shop drawings for structural review, Mechanical and Electrical contractors must mark size and locations of all required penetrations and embeds on wall elevations.
3. Provide certification to show that all rebar welders hold a current WABO certification and are prequalified according to AWS D1.4 for all weld sizes and positions required.
4. Slab-on-Grade control joints shown in plan are schematic. Contractor shall provide control joint layout submittal to Engineer for approval showing all control joints that will be provided, conforming to the maximum joint spacing allowed.

REINFORCING

Reference Codes
• International Building Code (IBC), 2018 edition, as adopted and amended by the project jurisdiction
• ACI 318-14, Building Code Requirements for Structural Concrete
• ACI 301-10, Specification for Structural Concrete
• TMS 402/602-16, Building Code Requirements and Specification for Masonry Structure
• AWS D1.4/D1.4M-18, Structural Welding Code - Steel Reinforcing Bars

Strength
Deformed Bars (new billet stock) ASTM A615 Fy = 60 ksi
Weldable Deformed Bars ASTM A706 Fy = 60 ksi
Epoxy Coated Deformed Bars ASTM A775 Fy = 60 ksi
Plain Welded Wire Fabric (electrically welded) ASTM A185 Fy = 60 ksi

Fiber reinforced concrete shall conform to ACI Report 544.1R. Follow manufacturer's recommended mix quantity, but use no less than 1.5#/cu yd.

CONCRETE REINFORCING DEVELOPMENT LENGTH/LAP SPLICE TABLE					
Reinforcing Size	f _c = 4000 psi				
	Tension Development Length		Tension Lap Splice		
	Ld (inches)	Top Bars, Ldt (inches)	Ls (inches)	Top Bars, Lst (inches)	
#3	15	20	20	26	
#4	19	25	25	33	
#5	24	32	32	42	
#6	29	38	38	50	
#7	42	55	55	72	
#8	48	63	63	82	
#9	54	71	71	93	
#10	60	78	78	102	
#11	66	86	86	112	

- Lengths shown are for reinforcing satisfying the following spacing and cover dimensions (multiply lengths shown by 1.5 if these requirements are satisfied):
 - walls and slabs - clear cover > db & clear spacing > 2db
 - beams and columns - clear cover > db & clear spacing > db
- Top bars are horizontal beam reinforcing with more than 12" of concrete below.
- Tension lap splice lengths shown are for Class B splices (1.3xLd).
- Multiply lengths by 1.3 for lightweight concrete.
- For splices of different bar sizes: use max of Ld of larger bar or Ls of smaller bar.

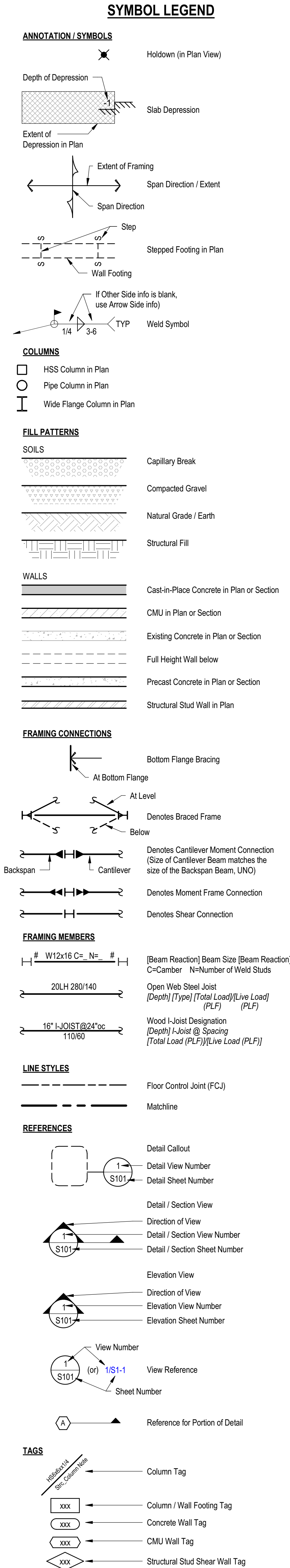
LONGVIEW SCHOOL DISTRICT HVAC
REPLACEMENT AND INDOOR AIR QUALITY
IMPROVEMENTS
2715 LILAC STREET
LONGVIEW, WA 98632

Date: 04/25/23
Job No.: 22220.00
Drawn By: AM
Checked by: TD
Revisions
Date Description

STRUCTURAL
GENERAL NOTES

SHEET LIST	
STRUCTURAL	
S3-1	STRUCTURAL GENERAL NOTES
S3-2	STRUCTURAL GENERAL NOTES
S3-3	DISCOVERY HIGH SCHOOL - ATTIC FRAMING PLAN AND DETAILS

ABBREVIATIONS		ABBREVIATIONS	
*Code References		I	
ACI	AMERICAN CONCRETE INSTITUTE	IN	INCH, INCHES
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	INCL	INCLUDED, INCLUDING
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	INSUL	INSULATION
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS	INT	INTERIOR
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	IP	INTERLOCKING PUNCH
AWS	AMERICAN WELDING INSTITUTE	J	
CRSI	CONCRETE REINFORCING STEEL INSTITUTE	JST	JOIST
IBC	INTERNATIONAL BUILDING CODE	JT, JTS	JOINT, JOINTS
ICBO	INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS	K	
ICC-ES	ICC EVALUATION SERVICE	k, KIP	KILOPOUND
UBC	UNIFORM BUILDING CODE	ksi	KIPS PER SQUARE INCH
WABO	WASHINGTON ASSOCIATION OF BUILDING OFFICIALS	L	
WFS	WELDING PROCEDURES SPECIFICATIONS	L	ANGLE or LENGTH
*MISC		LAT	LATERAL
-	DEGREE	LF	LINEAR FOOT
±	PLUS OR MINUS	LFRS	LATERAL FORCE RESISTING SYSTEM
Ø	DIAMETER	LGT, LONG	LONGITUDINAL
A		LIN	LINEAR
AB	ANCHOR BOLT	LL	LIVE LOAD
ADD	ADDENDUM	LLH	LONG LEG HORIZONTAL
ADCL	ADDITIONAL	LLV	LONG LEG VERTICAL
ADH	ADHESIVE	LOC	LOCATION
ADJ	ADJACENT	LSH	LONG SLOTTED HOLE
AESS	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL	LSL	LAMINATED STRAND LUMBER
AFF	ABOVE FINISH FLOOR	LVL	LAMINATED VENEER LUMBER
AHU	AIR HANDLING UNIT	M	
ALT	ALTERNATE	MAX	MAXIMUM
ANCH	ANCHOR, ANCHORAGE	MC	MISCELLANEOUS CHANNEL
APPROX	APPROXIMATE	MECH	MECHANICAL
AR	ANCHOR ROD	MEP	MECHANICAL, ELECTRICAL, PLUMBING
ARCH	ARCHITECT, ARCHITECTURAL	MEZZ	MEZZANINE
B		MF	MOMENT FRAME
BAL	BALANCE	MFR	MANUFACTURER
BF	BRACED FRAME	MIN	MINIMUM
BLDG	BUILDING	MISC	MISCELLANEOUS
BLKG	BLOCKING	MTL	METAL
BM	BEAM	N	
BOD	BOTTOM OF DECK	N-GROUT	NON-SHRINK GROUT
BOF	BOTTOM OF FOOTING, FOUNDATION	NLB	NON-LOAD BEARING
BOS	BOTTOM OF STEEL	NS	NEAR SIDE
BOT	BOTTOM	NTS	NOT TO SCALE
BP	BASE PLATE	O	
BRB	BUCKLING RESTRAINED BRACE	OC	ON CENTER
BRG	BEARING	OD	OUTSIDE DIAMETER
BTWN	BETWEEN	OPNG	OPENING
C		OPP	OPPOSITE
(c)	COLLECTOR	OSB	ORIENTED STRAND BOARD
C	CAMBER or CHANNEL	OWJ	OPEN WEB JOIST
CANT	CANTILEVER	P	
CIP	CAST-IN-PLACE	PAF	POWDER ACTUATED FASTENERS
CJ	CONTROL JOINT	PERIM	PERIMETER
CJP	COMPLETE JOINT PENETRATION	PERP	PERPENDICULAR
CL	CENTERLINE	PJP	PARTIAL JOINT PENETRATION
CLR	CLEAR, CLEARANCE	PL	PLATE
CMU	CONCRETE MASONRY UNIT	PLF	POUNDS PER LINEAL FOOT
COL	COLUMN	PLYWD	PLYWOOD
COMP	COMPOSITE or COMPRESSION	PREFAB	PREFABRICATED
CONC	CONCRETE	PRELIM	PRELIMINARY
CONN	CONNECTION	PSF	POUNDS PER SQUARE FOOT
CONT	CONTINUOUS	PSI	POUNDS PER SQUARE INCH
CONTR	CONTRACTOR	PSL	PARALLEL STRAND LUMBER
COORD	COORDINATE	PT	POINT, POST TENSION
CTR	CENTER, CENTERED	Q	
D		QTY	QUANTITY
d	PENNY (NAIL)	R	
D&E	DRILL AND EPOXY	REF	REFERENCE
DBA	DEFORMED BAR ANCHOR	REINF	REINFORCE(D), (ING), (MENT)
DBL	DOUBLE	REQD	REQUIRED
DC	DEMAND CRITICAL	REV	REVISION, REVISED
DEMO	DEMOLISH, DEMOLITION	S	
DIA	DIAMETER	SCHED	SCHEDULE
DIAG	DIAGONAL	SECT	SECTION
DIAPH	DIAPHRAGM	SF	SQUARE FOOT
DIM	DIMENSION	SHTG	SHEATHING
DL	DEAD LOAD	SIM	SIMILAR
DN	DOWN	SOG	SLAB ON GRADE
DTL	DETAIL	SPA	SPACING
DWG, DWGS	DRAWING, DRAWINGS	SPEC	SPECIFICATION
DWL, DWLS	DOWEL, BOWELS	SQ	SQUARE
E		SS	STAINLESS STEEL
EA	EACH	SSH	SHORT SLOTTED HOLE
EF	EACH FACE	STD	STANDARD
EL, ELEV	ELEVATION	STGD	STAGGERED
ELECT	ELECTRICAL	STIFF	STIFFENER
EMBED	EMBEDMENT	STL	STEEL
ENGR	ENGINEER	STRUCT	STRUCTURAL
EOD	EDGE OF DECK	SYM	SYMMETRICAL
EOS	EDGE OF SLAB	T	
EQ	EQUAL	T&B	TOP AND BOTTOM
EQUIP	EQUIPMENT	T&G	TONGUE AND GROOVE
ES	EACH SIDE	TEMP	TEMPERATURE, TEMPORARY
EW	EACH WAY	THRD	THREAD, THREADED
EXIST, (E)	EXISTING	TO	TOP OF
EXP	EXPANSION	TOB	TOP OF BEAM
EXT	EXTERIOR	TOC	TOP OF CONCRETE
F		TOF	TOP OF FOOTING
FCJ	FLOOR CONTROL JOINT	TOP	TOP OF PARAPET
FDN	FOUNDATION	TOS	TOP OF STEEL
FFE	FINISH FLOOR ELEVATION	TOW	TOP OF WALL
FIN	FINISH	TRA	THREADED ROD IN ADHESIVE ANCHOR
FLR	FLOOR	TRANS	TRANSVERSE
FO	FACE OF	TYP	TYPICAL
FRMG	FRAMING	U	
FS	FAR SIDE	UNO	UNLESS NOTED OTHERWISE
FT	FOOT, FEET	UT	ULTRASONIC TEST
FTG	FOOTING	V	
G		VERT, V	VERTICAL
GA	GALVE, GAGE	VIF	VERIFY IN FIELD
GALV	GALVANIZED	W	
GC	GENERAL CONTRACTOR	W, WF	WIDE FLANGE
GLB	GLUE LAMINATED BEAM	W	WITH
GR	GRADE, GRADING	W/O	WITHOUT
GWB	GYPSUM WALL BOARD	WCJ	WALL CONTROL JOINT
H		WO	WOOD
HAS	HEADED ANCHOR STUD	WF	WIDE FLANGE
HCP	HOLLOW CORE PLANK	WP, WPT	WORKING POINT
HDR	HEADER	WS	WELD STUD
HORIZ, H	HORIZONTAL	WT	WEIGHT or STRUCTURAL TEE CUT FROM WY SECTION
HSS	HOLLOW STRUCTURAL SECTION	WWF	WELDED WIRE FABRIC
HT	HEIGHT	X	
		XS	EXTRA STRONG
		XXS	DOUBLE EXTRA STRONG



CONSTRUCTION ADMIN	
Structural Observations	
1. Structural Observation by the Structural Engineer is for the purpose of confirming general conformance of the construction with the design intent of the structure.	
2. Structural observations will occur as required to confirm general conformance of the construction with the design intent of the structure.	
3. Structural Observation is not intended to review the Contractor's construction procedures or the Contractor's conformance with the contract.	
4. Structural Observation is not intended to replace the required Special Inspection program.	
Special Inspection	
Special inspections shall be performed by an agency which:	
1. Is employed by the owner;	
2. Is qualified to perform special inspection activities in accordance with IBC Section 1704.2;	
3. Has been approved by the building official to perform special inspections.	
The special inspector shall provide written documentation of qualifications per IBC section 1704.2.1.	
The special inspector shall furnish inspection reports and a final report in accordance with IBC Section 1704.2.4.	
The construction or work for which special inspection is required shall remain accessible and exposed of special inspection purposes until completion of the required special inspections.	
Each contractor responsible for the construction of a main wind- or seismic force-resisting system, designated seismic system or a wind- or seismic-resisting component listed in the statement of special inspections shall submit a written statement of responsibility to the building official and the owner prior to the commencement of work on the system or component. The contractor's statement of responsibility shall contain acknowledgement of awareness of the special requirements contained in the statement of special inspection.	

STATEMENT OF SPECIAL INSPECTIONS (cont.)	
Wood Construction (IBC 1705.5)	
Special inspections for wood construction shall be in accordance with IBC 1705.5	
Per IBC Section 1705.5.1, diaphragm special inspection shall include inspection of:	
1. Wood structural panel sheathing grade and thickness	
2. Nominal size of framing members at adjoining structural panel sheathing	
3. Fastener (nail or staple) diameter and length, the number of fastener lines, and the spacing between fasteners in each line and at edge margins	

LONGVIEW SCHOOL DISTRICT HVAC
REPLACEMENT AND INDOOR AIR QUALITY
IMPROVEMENTS
2715 LILAC STREET
LONGVIEW, WA 98632

Date:	04/25/23	
Job No.:	22220.00	
Drawn By:	AM	
Checked by:	TD	
Revisions		
#	Date	Description

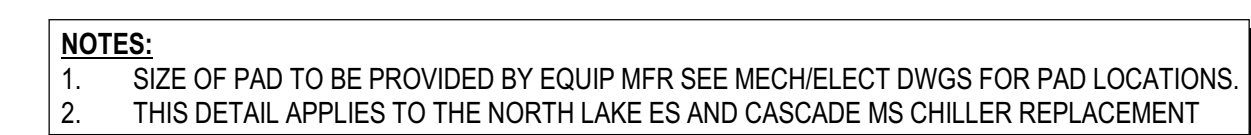
STRUCTURAL
GENERAL NOTES

S3-2



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- The image contains three technical drawings, labeled (1), (2), and (3), illustrating different methods for interrupting existing studs in a wall framing assembly. Each drawing shows a cross-section of a wall with a window opening, including labels for existing studs, common end nails, headers, jacks, sills, and new framing members.
- (1) EXISTING STUD INTERRUPTED**
- (1) EXISTING STUD INTERRUPTED
 - (2) 10d COMMON END NAILS, TYP
 - (2) 10d COMMON TOE NAILS, TYP
 - 2x HEADER TO MATCH (E) WALL FRAMING
 - 2x JAMB TO MATCH (E) WALL FRAMING TYP
 - 2x SILL TO MATCH (E) WALL FRAMING
- (2) EXISTING FULL HEIGHT STUDS INTERRUPTED**
- (2) EXISTING STUDS INTERRUPTED
 - (2) 10d COMMON END NAILS, TYP
 - 2x HEADER TO MATCH (E) WALL FRAMING
 - SISTER NEW 2x TO MATCH (E) WALL FRAMING w/ 10d COMMON NAILS @ 6"oc STAGGERED TYP
 - 2x JAMB TO MATCH (E) WALL FRAMING TYP
 - 2x SILL TO MATCH (E) WALL FRAMING
- (3) EXISTING FULL HEIGHT STUDS INTERRUPTED**
- (2) EXISTING STUDS INTERRUPTED
 - (2) 10d COMMON END NAILS, TYP
 - (2) 10d COMMON TOE NAILS, TYP
 - (2) 2x HEADER TO MATCH (E) WALL FRAMING w/ 10d COMMON NAILS @ 6"oc STAGGERED
 - SISTER NEW 2x TO MATCH (E) WALL FRAMING w/ 10d COMMON NAILS @ 6"oc STAGGERED TYP
 - 2x JAMB TO MATCH (E) WALL FRAMING TYP
 - 2x SILL TO MATCH (E) WALL FRAMING w/ 10d COMMON NAILS @ 6"oc STAGGERED

SCALE: 3/4" = 1'-0"



SCALE: 1" = 1'-0"

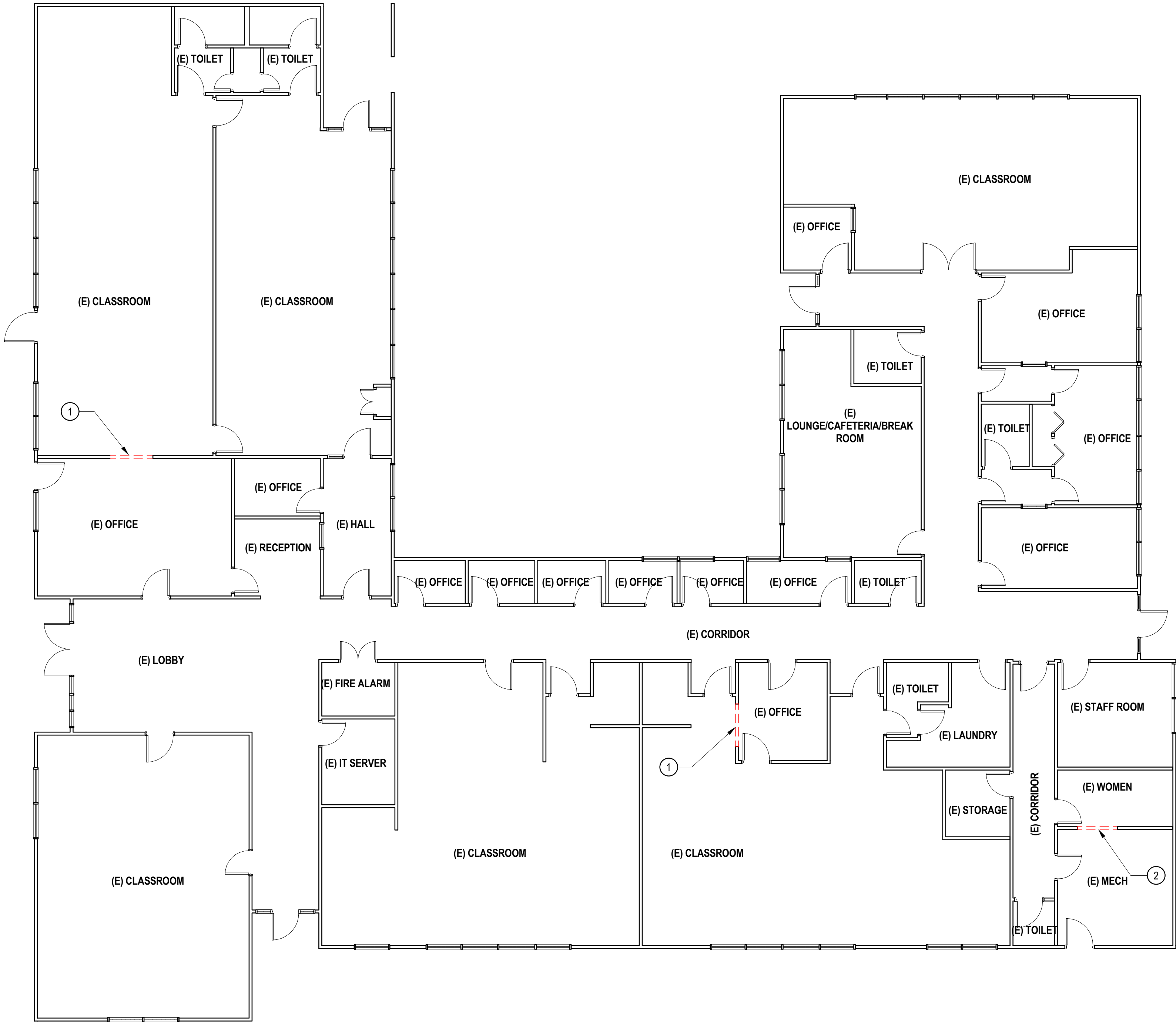
GENERAL DEMOLITION NOTES

1. DASHED LINES INDICATE EXTENT OF EXISTING ASSEMBLIES TO BE DEMOLISHED.
2. THE DEMOLITION DRAWINGS ARE INTENDED AS A GENERAL GUIDE AS TO THE SCOPE OF DEMOLITION REQUIRED. ADDITIONAL ITEMS THAT ARE NOT SPECIFICALLY IDENTIFIED AND THAT ARE LOGICALLY ASSOCIATED WITH ITEMS CALLED OUT AS BEING REMOVED SHOULD BE REMOVED AS WELL INCLUDING DEMOLITION IDENTIFIED ON ALL DISCIPLINES DRAWINGS. IF THERE IS A QUESTION CONTACT THE ARCHITECT FOR DIRECTION.
3. OWNER RETAINS THE FIRST RIGHT OF REFUSAL OF ALL DEMOLISHED ITEMS.
4. FOR ALL STRUCTURAL DEMOLITION WORK, REFER TO SPECIFIC DISCIPLINE DEMOLITION DRAWINGS.
5. PROTECT AND MAINTAIN EXISTING WALL ASSEMBLIES AND ASSOCIATED FINISHES, UNO
6. PROTECT EXISTING ELECTRICAL ASSEMBLIES. ALL ELECTRICAL ASSEMBLIES (LIGHTS, ELECTRICAL, DATA, FIRE ALARM, SECURITY, ETC) ARE TO REMAIN IN FUNCTION DURING CONSTRUCTION. ANY ELECTRICAL ASSEMBLIES DAMAGED OR REMOVED ARE TO BE REINSTALLED OR REPLACED TO A LIKE NEW CONDITION.
7. PROTECT ALL OWNER INSTALLED STAGE EQUIPMENT. ANY OWNER INSTALLED STAGE EQUIPMENT DAMAGE OR REMOVED SHALL BE REINSTALLED OR REPLACE TO A LIKE NEW CONDITION.
8. PATCH AND REPAIR CEILING, FLOORS AND WALLS TO MATCH ADJACENT. ALIGN FINISHED ASSEMBLIES FOR SMOOTH TRANSITION BETWEEN NEW AND ADJACENT.
9. WHERE MECHANICAL DUCTS ARE ROUTED THROUGH EXISTING PARTITION WALLS, DEMO EXISTING GYPSUM WALL BOARD TO ALLOW FOR ROUTING. SEE STRUCTURAL DRAWING FOR POTENTIAL LOAD BEARING ELEMENTS, DO NOT MODIFY EXISTING FRAMING (INCLUDING STRUCTURAL WALL SHEATHING) WITHOUT APPROVAL FROM THE DESIGN TEAM.

- DEMO PLAN KEYNOTES:
- ① DEMOLISH WALL FOR NEW WALL OPENING ABOVE CEILING. REF STRUCT
 - ② DEMOLISH WALL FOR NEW WALL OPENING. REF STRUCT

DEMOLITION LEGEND

- ASSEMBLY TO BE DEMOLISHED.
- EXISTING ASSEMBLY TO REMAIN.
- CONCRETE FLOOR SLAB TO BE REMOVED IN ITS ENTIRETY.
SAW CUT EDGES.



1 DISCOVERY HIGH SCHOOL DEMO FLOOR PLAN
SCALE: 1/8" = 1'-0"

LONGVIEW SCHOOL DISTRICT HVAC
REPLACEMENT AND INDOOR AIR QUALITY
IMPROVEMENTS

2715 LILAC STREET
LONGVIEW, WA 98632

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Drawn By: JB
Checked by: SW

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DISCOVERY HS
DEMO FLOOR PLAN

AD121

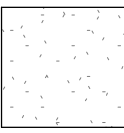
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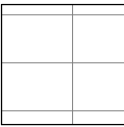
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REFLECTED CEILING PLAN
KEYNOTES

- ① REMOVE AND REINSTALL CEILING TILES AND CEILING GRID AS REQUIRED TO COMPLETE MECHANICAL AND ELECTRICAL SCOPES OF WORK. THIS ALSO INCLUDES THE DEMO SCOPES OF WORK. REPLACE ANY DAMAGED CEILING TILES, CEILING GRIDS, AND ITEMS RELATED TO THE CEILING SYSTEM.
- ② PROTECT EXISTING ELECTRICAL ASSEMBLIES (LIGHTS, ELECTRICAL DATA, FIRE ALARM, SECURITY, ETC). ANY ELECTRICAL DAMAGED OR REMOVED SHALL BE REINSTALLED OR REPLACED TO A LIKE NEW CONDITION.

REFLECTED CEILING PLAN
MATERIAL & FINISH LEGEND

 EXISTING GYPSUM BOARD
CEILING (GWB), GC VERIFY

 EXISTING ACOUSTICAL CEILING
TILE (ACT-1), GC VERIFY

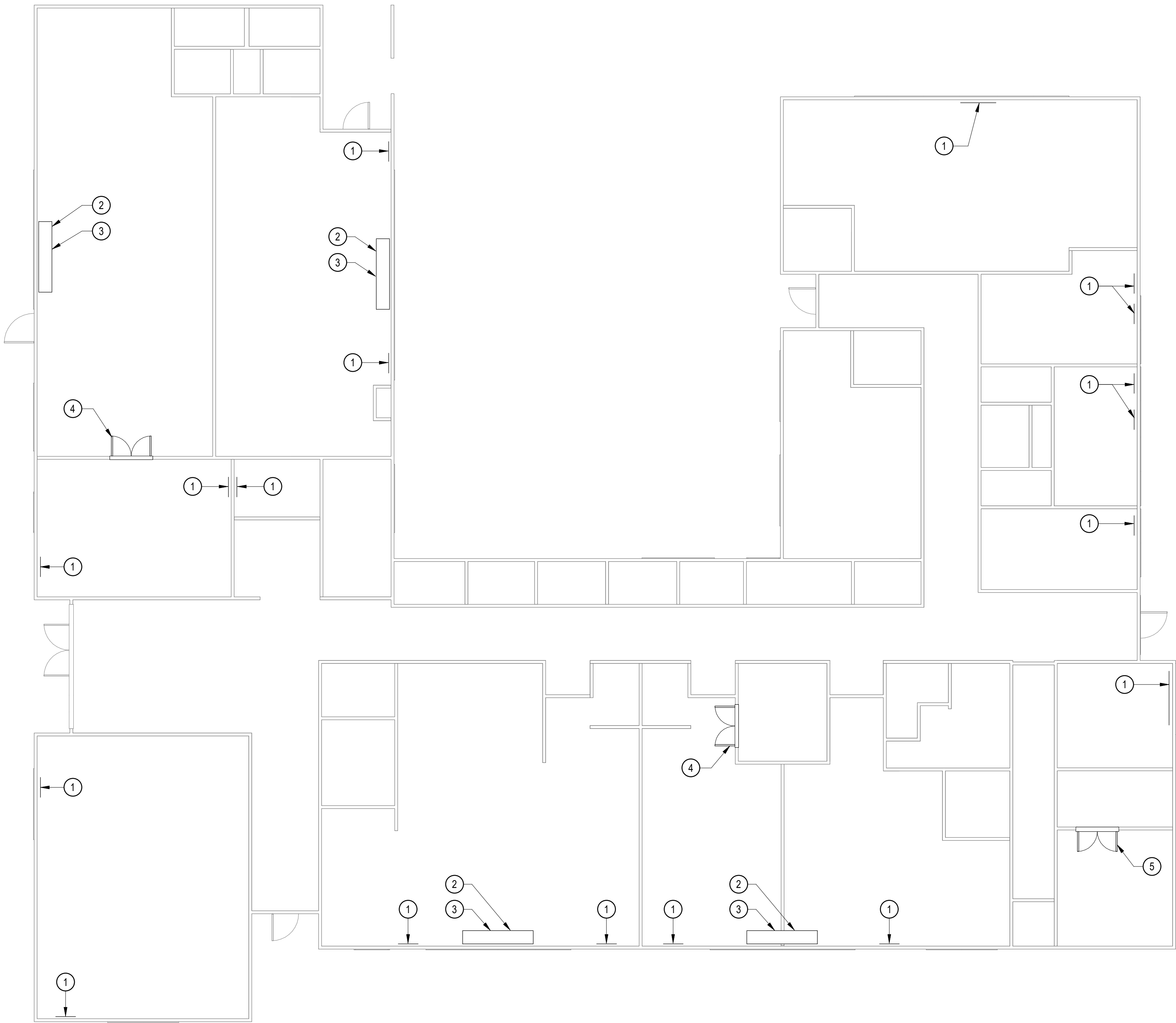
 OPEN TO ABOVE

 OPEN TO STRUCTURE

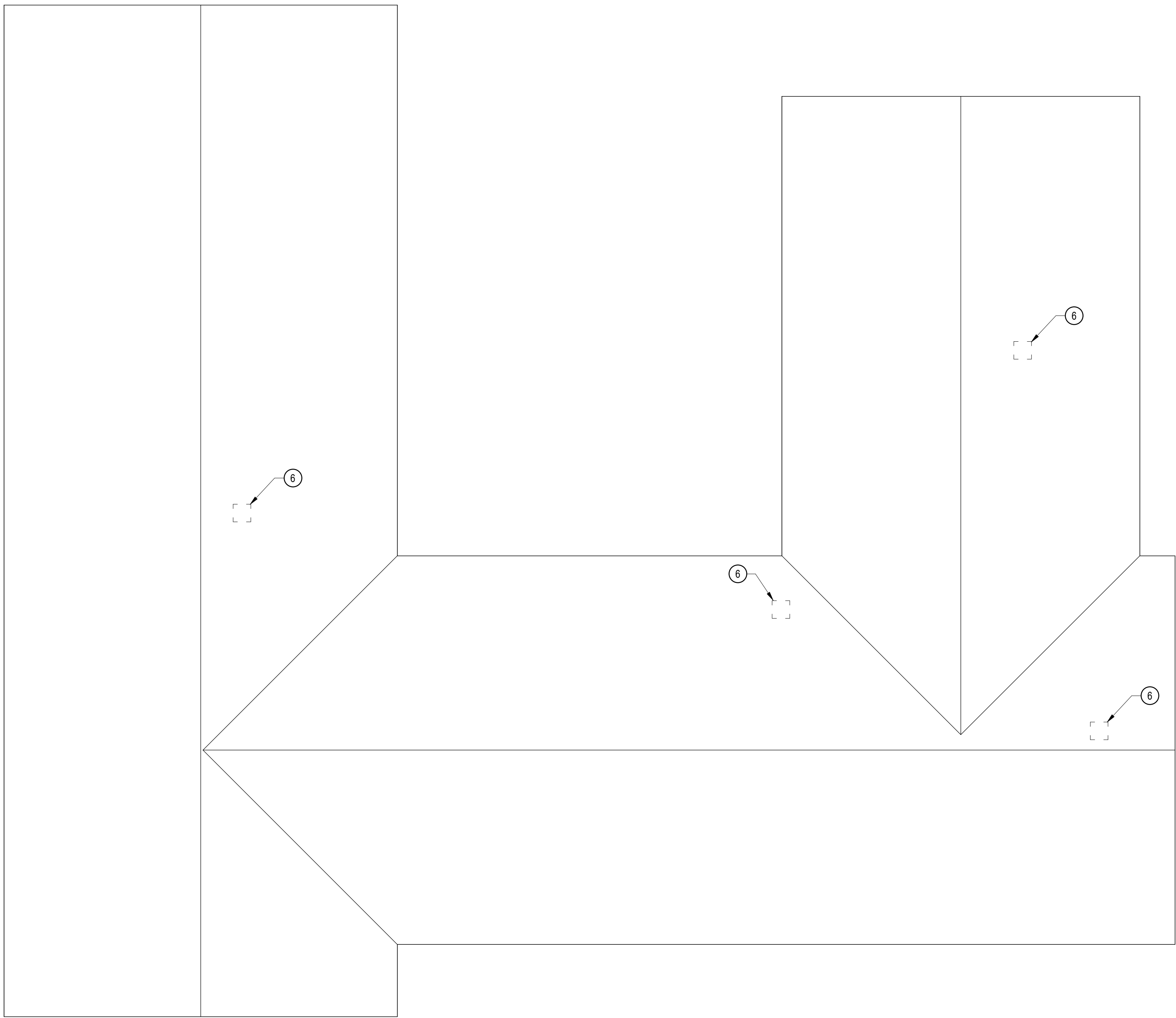


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RA LONG HS - SCIENCE BUILDING - REFLECTED CEILING PLAN
SCALE: 1/8" = 1'-0"



1 DISCOVERY HIGH SCHOOL FLOOR PLAN
SCALE: 1/8" = 1'-0"



2 DISCOVERY HIGH SCHOOL ROOF PLAN
SCALE: 1/8" = 1'-0"

FLOOR PLAN KEYNOTES

- ① PATCH GWB AS REQUIRED. PAINT.
- ② PATCH GWB AS REQUIRED AT DEMOLISHED MECHANICAL UNIT. PAINT.
- ③ INSTALL RESILIENT FLOORING AS REQUIRED AT DEMOLISHED MECHANICAL UNIT
- ④ NEW 34"H X 54"W ACCESS DOOR ABOVE CEILING
- ⑤ NEW 34"H X 54"W ACCESS DOOR
- ⑥ PATCH ROOFING ASSEMBLY AS REQUIRED AT DEMOLISHED ROOF VENT

**LONGVIEW SCHOOL DISTRICT HVAC
REPLACEMENT AND INDOOR AIR QUALITY
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3	04.25.2023	BID SET

DISCOVERY HS
FLOOR PLAN &
ROOF PLAN

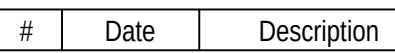
MECHANICAL GENERAL NOTES	
1. CONTRACTOR SHALL CAREFULLY COORDINATE WORK W/ ALL OTHER TRADES, ESPECIALLY IN CEILING SPACES WHERE SPACE IS TIGHT. SHEET METAL CONTRACTOR SHALL HAVE PRIORITY OVER OTHER MECHANICAL TRADES IN CEILING SPACE WHERE CONFLICTS OCCUR.	7. ALL PIPING SHOWN IS SCHEMATIC. CONTRACTOR SHALL PROVIDE ALL OFFSETS/ELBOWS AS REQ'D TO ALLOW ROUTING AROUND STRUCTURE, ELECTRICAL, & OTHER INTERFERENCES. ALL PIPING SHALL BE RUN CONCEALED, UNO.
2. ALL DUCTWORK SHOWN IS SCHEMATIC. CONTRACTOR SHALL PROVIDE ALL OFFSETS/ELBOWS AS REQ'D TO ALLOW ROUTING AROUND STRUCTURE, ELECTRICAL, & OTHER INTERFERENCES.	8. PROVIDE PRIMARY CONDENSATE DRAINS FOR UNITS GENERATING CONDENSATE IN ACCORDANCE WITH CODE REQUIREMENTS & AS SHOWN ON DRAWINGS.
3. UNSIZED DUCTS SHALL MATCH THE SIZE OF THE LARGEST ADJACENT DUCT THAT IS SIZED, WHERE THE ADJACENT DUCT SIZE IS NOT SHOWN, PROVIDE SA & OA DUCTS SIZED AT 0.08" PD PER 100 FEET, PROVIDE RA DUCTS SIZED AT 0.07" PD PER 100 FEET (OR LARGER AS FAN SP OR NOISE CONSIDERATIONS REQUIRE).	9. ALL DUCTWORK SHALL BE RUN CONCEALED (UNO).
4. WHERE RETURN GRILLE CFM'S ARE NOT INDICATED, BALANCER SHALL CALCULATE & SUBMIT FOR ENGINEER REVIEW.	10. PROVIDE FLEX CONNECTORS IN DUCT CONNECTIONS TO ALL EQUIPMENT.
5. DRAWINGS SCALES APPLY TO FULL SIZE SHEET ONLY. USE CAUTION IN OBTAINING DIMENSIONS AND QUANTITIES FROM DRAWINGS THAT ARE NOT FULL SIZE; USE DIMENSIONS CALCULATED FROM DIMENSIONS ON THE ARCHITECTURAL AND STRUCTURAL DRAWINGS OVER OTHER METHODS OF OBTAINING DIMENSIONS.	11. PROVIDE TRANSITIONS FROM DUCT SIZES INDICATED TO CONNECTION SIZES AT EQUIPMENT TO MATCH UNIT CONNECTIONS. WHERE THE CONNECTING DUCT IS LINED, THE TRANSITION SHALL BE LINED.
6. SEISMICALLY ANCHOR ALL UNITS & EQUIPMENT TO BUILDING. (UNO). CONTRACTOR IS RESPONSIBLE TO SELECT AND PROVIDE ALL SEISMIC ANCHORING DEVICES FOR ALL MECHANICAL EQUIPMENT.	12. SEE DETAIL SHEET M501 FOR SUSPENDED EQUIPMENT SUPPORT.
	13. ALL ITEMS ARE NEW UNLESS SPECIFICALLY NOTED AS EXISTING.

ENERGY CODE NOTES			
EQUIPMENT SIZING, PERFORMANCE, AND TYPE		ECONOMIZER	
1.	LOAD CALCULATIONS: LOAD CALCULATIONS HAVE BEEN PERFORMED IN ACCORDANCE WITH WSEC C403.1.2.	22.	AIR ECONOMIZER REQUIRED: SEE EQUIPMENT SCHEDULES FOR EQUIPMENT PROVIDED WITH ECONOMIZER COOLING.
2.	EQUIPMENT AND SYSTEM SIZING: OUTPUT CAPACITIES OF HEATING AND COOLING EQUIPMENT AND SYSTEMS ARE NO GREATER THAN THE SMALLEST AVAILABLE EQUIPMENT SIZE THAT EXCEEDS THE CALCULATED LOADS.	23.	INTEGRATED ECONOMIZER OPERATION: ECONOMIZERS SHALL BE CONFIGURED FOR PARTIAL COOLING OPERATION EVEN WHERE ADDITIONAL MECHANICAL COOLING IS REQUIRED TO MEET THE LOAD.
3.	HVAC EQUIPMENT PERFORMANCE: EQUIPMENT SCHEDULES ARE INCLUDED WITH THESE PLANS.	24.	ECONOMIZER HEATING IMPACT: ECONOMIZER CONTROLS SHALL BE SUCH THAT ECONOMIZER OPERATION DOES NOT INCREASE BUILDING HEATING ENERGY DURING NORMAL OPERATIONS.
4.	ELECTRIC MOTOR EFFICIENCY: ALL ELECTRIC MOTORS SHALL MEET THE MINIMUM EFFICIENCY OF WSEC TABLES.	25.	AIR ECONOMIZER CAPACITY: ECONOMIZER OUTSIDE AIR AND RETURN AIR DAMPERS SHALL MODULATE TO PROVIDE UP TO 100% OUTSIDE AIR FOR COOLING.
5.	FAN POWER LIMITATION: FOR ALL HVAC SYSTEMS WITH TOTAL FAN HP > 5HP, MOTOR HP OR BHP SHALL COMPLY WITH FAN POWER LIMITATIONS PER WSEC.	26.	INTEGRATED AIR ECONOMIZER, C403.3.3: MECHANICAL COOLING CONTROLS SHALL BE INTERLOCKED WITH AIR ECONOMIZER CONTROLS SO THE OUTSIDE AIR DAMPER REMAINS IN 100% OPEN POSITION WHEN MECHANICAL EQUIPMENT IS IN COOLING TO MEET THE COOLING LOAD, UNTIL THE LEAVING AIR TEMPERATURE IS < 45°F. FOR SYSTEMS WITH COOLING CAPACITY GREATER THAN 65 MBH, CONTROL OF ECONOMIZER DAMPERS SHALL NOT BE CONTROLLED BASED ONLY ON MIXED AIR TEMPERATURE.
6.	MOTOR NAMEPLATE HP: FOR EACH FAN, THE MOTOR SHALL BE NO LARGER THAN THE FIRST AVAILABLE MOTOR SIZE GREATER THAN THE BHP.	27.	ECONOMIZER HIGH LIMIT CONTROLS: PROVIDE HIGH-LIMIT ECONOMIZER SHUT-OFF CONTROL UTILIZING FIXED DRY BULB METHOD. ECONOMIZER SHALL BE OFF WHEN OUTDOOR AIR TEMPERATURE EXCEEDS 75°F.
7.	FAN EFFICIENCY: FANS AND FAN SYSTEMS GREATER THAN 5HP SHALL HAVE A FAN EFFICIENCY GRADE (FEG) OF 67 OR HIGHER PER AMCA 205.	SYSTEMS REQUIRING ENERGY RECOVERY	
8.	FAN VARIABLE FLOW CAPACITY: FOR FAN MOTORS 7.5 HP AND GREATER VARIABLE FLOWS SHALL BE PROVIDED WITH A VFD.	28.	ENERGY RECOVERY VENTILATION/EXHAUST: SYSTEMS WITH DESIGN OUTSIDE AIR GREATER THAN 5,000 CFM AND SYSTEMS WITH OUTSIDE AIR PERCENTAGE EXCEEDING THE VALUES OF WSEC TABLE C403.5.1(1) OR (2) SHALL BE PROVIDED WITH AN ENERGY RECOVERY SYSTEM. SEE EQUIPMENT SCHEDULES FOR TYPE AND EFFECTIVENESS.
9.	OUTDOOR AIR, EXHAUST & RELIEF DAMPERS: PROVIDE ALL OUTSIDE AIR, EXHAUST AIR, AND RELIEF AIR OPENINGS WITH CLASS 1 (MAX LEAKAGE OF 4 CFM/SF AT 1.0" W.C.) MOTORIZED DAMPERS.	DEDICATED OUTDOOR AIR SYSTEMS (DOAS)	
10.	RETURN AIR DAMPERS: PROVIDE RETURN AIR OPENINGS WITH CLASS 1 MOTORIZED DAMPER WHERE USED FOR AIRSIDE ECONOMIZER, WHERE INSTALLED IN UNITARY PACKAGED EQUIPMENT DAMPER, PROVIDE DAMPERS WITH LOWEST LEAKAGE RATE AVAILABLE FROM THE EQUIPMENT MANUFACTURER.	29.	DEDICATED OUTDOOR AIR SYSTEMS PROVIDED FOR ALL AREAS (EXCEPT RANGES).
HVAC SYSTEM CONTROLS		30.	ENERGY RECOVERY VENTILATION WITH DOAS: ALL DOAS UNITS SHALL BE PROVIDED WITH EXHAUST HEAT RECOVERY WITH RATED EFFECTIVENESS TO INVESTIGATE ENERGY SAVED BY 50% OR MORE BASED ON THE DELTA BETWEEN THE RETURN AIR AND THE OUTSIDE AIR ENTHALPIES AT DESIGN CONDITIONS.
11.	THERMOSTATIC CONTROLS: WHERE ADJACENT ZONES CONNECTED BY PERMANENT OPENINGS WITH AREA GREATER THAN 10% OF EITHER ZONE SF, PROVIDE CONTROL TO PREVENT ADJACENT ZONES FROM OPERATING IN CONFLICTING MODES. WHERE A NON-PERIMETER ZONE IS ADJACENT TO A PERIMETER ZONE, PROVIDE CONTROLS TO ONLY ALLOW COOLING IN THE NON-PERIMETER ZONE WHEN IT IS 5 DEGREES HIGHER THAN THE PERIMETER ZONE.	31.	HEATING/COOLING SYSTEM CONTROLS WITH DOAS: EQUIPMENT THAT PROVIDES ZONE LEVEL HEATING AND COOLING SHALL BE CONFIGURED WITH FANS AND/OR PUMPS THAT CYCLE OFF AND PRIMARY COOLING AIR SHALL SHUT OFF WHEN THERE IS NO CALL FOR HEATING OR COOLING IN THE ZONES THEY SERVE.
12.	DEADBAND: THERMOSTATIC CONTROLS SHALL BE CONFIGURED WITH 5°F MINIMUM DEADBAND FOR SYSTEMS THAT CONTROL BOTH HEATING AND COOLING.	COMMISSIONING	
13.	AUTOMATIC SETBACK AND SHUTDOWN: HVAC SYSTEMS SHALL BE EQUIPPED WITH AUTOMATIC CONTROLS CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES, AND SHALL HAVE MANUAL OVERRIDE CONFIGURED TO OPERATE THE SYSTEM FOR 2 HOURS.	32.	SCOPE OF MECHANICAL SYSTEMS COMMISSIONING: ALL MECHANICAL SYSTEMS, EQUIPMENT AND CONTROLS SHALL BE COMMISSIONED.
14.	AUTOMATIC START: AUTOMATIC START CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM, AND BE CAPABLE OF AUTOMATICALLY ADJUSTING DAILY START TIME IN ORDER TO BRING EACH SPACE TO THE DESIRED OCCUPIED TEMPERATURE IMMEDIATELY PRIOR TO SCHEDULED OCCUPANCY.	33.	COMMISSIONING REQUIREMENTS IN CONSTRUCTION DOCUMENTS: COMMISSIONING PLAN SHALL BE DEVELOPED BY A COMMISSIONING PROFESSIONAL AND CONSIST OF A NARRATIVE DESCRIPTION OF ACTIVITIES, ROLES & RESPONSIBILITIES OF THE COMMISSIONING TEAM, SCHEDULE OF ACTIVITIES INCLUDING TAB, FUNCTIONAL PERFORMANCE TESTING AND VERIFICATION OF PROJECT CLOSE OUT DOCUMENTATION PER C103.6, AND SUBMIT COMPLIANCE CHECKLIST TO THE BUILDING OFFICIAL UPON SUBSTANTIAL COMPLETION. A PRELIMINARY COMMISSIONING REPORT AND/OR COMMISSIONING COMPLIANCE CHECKLIST SHALL BE AVAILABLE FOR AHJ REVIEW PRIOR TO THE FINAL MECHANICAL INSPECTION.
15.	OUTDOOR AIR DAMPERS: OUTSIDE AIR INTAKE DAMPERS SHALL AUTOMATICALLY CLOSE WHEN SYSTEM OR SPACES SERVED ARE NOT IN USE OR DURING WARM-UP AND SET BACK.	34.	AIR SYSTEM BALANCING: HVAC AIR SYSTEMS SHALL BE BALANCED IN ACCORDANCE WITH THE SPECIFICATIONS AND THESE WSEC NOTES. SEE SPECIFICATIONS FOR FLOW RATE TOLERANCES.
16.	VENTILATION: MECHANICAL VENTILATION AIR SYSTEMS SHALL BE CONFIGURED TO PROVIDE NOT MORE THAN 150%, BUT AT LEAST THE MINIMUM REQUIRED VOLUME OF OUTDOOR AIR TO EACH ZONE PER IMC. SEE MECHANICAL EQUIPMENT SCHEDULES FOR MINIMUM OUTSIDE AIR VALUES.	35.	AIR SYSTEM BALANCING DEVICES: PROVIDE ALL SUPPLY AIR OUTLETS AND TERMINAL DEVICES WITH MEANS OF BALANCING AIRFLOW. BALANCE TO FIRST MINIMIZE THROTTLING LOSSES, THEN ADJUST TO MEET DESIGN AIR FLOWS.
17.	DX AHU VARIABLE COOLING CONTROL: DX COOLING UNITS SHALL BE PROVIDED WITH INTEGRATED ECONOMIZER COOLING AND WITH MODULATING MECHANICAL COOLING CAPACITY USING EITHER MULTIPLE COMPRESSORS OR A VARIABLE SPEED COMPRESSOR.	36.	FUNCTIONAL PERFORMANCE TESTING CRITERIA: FUNCTIONAL PERFORMANCE TESTING SHALL BE PERFORMED IN ACCORDANCE WITH WSEC.
18.	FAN AIRFLOW CONTROL: DX COOLING UNITS; PROVIDE CONTROLS TO VARY THE INDOOR FAN AIRFLOW AS A FUNCTION OF LOAD.	EQUIPMENT SIZING, PERFORMANCE, AND TYPE	
DUCTING SYSTEMS		1.	SWH (SERVICE WATER HEATING) EQUIPMENT TYPE & EFFICIENCY, C404.2: EQUIPMENT SCHEDULES ARE INCLUDED WITH THESE PLANS.
19.	DUCT CONSTRUCTION, C403.2.8.1: DUCTWORK SHALL BE CONSTRUCTED AND SEALED PER IMC.	2.	HEAT TRAPS, C404.4: WATER HEATING EQUIPMENT NOT SUPPLIED WITH INTEGRAL HEAT TRAPS SERVING NON CIRCULATED SYSTEMS SHALL BE PROVIDED WITH HEAT TRAPS ON SUPPLY AND DISCHARGE PIPING.
20.	HIGH PRESSURE DUCT TESTING: DUCTED SYSTEMS DESIGNED TO OPERATE ABOVE 3 INCHES WATER GAUGE(W.G.) SHALL BE LEAK TESTED TO DEMONSTRATE MAXIMUM LEAKAGE PER WSEC EQUATION 4-9.	3.	INSULATION UNDER ELECTRIC WATER HEATER, C404.5: ELECTRIC WATER HEATERS IN UNCONDITIONED SPACES OR ON CONCRETE FLOORS SHALL BE PROVIDED WITH INCOMPRESSIBLE R-10 INSULATED PAD.
21.	DUCT INSULATION: MINIMUM DUCT INSULATION PER WSEC IS AS FOLLOWS:	PROJECT CLOSE OUT DOCUMENTATION	
SERVICE	INSULATION LEVEL	4.	DOCUMENTATION SUBMITTAL REQUIREMENTS: SUBMIT ALL CLOSEOUT DOCUMENTATION INCLUDING AS-BUILTS AND O&MS TO OWNER.
OUTSIDE AIR DUCTS AND PLENUMS	PROVIDE INSULATION EQUIVALENT TO ENVELOPE REQUIREMENT FOR METAL FRAMED WALLS (TABLE C402.1.3)	5.	THESE "ENERGY CODE NOTES" ARE LISTED TO SATISFY THE BUILDING DEPARTMENT'S REQUIREMENT THAT CERTAIN INFORMATION BE PLACED ON THE PLANS, BUT DO NOT DIMINISH THE FULL PROJECT REQUIREMENTS. PROVIDE ITEMS IN EXCESS OF CODE WHERE NOTED ON DRAWINGS AND IN SPECIFICATIONS.
OUTSIDE AIR DUCT SERVING INDIVIDUAL SUPPLY UNIT WITH LESS THAN 2,800 CFM OF SUPPLY AIR	R-7		
SUPPLY & RETURN DUCTS IN UNCONDITIONED SPACES	R-6		
SUPPLY DUCTS WITHIN CONDITIONED SPACE WHERE SUPPLY AIR IS < 55 DEG F, OR > 105 DEG F.	R-3.3		
EXPPOSED DUCTWORK WITHIN A ZONE THAT SERVES THAT ZONE	NO INSULATION REQUIRED		

MECHANICAL DEMOLITION NOTES	
1. DEMOLITION DRAWINGS ARE INTENDED TO ONLY GIVE A GENERAL REPRESENTATION OF THE DEMOLITION INVOLVED, AND DO NOT CONSTITUTE A FULL LISTING OF ALL ITEMS.	7. REFERENCE ARCHITECTURAL DRAWINGS FOR WHERE CEILING/WALL AND OTHER GENERAL DEMOLITION WORK IS BEING DONE.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW SITE CONDITIONS AND TO IDENTIFY ALL DEMOLITION WORK AND INCLUDE IN HIS BID ALL COSTS FOR DEMOLITION.	8. EXISTING DUCTS, AIR INLETS/OUTLETS, EQUIPMENT SHOWN DASHED REPRESENT MAJOR MECHANICAL ITEMS TO BE REMOVED. SEE NOTES AND KEYED NOTES WHICH COVER ALL OTHER MISCELLANEOUS MECHANICAL ITEMS TO BE REMOVED.
3. CONTRACTOR SHALL VERIFY THE LOCATIONS & CONNECTIONS OF ALL ITEMS NOTED TO BE REMOVED.	9. SEE MECHANICAL FLOOR PLANS FOR HVAC DUCTS THAT ARE BEING REUSED.
4. ALL EXISTING ITEMS NOT BEING REUSED SHALL BE REMOVED. THIS INCLUDES SUCH ITEMS AS THERMOSTATS, CONTROL DEVICES, DUCTS, FANS, PIPING, GRILLES, SUPPORTS, VALVES, CURBS, AND RELATED ACCESSORIES.	10. WHERE EXISTING DUCTS ARE REUSED, AND EXIST. BRANCH DUCTS ARE REMOVED, PROVIDE SHEET METAL PATCH WITH INSULATION AT UNUSED CONNECTION (INSULATION REQUIRED ON SUPPLY AIR DUCTS ONLY).
5. ABANDONED ITEMS, ANCHORS, INSERTS, PIPE STUBS, AND OTHER PROJECTIONS NOT BEING CONCEALED BY NEW CONSTRUCTION SHALL BE REMOVED TO 1" BELOW THE ADJACENT FINISHED SURFACE, AND THE DISTURBED AREA PATCHED.	11. WHERE FLOOR DRAINS ARE REMOVED, LOCATE AND REMOVE TRAP PRIMER THAT SERVED DRAIN(S) AND CAP OFF CW PIPING.
6. PATCH ALL WALL/FLOOR/CEILING OPENINGS LEFT BY REMOVAL OF EXIST. ITEMS. PATCH SO AS TO MATCH FINISH OF ADJACENT UNDISTURBED AREA.	12. HOLD ALL REMOVED ITEMS FOR OWNERS REVIEW. ITEMS SELECTED BY OWNER FOR SALVAGE SHALL BE MOVED BY THE CONTRACTOR TO THE OWNERS STORAGE ROOM (VERIFY EXACT LOCATION WITH OWNER). ITEMS NOT SELECTED BY OWNER FOR SALVAGE SHALL BE DISPOSED OF OFF-SITE BY CONTRACTOR.

MECHANICAL LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	COLD WATER (CW)	AAV	AUTOMATIC AIR VENT
	HOT WATER (HW)	AFF	ABOVE FINISHED FLOOR
	PIPE UP	APPROX	APPROXIMATELY
	PIPE DOWN	ARCH	ARCHITECTURAL
	PIPE TEE IN LINE, BRANCH PIPE DOWN	BDD	BACK DRAFT DAMPER
	CONDENSATE LINE	BTU	BRITISH THERMAL UNIT
	HYDRONIC SUPPLY	BLUH	BRITISH THERMAL UNIT/HOUR
	HYDRONIC RETURN	BLDG	BUILDING
	COLD WATER (CW)	C	CONDENSATE
	ISOLATION VALVE	CAP	CAPACITY
	UNION	CD	CEILING DIFFUSER
	CONCENTRIC REDUCER	CER	CEILING EXHAUST REGISTER
	DUCT UP (ROUND)	CFM	CUBIC FEET PER MINUTE
	DUCT DOWN (ROUND)	CLG	CEILING
	DUCT SECTION (SUPPLY)	COP	COEFFICIENT OF PERFORMANCE
	DUCT SECTION (EXHAUST OR RETURN)	COMP	COMPRESSOR
	ROUND DUCT	CONN	CONNECTION
	TURNING VANES	CSR	CEILING SUPPLY REGISTER
	DUCT (FIRST FIGURE, SIDE SHOWN)	DEG F, °F	DEGREE FAHRENHEIT
	LINED DUCT (DIM. FOR NET FREE AREA)	DH	DUCT HEATER
	RISE (R) OR DROP (D)	DIA. Ø	DIAMETER
	ARROW IN DIRECTION OF FLOW	DN	DOWN
	VOLUME DAMPER (MANUAL)	DWG	DRAWING
	MOTORIZED DAMPER	DB	DRY BULB
	FLEXIBLE CONNECTION	EA	EACH
	FLEXIBLE DUCT	EC	ELECTRICAL CONTRACTOR
	CEILING OUTLET	ECM	ELECTRONIC COMMUTATED MOTOR
	CEILING INLET	ELEC	ELECTRICAL, ELECTRIC
	WALL OUTLET (OR INLET)	EER	ENERGY EFFICIENCY RATIO
	TEMPERATURE SENSOR	EAT	ENTERING AIR TEMPERATURE
	SWITCH	EWB	ENTERING WET BULB
	PHOTOGRAPH IDENTIFIER	EDB	ENTERING DRY BULB
	DETAIL IDENTIFICATION NUMBER	EOL	END OF LINING
	SECTION IDENTIFICATION LETTER	ESP	EXTERNAL STATIC PRESSURE
		ET	EXPANSION TANK
		(ETR)	EXISTING TO REMAIN
		EXIST, (E)	EXISTING
		EXH	EXHAUST
		EXT	EXTERIOR
		FD	FIRE DAMPER
		FPM	FEET PER MINUTE
		FPS	FEET PER SECOND
		FLEX	FLEXIBLE
		FLA	FULL LOAD AMPS
		FLR	FLOOR
		GAL/V	GALVANIZED
		GPH	GALLON PER HOUR
		HP-#	HEAT PUMP NUMBER
		HP	HORSE POWER
		IN	INCH
		KW	KILOWATT
		LAT	LEAVING AIR TEMPERATURE
		LDB	LEAVING DRY BULB
		LWB	LEAVING WET BULB
		MAV	MANUAL AIR VENT
		MFR	MANUFACTURER
		MAX	MAXIMUM
		MFS	MAXIMUM FUSE SIZE
		MBH	THOUSAND BTU/H
		MECH	MECHANICAL
		MIN	MINIMUM
		MCA	MINIMUM CIRCUIT AMPS
		MOP	MAXIMUM OVERCURRENT PROTECTION
		NC	NORMALLY CLOSED
		NO	NORMALLY OPEN
		NPS	NOT TO SCALE
		OBD	OUTSIDE BLADE DAMPER
		OA	OUTSIDE AIR
		PH	PHASE
		PD	PRESSURE DROP
		QTY	QUANTITY
		RLA	RATED LOAD AMPS
		REF	REFERENCE
		REQ'D	REQUIRED
		R	RETURN
		RA	RETURN AIR
		RVI	ROOF VENT INTAKE
		RVR	ROOF VENT RELIEF
		RFPM	REVOLUTIONS PER MINUTE
		RM	ROOM
		S	SUPPLY
		SA	SUPPLY AIR
		S.O.	SCREENED OPENING
		S.S.	STAINLESS STEEL
		SHT	SHEET
		TEMP	TEMPERATURE
		TD	TRANSFER DUCT/TEMPERATURE DROP
		TG	TRANSFER GRILLE
		TSAT	THERMOSTAT
		TSP	TOTAL STATIC PRESSURE
		TYP	TYPICAL
		UNO	UNLESS NOTED OTHERWISE
		UPC	UNIFORM PLUMBING CODE
		V	VOLTS, VOLTAGE
		VFD	VARIABLE FREQUENCY DRIVE
		W	WATT
		WB	WET BULB
		WI	WITH
		WSEC	WASHINGTON STATE ENERGY CODE
		WSG	WALL SUPPLY GRILLE
		WSR	WALL SUPPLY REGISTER

DRAWING INDEX	
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HULTZ  BHU
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BID SET

AIR INLET & OUTLET SCHEDULE			
SYMBOL	TYPE	MANUFACTURER AND SERIES NUMBER	REMARKS
WSR	WALL SUPPLY REGISTER	KRUEGER 5800 H	HORIZ. FACE BARS 3/4" O.C., 0" DEFLECTION, W/ OBD
WER	WALL EXHAUST REGISTER	KRUEGER S 580 H	HORIZ. FACE BARS 3/4" O.C., 0" DEFLECTION, W/ OBD
WL	WALL LOUVER	RUSKIN ELF6375DX	EXTRUDED ALUMINIUM, KYNAR FINISH
CD	CEILING SUPPLY DIFFUSER	KRUEGER SERIES 1240	MODULAR CORE SQUARE NECK
CEG	CEILING EXHAUST GRILLE	KRUEGER SERIES EGC-5	1/2"x1/2"x1/2" CUBE CORE
CRG	CEILING RETURN GRILLE	KRUEGER SERIES EGC-5	1/2"x1/2"x1/2" CUBE CORE
RVR	ROOF VENT RELIEF	GREENHECK FGR	
NOTES: 1. CEILING DIFFUSERS (CD) SHALL HAVE NO. & DIRECTION OF THROWS AS INDICATED ON PLANS. (E.G. CD-3 = 3 WAY THROW) 2. SEE LEGEND FOR TERMINOLOGY USED IN AIR TERMINAL CALL-OUTS ON DRAWINGS. 3. SEE ARCH. FINISH SCHEDULE FOR CEILING TYPES, PROVIDE AIR TERMINALS TO MATCH CEILING CONSTRUCTION INSTALLED IN.			

OA VENTILATION CALCULATION - DOAS PER IMC 2018													
Project No.	DISCOVERY HIGH SCHOOL			Az= zone area			Ra= OA per sf of area						
	22-189			sf= square feet			Vbz= breathing zone OA						
				Rp= OA per person*			= Rp/P/1000 + Ra/Az						
				P/1000 sf= People density			= OA before corrections						
				Pz= zone population			Ez= air distrib effectiveness						
				Ps= actual concurrent pop			Vbz= zone OA = Vbz/Ev						
HVAC Unit	Zone #	Name	Occup Category	Az (sf)	People OA			Area OA		OA Vbz	Ez	Voz (cfm)	Selected Airflow
					Rp	P/1000 sf	Pz	Ra	Ra/Az				
DOAS-1	1	W. CORRIDOR	CORRIDOR	600	0	0	0	0.06	36.0	36.0	1	36.0	50
DOAS-1	3	ROOM 3 RECEPTION	OFFICE SPACE	338	5	5	2	0.06	20.3	30.3	1	30.3	50
DOAS-1	4	OFFICE 3B	OFFICE SPACE	62	5	5	1	0.06	3.7	8.7	1	8.7	15
DOAS-1	5	OFFICE 3A	OFFICE SPACE	83	5	5	1	0.06	5.0	10.0	1	10.0	15
DOAS-1	6	ROOM 1 VIRTUAL SCHOOL	CLASSROOM	758	10	35	27	0.12	91.0	361.6	1	361.6	375
				1841			31.0	290.0	155.9	446.6		446.6	505
HVAC Unit	Zone #	Name	Occup Category	Az (sf)	People OA			Area OA		OA Vbz	Ez	Voz (cfm)	Selected Airflow
					Rp	P/1000 sf	Pz	Ra	Ra/Az				
DOAS-2	2	ROOM 22 ENGLISH	CLASSROOM	951	10	35	34	0.12	114.1	454.1	1	454.1	455
DOAS-2	5	ROOM 21 MATH	CLASSROOM	767	10	35	27	0.12	92.0	362.0	1	362.0	375
DOAS-2	7	HALL	CORRIDOR	118	0	0	0	0.06	7.1	7.1	1	7.1	25
				1836			61.0	610.0	213.2	823.2		823.2	855
HVAC Unit	Zone #	Name	Occup Category	Az (sf)	People OA			Area OA		OA Vbz	Ez	Voz (cfm)	Selected Airflow
					Rp	P/1000 sf	Pz	Ra	Ra/Az				
DOAS-3	19	ROOM 4	OFFICE SPACE	37	5	5	1	0.06	2.2	7.2	1	7.2	25
DOAS-3	13	ROOM 5	CLASSROOM	970	10	35	32	0.12	116.4	436.4	1	436.4	450
DOAS-3	21	ROOM 6	OFFICE SPACE	35	5	5	1	0.06	2.1	7.1	1	7.1	25
DOAS-3	22	ROOM 7	OFFICE SPACE	36	5	5	1	0.06	2.2	7.2	1	7.2	25
DOAS-3	23	ROOM 8	OFFICE SPACE	36	5	5	1	0.06	2.2	7.2	1	7.2	25
DOAS-3	24	ROOM 9	OFFICE SPACE	36	5	5	1	0.06	2.2	7.2	1	7.2	25
DOAS-3	25	ROOM 12	OFFICE SPACE	55	5	5	1	0.06	3.3	8.3	1	8.3	25
				1168			37.0	345.0	128.3	473.3		473.3	575
HVAC Unit	Zone #	Name	Occup Category	Az (sf)	People OA			Area OA		OA Vbz	Ez	Voz (cfm)	Selected Airflow
					Rp	P/1000 sf	Pz	Ra	Ra/Az				
DOAS-4	14	ROOM 11	CLASSROOM	920	10	35	32	0.12	110.4	430.4	1	430.4	450
DOAS-4	15	TRUANCY OFFICE	OFFICE SPACE	100	5	5	1	0.06	6.0	11.0	1	11.0	15
DOAS-4	16	ROOM 13	OFFICE SPACE	112	5	5	1	0.06	6.7	11.7	1	11.7	15
DOAS-4	17	ROOM 15 STAFF ROOM	KITCHENETTE	152	5	25	4	0.06	9.1	29.1	1	29.1	50
DOAS-4	18	CENTRAL HALL	CORRIDOR	580	0	0	0	0.06	34.8	34.8	1	34.8	50
				1964			38.0	350.0	167.0	517.0		517.0	580
HVAC Unit	Zone #	Name	Occup Category	Az (sf)	People OA			Area OA		OA Vbz	Ez	Voz (cfm)	Selected Airflow
					Rp	P/1000 sf	Pz	Ra	Ra/Az				
DOAS-5	9	ROOM 16A PRINCIPAL	OFFICE SPACE	160	5	5	1	0.06	9.6	14.6	1	14.6	15
DOAS-5	8	ROOM 16B	OFFICE SPACE	146	5	5	1	0.06	8.8	13.8	1	13.8	15
DOAS-5	7	ROOM 17 COUNSELOR	OFFICE SPACE	196	5	5	1	0.06	11.8	16.8	1	16.8	20
DOAS-5	5	ROOM 18 SOCIAL STUDIES	CLASSROOM	690	10	35	25	0.12	82.8	332.8	1	332.8	350
DOAS-5	6	SRO	OFFICE SPACE	55	5	5	1	0.06	3.3	8.3	1	8.3	15
DOAS-5	10	STUDENT CAFETERIA	KITCHENETTE	346	5	25	9	0.06	20.8	65.8	1	65.8	100
				1593			38.0	315.0	137.0	462.0		462.0	515

FAN SCHEDULE											
SYMBOL	BASIS OF DESIGN MANUFACTURER AND SERIES NO.	TYPE	CFM	ESP	RPM	WHEEL DIA	ELECTRICAL		DRIVE	CONTROL	MAX WEIGHT LBS
							HP	VOLTS / PH			REMARKS
EF-1, 2	GREENHECK SP-AP	CEILING EXHAUST FAN	110	0.5	861	6"	0.02	115	DIRECT	WALL SWITCH	25

HEATER SCHEDULE							
SYMBOL	BASIS OF DESIGN MANUFACTURER AND SERIES NO.	TYPE	AREA / UNIT SERVED	NOMINAL SIZE	ELECTRICAL		REMARKS
					WATTS	VOLTS/PH	
EH-1, 2	QMARK LFK 404F	FAN-FORCED WALL HEATER	LOBBY VESTIBULE	14.4 AMPS	3000	208/1	PROGRAMMABLE THERMOSTAT QMARK TH5220D1003 24-V

DOAS ENERGY RECOVERY UNIT													
SYMBOL	BASIS OF DESIGN MANUFACTURER AND SERIES NO.	AREA SERVED	SUPPLY FAN		EXHAUST FAN		UNIT ELECTRICAL				FILTERS	MAX UNIT WEIGHT (LBS)	REMARKS
			CFM	ESP	CFM	ESP	HP	FLA	MCA	MOP	VOLTS/PH	TYPE	
DOAS-1	mitsubishi LGH-F600	SW SCHOOL	505	0.8"	530	0.8"	(4) 0.6	8.4	10.4	15	208-230/1	MERV-16	300
DOAS-2	mitsubishi LGH-F940	NW SCHOOL	880	1.0"	880	0.8"	(4) 0.6	8.4	10.4	15	208-230/1	MERV-16	300
DOAS-3	mitsubishi LGH-F600	CENTRAL SCHOOL	575	0.8"	575	1.0"	(2) 0.6	4.2	5.2	15	208-230/1	MERV-16	300
DOAS-4	mitsubishi LGH-F600	SE SCHOOL	580	0.8"	580	1.0"	(2) 0.6	4.2	5.2	15	208-230/1	MERV-16	300
DOAS-5	mitsubishi LGH-F600	NE SCHOOL	515	0.8"	515	1.0"	(2) 0.6	4.2	5.2	15	208-230/1	MERV-16	300
NOTES: 1. UNITS SHALL HAVE MINIMUM HEAT RECOVERY EFFICIENCY PER WSEC AT EXHAUST AIR OF 70°F, 30% RH & EAT OF 20°F, 90% RH. 2. PROVIDE UNITS OA & EA WITH CLASS-1 MOTORIZED DAMPERS COMPLYING W/ WSEC.													

VRF OUTDOOR HEAT PUMP SCHEDULE															
SYMBOL	BASIS OF DESIGN MANUFACTURER AND SERIES NO.	AREA SERVED	COOLING CAP. *		HEATING CAP.**		OUTDOOR FAN		COMPRESSOR		MAX. WEIGHT LBS	UNIT ELECTRICAL			REMARKS
			TOTAL MBH	EFF (EER / IEER)	MBH	EFF (COP)	QTY	FLA (EA)	QTY	RLA (EA)		MCA (MODULE 1/ MODULE 2)	MOP (MODULE 1/ MODULE 2)	VOLTS/PH	
HP-1	MITSUBISHI TURY	DISCOVERY HIGH SCHOOL	312	10.1/21.4	350	3.2	4	-	2	-	1500	61/52	100/80	208/3	SERVES MULTIPLE INDOOR UNITS, W/ VIBRATION ISOLATION
* COOLING CAPACITY IS AHRI RATING: AT 80°F DB; 67°F WB INDOOR COIL EAT AND 95°F OUTDOOR COIL EAT. ** HEATING CAPACITY IS AHRI HI-TEMP RATINGS: AT 70°F DB INDOOR COIL EAT AND 47°F DB; 43°F WB OUTDOOR COIL EAT.															

VRF INDOOR HEAT PUMP SCHEDULE													
SYMBOL	BASIS OF DESIGN MANUFACTURER AND SERIES NO.	TYPE	AREA SERVED	SERVED BY	CAPACITY (MBH)		CFM	ESP	FILTERS	UNIT ELECTRICAL		MAX WEIGHT	REMARKS
					COOLING	HEATING			TYPE	MCA	VOLT/PH		
BC-1	MITSUBISHI TCMB	BRANCH BOX CONTROLLER	DISCOVERY HIGH SCHOOL	HP-1	①	①	-	-	-	0.97	208-230/1	110	
BC-2	MITSUBISHI TCMB	BRANCH BOX CONTROLLER	DISCOVERY HIGH SCHOOL	HP-1	①	①	-	-	-	0.51	208-230/1	110	
HP-1A	MITSUBISHI TPKFY	WALL MOUNTED	CLASSROOM 1	BC-2	18	20	460	-	WASHABLE	0.50	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-1B	MITSUBISHI TPKFY	WALL MOUNTED	CLASSROOM 1	BC-2	18	20	460	-	WASHABLE	0.50	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-3	MITSUBISHI TPLFY	CEILING CASSETTE	OFFICE 3	BC-2	8	9	424	-	WASHABLE	0.50	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-3B	MITSUBISHI TPLFY	CEILING CASSETTE	OFFICE 3B	BC-2	5	5.6	117	-	WASHABLE	0.24	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-4	MITSUBISHI TPEFY	FAN COIL	OFFICES 4, 6-9 & 12	BC-1	12	13.5	325	0.6"	2" PTA MERV-13	2.13	208/230-1	50	W/ INTEGRAL CONDENSATE PUMP, SMART ME THERMOSTAT & MFR'S FILTER RACK
HP-5A	MITSUBISHI TPKFY	WALL MOUNTED	CLASSROOM 5	BC-1	18	20	460	-	WASHABLE	0.50	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-5B	MITSUBISHI TPKFY	WALL MOUNTED	CLASSROOM 5	BC-1	18	20	460	-	WASHABLE	0.50	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-11A	MITSUBISHI TPKFY	WALL MOUNTED	CLASSROOM 11	BC-1	18	20	460	-	WASHABLE	0.50	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-11B	MITSUBISHI TPKFY	WALL MOUNTED	CLASSROOM 11	BC-1	18	20	460	-	WASHABLE	0.50	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-13	MITSUBISHI TPLFY	CEILING CASSETTE	LAUNDRY 13	BC-1	5	5.6	117	-	WASHABLE	0.24	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-15	MITSUBISHI TPLFY	CEILING CASSETTE	STAFF ROOM 15	BC-1	12	13.5	459	-	WASHABLE	0.26	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-16A	MITSUBISHI TPLFY	CEILING CASSETTE	OFFICE 16A	BC-1	5	5.6	117	-	WASHABLE	0.24	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-16B	MITSUBISHI TPLFY	CEILING CASSETTE	OFFICE 16B	BC-1	5	5.6	117	-	WASHABLE	0.24	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-17	MITSUBISHI TPLFY	CEILING CASSETTE	OFFICE 17	BC-1	5	5.6	117	-	WASHABLE	0.24	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-18A	MITSUBISHI TPKFY	WALL MOUNTED	CLASSROOM 18	BC-1	18	20	460	-	WASHABLE	0.50	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-18B	MITSUBISHI TPKFY	WALL MOUNTED	CLASSROOM 18	BC-1	18	20	460	-	WASHABLE	0.50	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-19	MITSUBISHI TPLFY	CEILING CASSETTE	SRO 19	BC-1	5	5.6	117	-	WASHABLE	0.24	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-20	MITSUBISHI TPKFY	WALL MOUNTED	CAFETERIA	BC-1	24	24	920	-	WASHABLE	0.5	208/230-1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-21A	MITSUBISHI TPKFY	WALL MOUNTED	CLASSROOM 21	BC-2	18	20	460	-	WASHABLE	0.50	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-21B	MITSUBISHI TPKFY	WALL MOUNTED	CLASSROOM 21	BC-2	18	20	460	-	WASHABLE	0.50	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-22A	MITSUBISHI TPKFY	WALL MOUNTED	CLASSROOM 22	BC-2	18	20	460	-	WASHABLE	0.50	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-22B	MITSUBISHI TPKFY	WALL MOUNTED	CLASSROOM 22	BC-2	18	20	460	-	WASHABLE	0.50	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-23	MITSUBISHI TPLFY	CEILING CASSETTE	WEST HALLWAY	BC-1	8	9	424	-	WASHABLE	0.50	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-24	MITSUBISHI TPLFY	CEILING CASSETTE	EAST HALLWAY	BC-1	8	9	424	-	WASHABLE	0.50	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
HP-25	MITSUBISHI TPLFY	CEILING CASSETTE	NORTH HALLWAY	BC-1	8	9	424	-	WASHABLE	0.50	208-230/1	50	W/ INTEGRAL CONDENSATE PUMP & SMART ME THERMOSTAT
① CAPACITY TO SUIT SYSTEM SERVED.													

HEAT RECOVERY UNIT SCHEDULE																																		
SYMBOL	BASIS OF DESIGN MANUFACTURER AND SERIES NO.	AREA SERVED	TYPE	SUPPLY FAN				EXHAUST FAN				HEATING COIL										HEAT RECOVERY COIL						UNIT ELECTRICAL	FILTERS	MAX UNIT WEIGHT (LBS)	REMARKS			
				CFM	ESP	RPM	ELECTRICAL		CFM	ESP	RPM	ELECTRICAL		CAP. MBH	ROWS FPI	MAX. FV FPM	AIR SIDE			WATER SIDE				CAP. MBH (% REC.)	OUTSIDE AIR							EXHAUST AIR		
							HP	VOLT / PH				HP	VOLT / PH				EDB	LDB	ΔP, IN	GPM	EWT	ΔT	ΔP, FT		EDB	EWB	LDB	EDB	EWB			LDB	MCA	TYPE
HRU-1	OXYGEN8 C700U	SCIENCE BUILDING	ROOFTOP	8,250	1.5"	1800	10	208/3	8,250	1.5"	1800	10	208/3	250	2 8	500	52	85	0.25	25	140	20	5	60% EFF	24	18	52	70	54	40	58.38	2" PTA MERV 13	3000	W/ EC MOTORS, CURB ADAPTOR

UNIT VENTILATOR SCHEDULE																											
SYMBOL	BASIS OF DESIGN MANUFACTURER AND SERIES NO.	TYPE	AREA SERVED	SUPPLY FAN				HEATING COIL								COOLING COIL								FILTERS	MIN. OA	MAX UNIT WEIGHT	REMARKS
				CFM	RPM	ELECTRICAL		CAP. MBH	AIR SIDE		WATER SIDE				CAP. MBH	AIR SIDE		WATER SIDE				TYPE					
						HP	VOLT/PH		EDB	LDB	GPM	EWT	ΔT	ΔP, FT		EDB	LDB	GPM	EWT	ΔT	ΔP, FT						
UV-1	DAIKIN UAVV	FLOOR MOUNTED	SCIENCE 130	1500	1250	3	115/1	45	55	85	4	140	20	5	38	80	55	8	45	10	5	2" PTA MERV 13	515	500	W/ EC MOTOR, 0-100% ECONOMIZER		
UV-2	DAIKIN UAVV	FLOOR MOUNTED	SCIENCE 131	1500	1250	3	115/1	45	55	85	4	140	20	5	38	80	55	8	45	10	5	2" PTA MERV 13	445	500	W/ EC MOTOR, 0-100% ECONOMIZER		
UV-3	DAIKIN UAVV	FLOOR MOUNTED	SCIENCE 132	1500	1250	3	115/1	45	55	85	4	140	20	5	38	80	55	8	45	10	5	2" PTA MERV 13	510	500	W/ EC MOTOR, 0-100% ECONOMIZER		
UV-4	DAIKIN UAVV	FLOOR MOUNTED	SCIENCE 133	1500	1250	3	115/1	45	55	85	4	140	20	5	38	80	55	8	45	10	5	2" PTA MERV 13	505	500	W/ EC MOTOR, 0-100% ECONOMIZER		
UV-5	DAIKIN UAVV	FLOOR MOUNTED	SCIENCE 135	1500	1250	3	115/1	45	55	85	4	140	20	5	38	80	55	8	45	10	5	2" PTA MERV 13	495	500	W/ EC MOTOR, 0-100% ECONOMIZER		
UV-6	DAIKIN UAVV	FLOOR MOUNTED	CLASSROOM 134	1500	1250	3	115/1	45	55	85	4	140	20	5	38	80	55	8	45	10	5	2" PTA MERV 13	410	500	W/ EC MOTOR, 0-100% ECONOMIZER		
UV-7	DAIKIN UAVV	FLOOR MOUNTED	CLASSROOM 137	1500	1250	3	115/1	45	55	85	4	140	20	5	38	80	55	8	45	10	5	2" PTA MERV 13	405	500	W/ EC MOTOR, 0-100% ECONOMIZER		
UV-8	DAIKIN UAVV	FLOOR MOUNTED	CLASSROOM 138	1500	1250	3	115/1	45	55	85	4	140	20	5	38	80	55	8	45	10	5	2" PTA MERV 13	400	500	W/ EC MOTOR, 0-100% ECONOMIZER		
UV-9	DAIKIN UAH	CEILING MOUNTED	SCIENCE 136	1500	1250	3/4	115/1	45	55	85	4	140	20	5	38	80	55	8	45	10	5	2" PTA MERV 13	495	500	W/ EC MOTOR, 0-100% ECONOMIZER		
UV-10	DAIKIN UAVV	FLOOR MOUNTED	COMPUTER ROOM 143	1200	1250	1/3	115/1	36	55	85	4	140	20	5	31	80	55	6	45	10	5	2" PTA MERV 13	380	500	W/ EC MOTOR, 0-100% ECONOMIZER		
UV-11	DAIKIN UAVV	FLOOR MOUNTED	WORK ROOM 144	750	1250	1/3	115/1	24	55	85	2	140	20	5	19	80	55	4	45	10	5	2" PTA MERV 13	75	500	W/ EC MOTOR, 0-100% ECONOMIZER		
NOTES: 1. COIL PRESSURE DROPS NOTED ARE MAXIMUMS, AND SHALL NOT BE EXCEEDED. 2. ALL UNITS SHALL HAVE 100% OA ECONOMIZER CAPACITY (CONTROLS/ACTUATOR BY DIV 25). 3. ALL UNITS SHALL HAVE CO2 CONTROL OF OA DAMPER (BY DIVISION 25). 4. MOTOR EFFICIENCIES SHALL COMPLY WITH WSEC REQUIREMENTS. 5. PROVIDE UNIT OA INTAKES WITH CLASS 1A MOTORIZED DAMPERS PER WSEC. DAMPERS SHALL CLOSE AUTOMATICALLY WHEN SYSTEM OR SPACES ARE NOT IN USE OR ARE UNOCCUPIED.																											

FAN SCHEDULE												
SYMBOL	BASIS OF DESIGN MANUFACTURER AND SERIES NO.	TYPE	AREA SERVED	CFM	ESP	RPM	ELECTRICAL		DRIVE	CONTROL	MAX WEIGHT LBS	REMARKS
							HP	VOLTS / PH				
EF-1	GREENHECK MODEL G	ROOFTOP	JANITOR	500	0.375"	1550	1/4	115/1	DIRECT	TIME SCHEDULE	50	W/ EC MOTOR ① ②
EF-2	GREENHECK MODEL G	ROOFTOP	STORAGE	200	0.375"	1550	1/4	115/1	DIRECT	TIME SCHEDULE	50	W/ EC MOTOR ① ②
EF-3	GREENHECK MODEL G	ROOFTOP	STORAGE	300	0.375"	1550	1/4	115/1	DIRECT	TIME SCHEDULE	50	W/ EC MOTOR ① ②
ACCESSORIES: ① = SPEED CONTROL ② = DISCONNECT												





2715 LILAC STREET
LONGVIEW WA 98632

Date:	04/26/23	
Job No.:	22220.00	
Drawn By:	NMG	
Checked by:	NRI	
Revisions		
#	Date	Description

LEVEL 1 - DISCOVERY
HIGH SCHOOL -
MECH DEMO PLAN

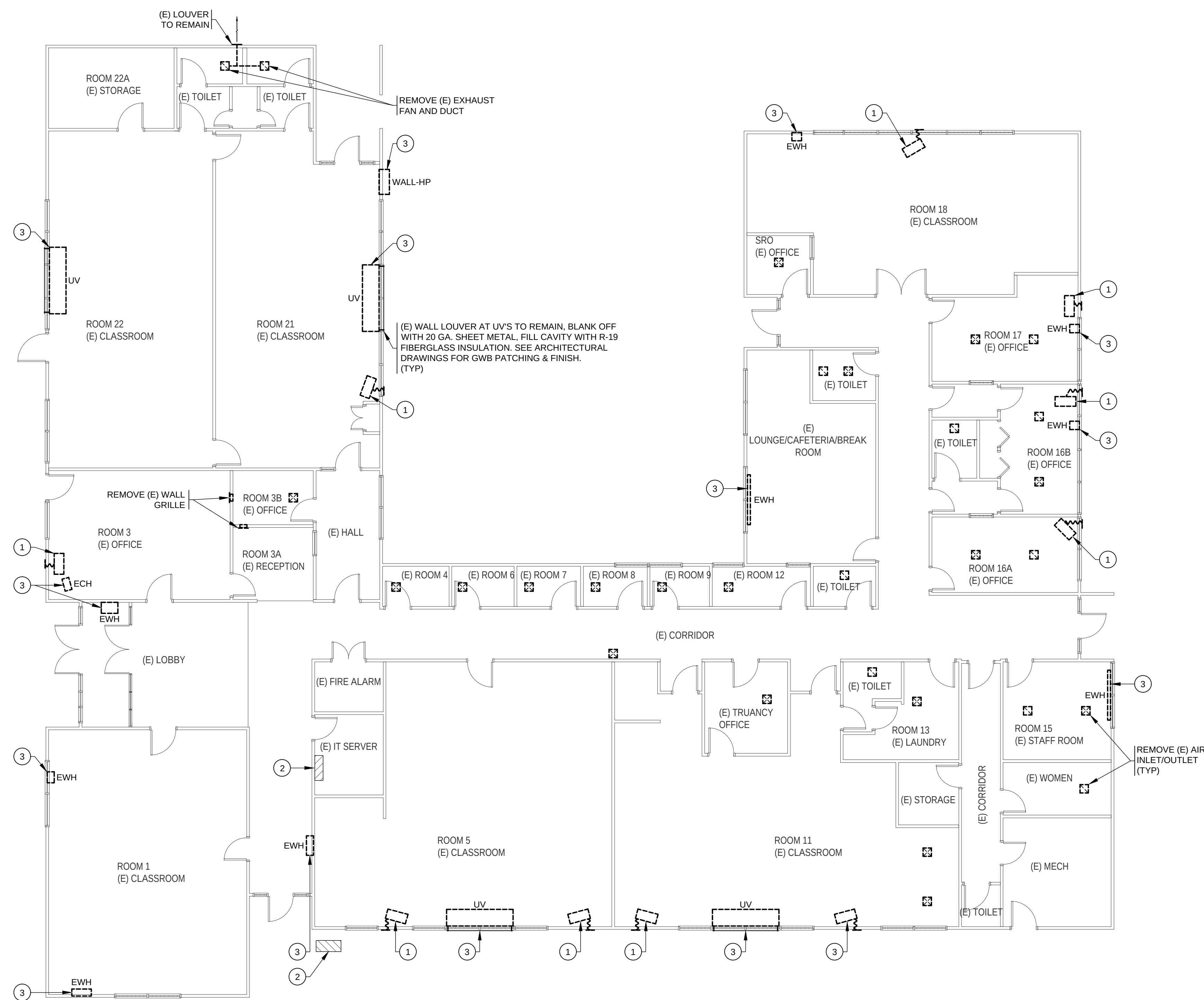
M101

GENERAL NOTES:

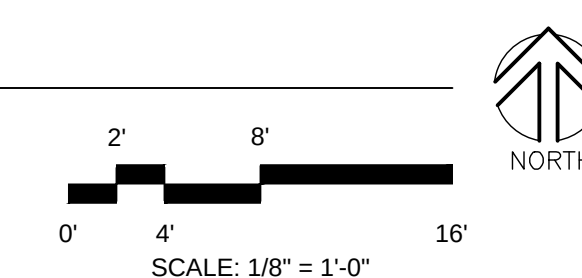
1. SEE DEMOLITION NOTES & MECHANICAL GENERAL NOTES SHEET M001
2. PATCH ALL OPENINGS IN (E) WALLS & (E) ROOF LEFT BY REMOVAL OF (E) ITEMS. PATCH TO MATCH FINISH OF ADJACENT UNDISTURBED AREA.
3. (E) HVAC SYSTEM IN BUILDING IS TO BE REMOVED IN IT'S ENTIRETY. UNO. NOT ALL ITEMS TO BE DEMO ARE SHOWN. CONTRACTOR TO VISIT THE SITE AND CONFIRM (E) SYSTEM & CONTROLS PRIOR TO BIDDING.
4. REMOVE ALL (E) HVAC CONTROLS. UNO.

KEYED NOTES:

- 1 REMOVE (E) PORTABLE AC UNIT, ASSOCIATED DUCT, RETURN UNIT TO OWNER & PATCH WALL OPENING.
- 2 (E) AC UNIT & CONTROLS TO REMAIN.
- 3 REMOVE (E) HVAC UNIT.
UV = UNIT VENTILATOR FLOOR MOUNTED
ECH = ELECTRIC CEILING HEATER
EWH = ELECTRIC WALL HEATER
WALL HP = BARD EXTERIOR WALL MOUNTED HEAT PUMP



DISCOVERY HIGH SCHOOL - FIRST FLOOR PLAN - MECHANICAL DEMO
SCALE: 1/8" = 1'-0"

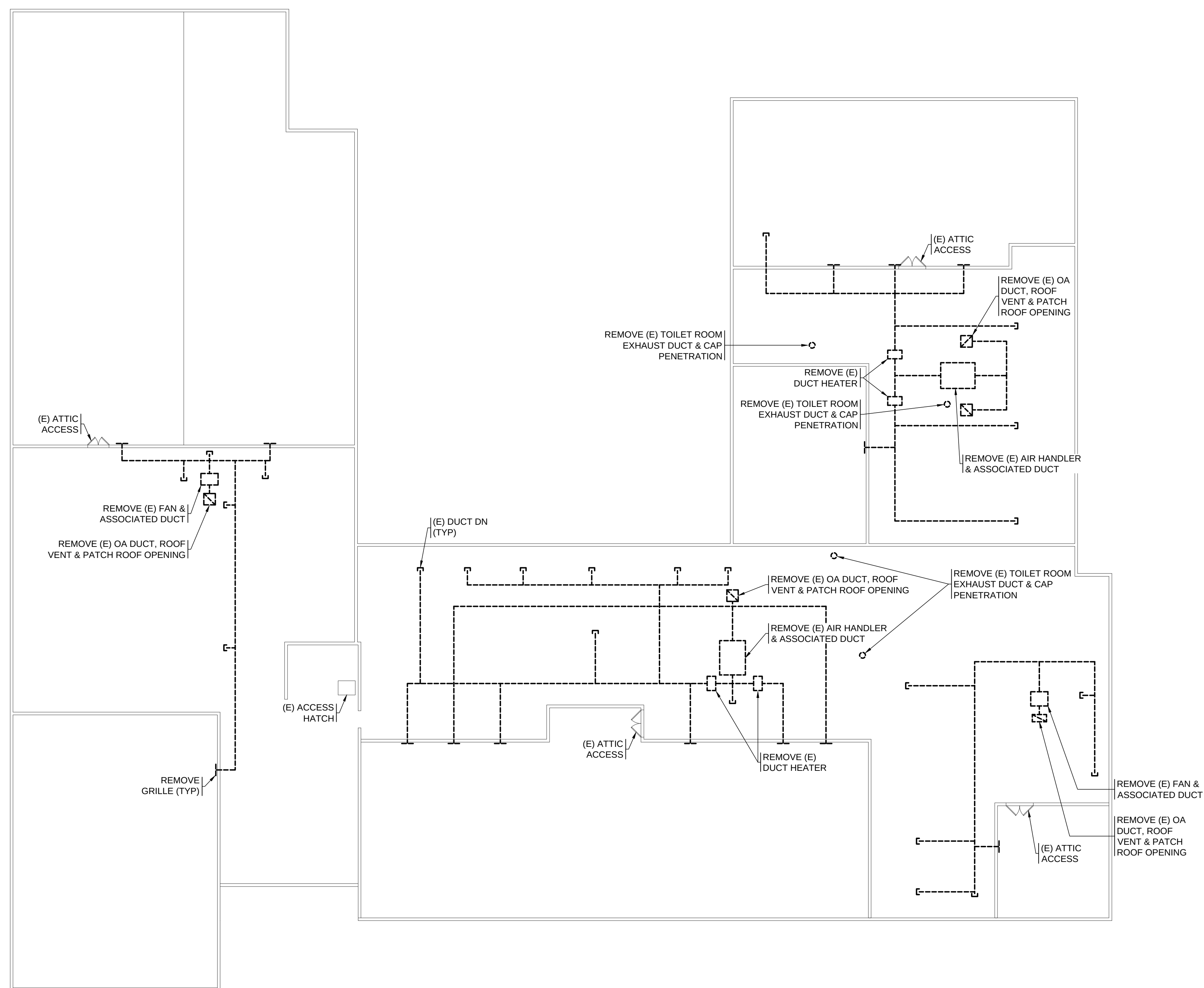


HULTZ BHU
engineers inc.

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Phone: (253) 383-3257 Fax: (253) 383-3257
general@hultzbhu.com Job Number: 22-11

BID SET

1. SEE DEMOLITION NOTES & MECHANICAL GENERAL NOTES SHEET M001.
2. PATCH ALL OPENINGS IN (E) WALLS & (E) ROOF LEFT BY REMOVAL OF (E) ITEMS. PATCH TO MATCH FINISH OF ADJACENT UNDISTURBED AREA.
3. (E) HVAC SYSTEM IN BUILDING IS TO BE REMOVED IN ITS ENTIRETY. UNO, NOT ALL ITEMS TO BE DEMO'D ARE SHOWN. CONTRACTOR TO VISIT THE SITE AND CONFIRM (E) SYSTEM & CONTROLS PRIOR TO BIDDING.
4. REMOVE ALL (E) HVAC CONTROLS. UNO.



2' 4' 8' 16'

SCALE: 1/8" = 1'-0"

HULTZ  BHU
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Phone: (253) 383-3257 Fax: (253) 383-3281
general@hultzbhu.com Job Number: 22-189

integrus
ARCHITECTURE



LONGVIEW SCHOOL DISTRICT HVAC AND INDOOR AIR QUALITY IMPROVEMENTS

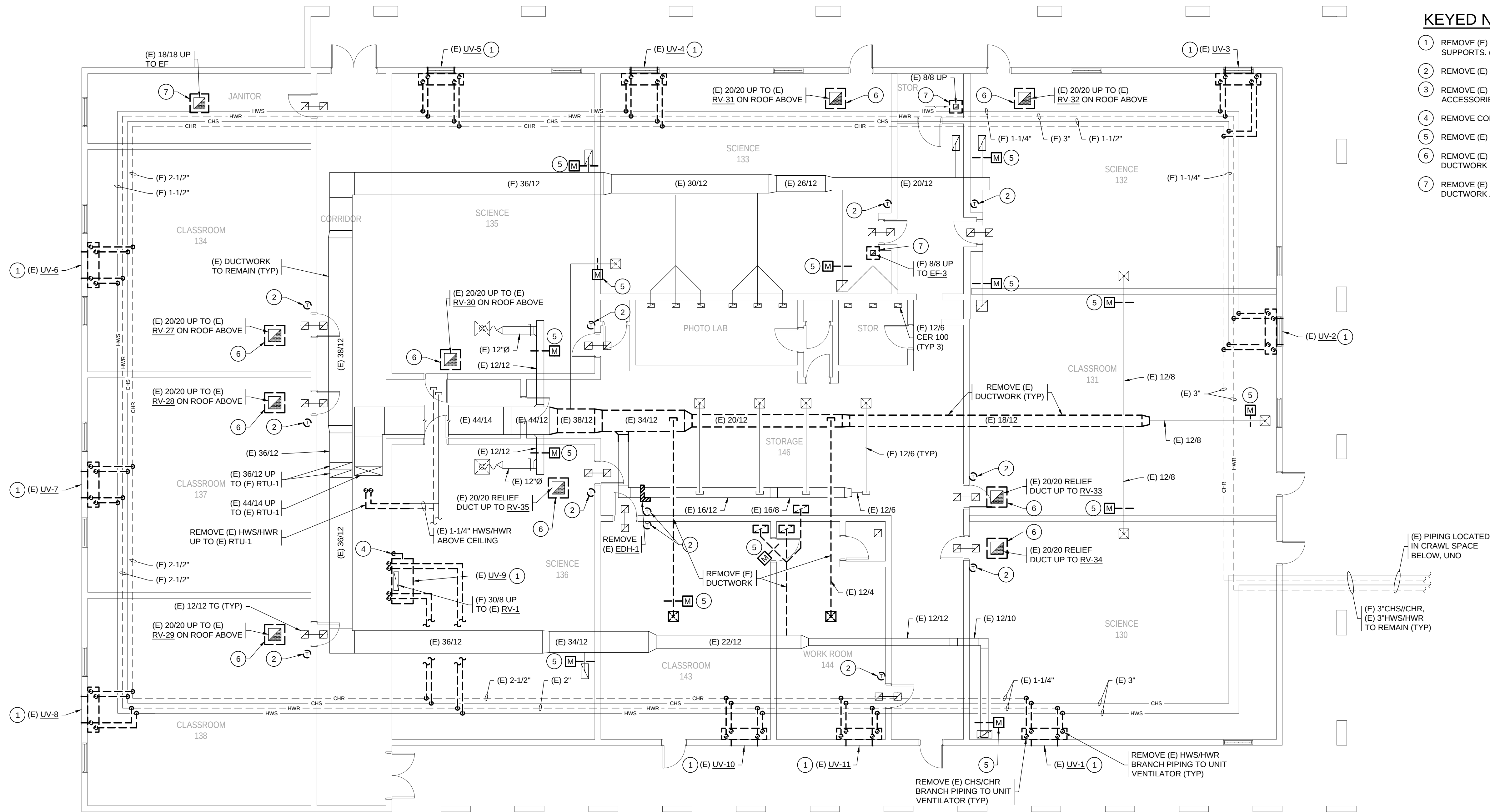
2715 LILAC STREET
LONGVIEW, WA 98632

Date:	04/26/23
Job No.:	22220.00
Drawn By:	NMG
Checked by:	NRH

Revisions		
#	Date	Description

ATTIC - DISCOVERY
HIGH SCHOOL -
MECH DEMO PLAN

M102



GENERAL NOTES:

- FOR ADDITIONAL DEMOLITION NOTES, SEE SHEET M001.
- EXISTING ITEMS SHOWN ARE BASED ON OWNER PROVIDED AS-BUILTS. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING WORK.
- EXISTING ITEMS SHOWN DASHED REPRESENT MAJOR MECHANICAL ITEMS TO BE REMOVED. SEE NOTES AND KEYED NOTES WHICH COVER ALL OTHER MISCELLANEOUS MECHANICAL ITEMS TO BE REMOVED.
- PIPE SIZES INDICATED ARE APPROXIMATE; FIELD VERIFY.
- NOT ALL KEYED NOTES ARE USED ON ALL SHEETS.

KEYED NOTES:

- REMOVE (E) UNIT VENTILATOR, PIPING CONNECTIONS, & SUPPORTS. (E) LOUVER TO REMAIN.
- REMOVE (E) THERMOSTAT.
- REMOVE (E) RTU-1, HWS/HWR BRANCH PIPING, AND ASSOCIATED ACCESSORIES. (E) ROOF CURB TO REMAIN.
- REMOVE CONDENSATE DRAIN PIPING SERVING (E) UV-9.
- REMOVE (E) MOTORIZED DAMPERS, & ASSOCIATED CONTROLS.
- REMOVE (E) ROOF VENT (RV) ON ROOF ABOVE. (E) ASSOCIATED DUCTWORK SHALL REMAIN.
- REMOVE (E) EXHAUST FAN ON ROOF. (E) ASSOCIATED DUCTWORK AND ROOF CURB SHALL REMAIN.

1 RA LONG HIGH SCHOOL - FLOOR PLAN - DEMO - SCIENCE BUILDING
SCALE: 1/8" = 1'-0"

LONGVIEW SCHOOL DISTRICT HVAC
AND INDOOR AIR QUALITY IMPROVEMENTS

27115 LILAC STREET
LONGVIEW, WA 98632

Date:	04/26/23
Job No.:	22220.00
Drawn By:	NMG
Checked by:	NRH
Revisions	
#	Date Description

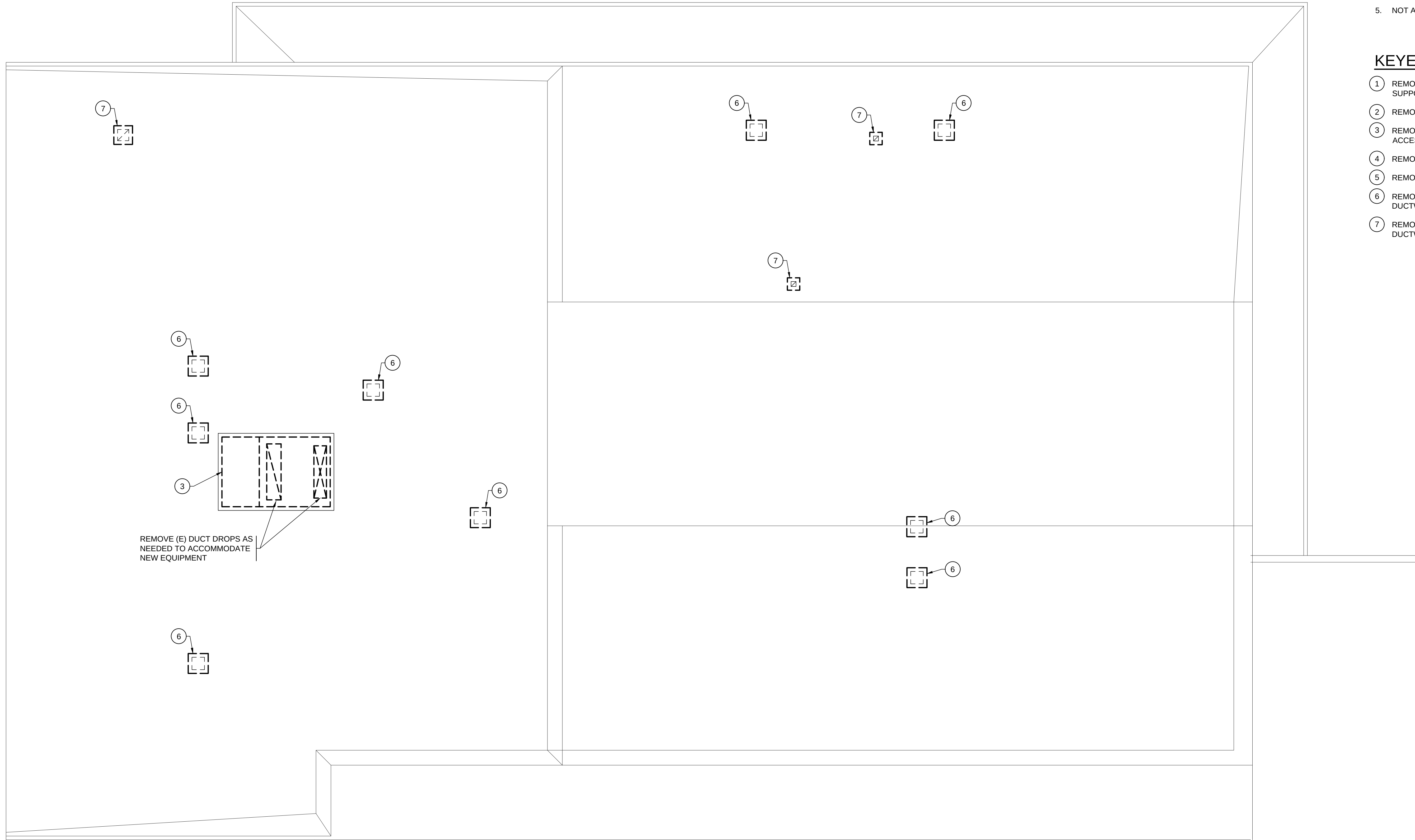
RA LONG HIGH
SCHOOL - FLOOR
PLAN - DEMO -
SCIENCE BUILDING

M103

BID SET

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GENERAL NOTES:

1. FOR ADDITIONAL DEMOLITION NOTES, SEE SHEET M001.
2. EXISTING ITEMS SHOWN ARE BASED ON OWNER PROVIDED AS-BUILTS. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING WORK.
3. EXISTING ITEMS SHOWN DASHED REPRESENT MAJOR MECHANICAL ITEMS TO BE REMOVED. SEE NOTES AND KEYED NOTES WHICH COVER ALL OTHER MISCELLANEOUS MECHANICAL ITEMS TO BE REMOVED.
4. PIPE SIZES INDICATED ARE APPROXIMATE; FIELD VERIFY.
5. NOT ALL KEYED NOTES ARE USED ON ALL SHEETS.

KEYED NOTES:

- 1 REMOVE (E) UNIT VENTILATOR, PIPING CONNECTIONS, & SUPPORTS. (E) LOUVER TO REMAIN.
- 2 REMOVE (E) THERMOSTAT.
- 3 REMOVE (E) RTU-L, HW/SHWR BRANCH PIPING, AND ASSOCIATED ACCESSORIES. (E) ROOF CURB TO REMAIN.
- 4 REMOVE CONDENSATE DRAIN PIPING SERVING (E) LV.9.
- 5 REMOVE (E) MOTORIZED DAMPERS, & ASSOCIATED CONTROLS.
- 6 REMOVE (E) ROOF VENT (RV) ON ROOF ABOVE. (E) ASSOCIATED DUCTWORK SHALL REMAIN.
- 7 REMOVE (E) EXHAUST FAN ON ROOF. (E) ASSOCIATED DUCTWORK AND ROOF CURB SHALL REMAIN.

LONGVIEW SCHOOL DISTRICT HVAC
AND INDOOR AIR QUALITY IMPROVEMENTS

27115 LILAC STREET
LONGVIEW, WA 98632

Date: 04/26/23
Job No.: 22220.00
Drawn By: NMG
Checked by: NRH

Revisions		
#	Date	Description

RA LONG HIGH
SCHOOL - ROOF
PLAN - DEMO -
SCIENCE BUILDING

M104

1

RA LONG HIGH SCHOOL - ROOF PLAN - DEMO - SCIENCE BUILDING
SCALE: 1/8" = 1'-0"



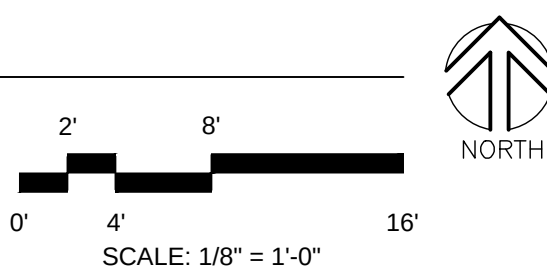
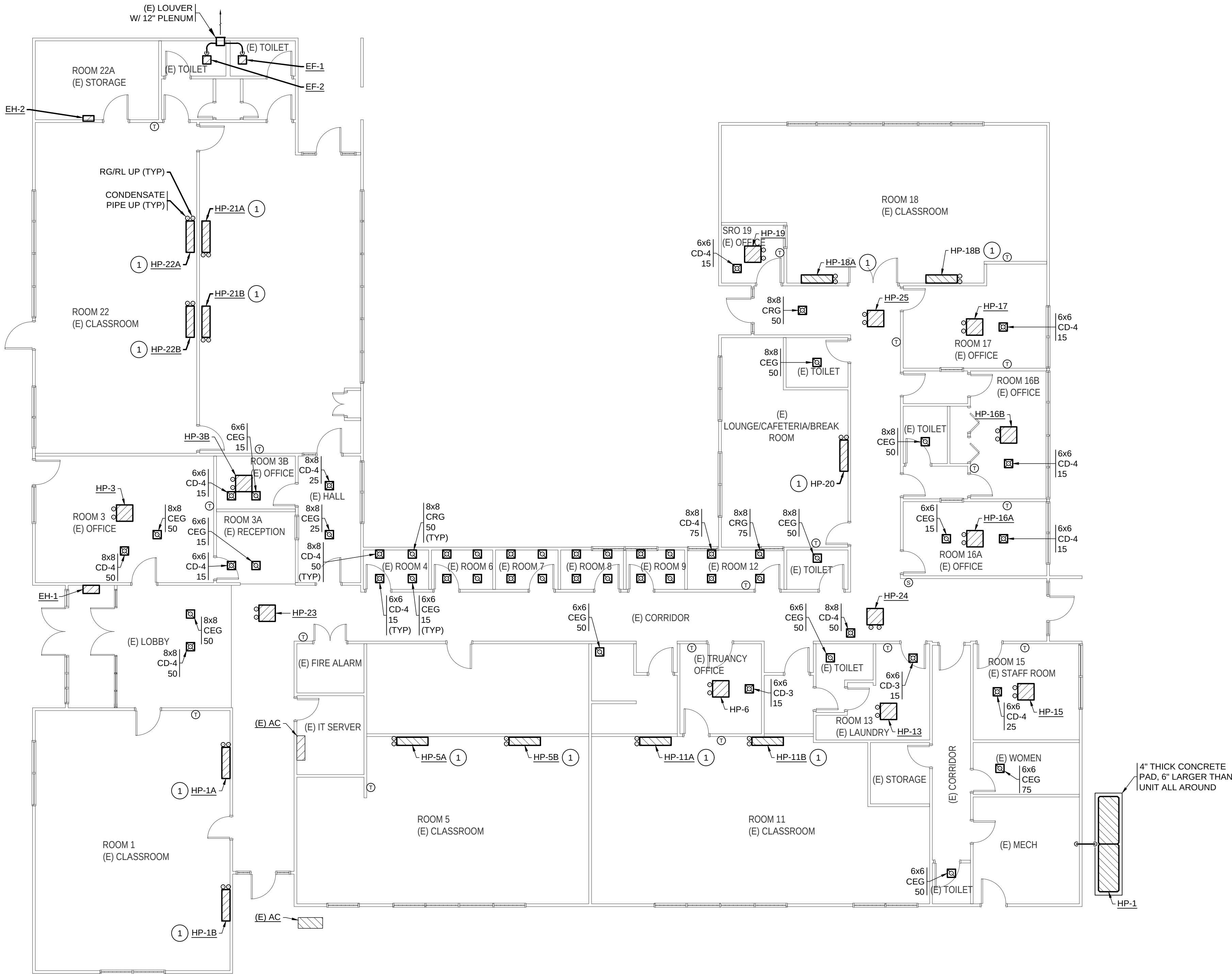
HULTZ  BHU
engineers inc
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Phone: (253) 383-3257 Fax: (253) 383-3283
general@hultzbhu.com Job Number: 22-189

BID SET

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DISCOVERY HIGH SCHOOL - FIRST FLOOR PLAN - MECHANICAL
SCALE: 1/8" = 1'-0"



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general@hultzbhu.com Job Number: 22-189

GENERAL NOTES:

1. SEE MECHANICAL GENERAL NOTES SHEET M001.
2. PROVIDE 3/4" CONDENSATE DRAINS FROM HVAC EQUIPMENT TO PROPER POINT OF DRAINAGE (TAIL PIECE OF PLUMBING FIXTURE, OR OUTDOOR LANDSCAPE AREA)
3. PROVIDE SERVICE VALVES FOR EACH BRANCH LINE AT BRANCH CIRCUIT CONTROLLER CONNECTION AND INDOOR UNIT CONNECTION.
4. ALL REFRIGERANT & CONDENSATE PIPING SHALL BE ROUTED CONCEALED, UNO. PIPING SHOWN OFFSET FOR CLARITY.

KEYED NOTES:

- ① MOUNT UNIT 12" AFF.

**LONGVIEW SCHOOL DISTRICT HVAC
AND INDOOR AIR QUALITY IMPROVEMENTS**

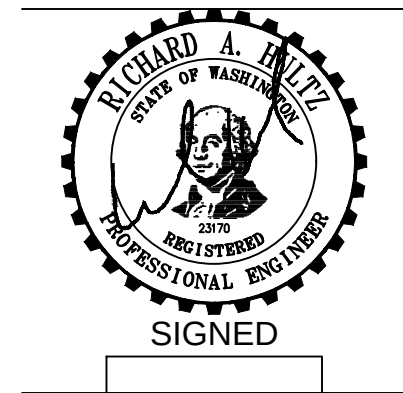
2715 LILAC STREET
LONGVIEW, WA 98632

Date:	04/26/23	
Job No.:	22220.00	
Drawn By:	NMG	
Checked by:	NRH	
Revisions		
#	Date	Description

LEVEL 1 - DISCOVERY
HIGH SCHOOL -
FLOOR PLAN

M401

BID SET

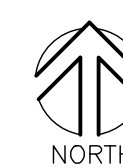


integrus
ARCHITECTURE

117 SOUTH MAIN STREET, SUITE 100, SEATTLE, WA 98104
TELEPHONE: (206) 461-1111 FAX: (206) 461-1118

1. SEE MECHANICAL GENERAL NOTES SHEET M001.
2. PROVIDE 3/4" CONDENSATE DRAINS FROM HVAC EQUIPMENT TO PROPER POINT OF DRAINAGE (TAIL PIECE OF PLUMBING FIXTURE, OR OUTDOOR LANDSCAPE AREA)
3. PROVIDE SERVICE VALVES FOR EACH BRANCH LINE AT BRANCH CIRCUIT CONTROLLER CONNECTION AND INDOOR UNIT CONNECTION.
4. ALL REFRIGERANT & CONDENSATE PIPING SHALL BE ROUTED CONCEALED, UNO. RGR/L SHOWN OFFSET FOR CLARITY.
5. ROUTE ALL PIPING HIGH IN TRUSS BAY OR LOW IN JOIST SPACE TO KEEP CLEAR OF MAINTENANCE WALKWAY PATH.
6. SEE REFRIGERANT DIAGRAM ON SHEET M502 FOR PIPE SIZES.

- 1 PIPING RUNS EXPOSED. PROVIDE PRE-MANUFACTURED COVER OVER PIPING.
- 2 ROUTE DUCT AS HIGH AS POSSIBLE TO ALLOW WALKING ROOM BELOW.

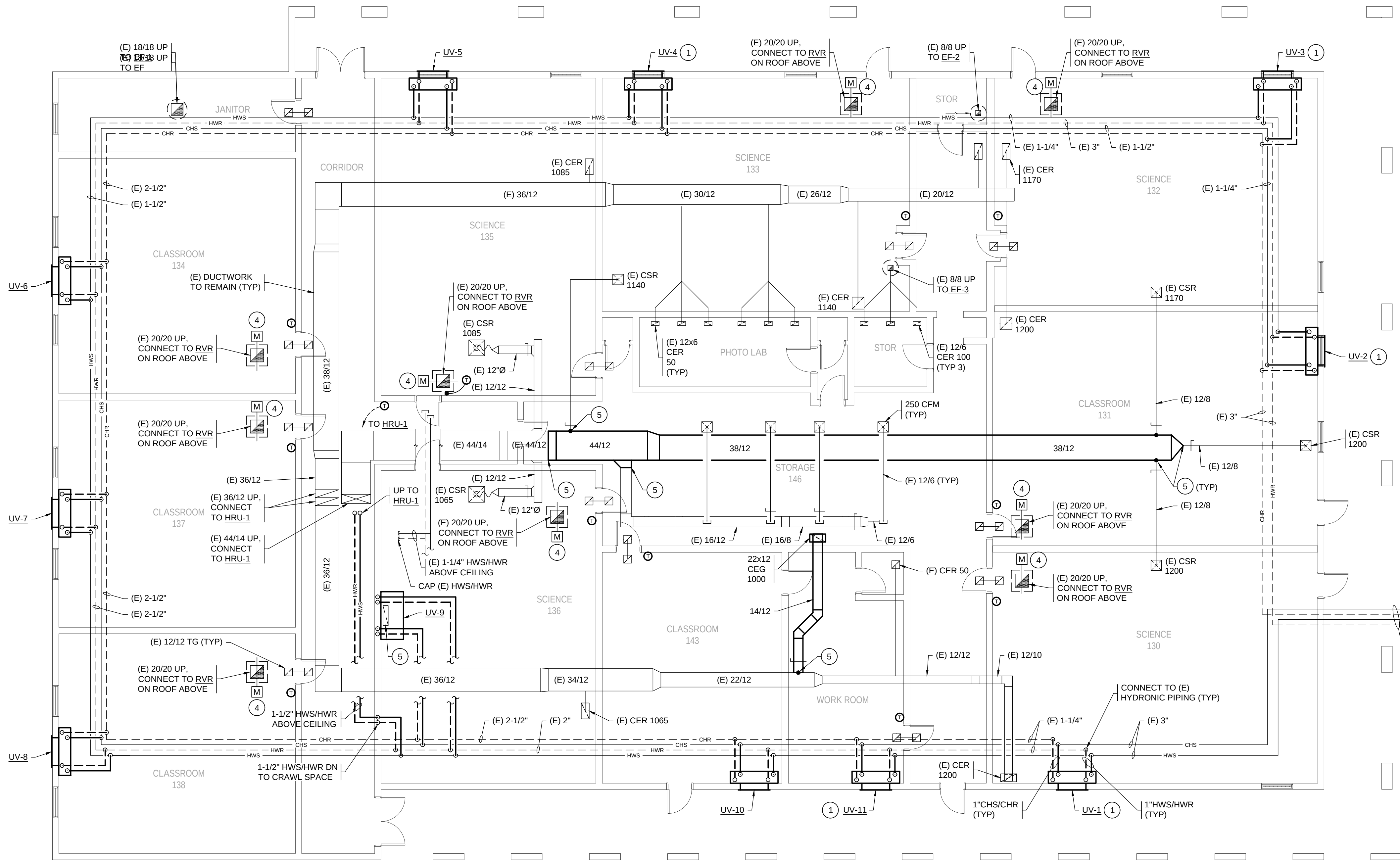


LONGVIEW, WA 98632

Date	Description
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M402

BID SET



GENERAL NOTES:

- SEE MECHANICAL NOTES SHEET M001 & M002.
- FIELD VERIFY EXISTING CONDITIONS TO CONFIRM DUCT ROUTING & LOCATIONS PRIOR TO BEGINNING WORK.
- EXISTING PIPING SIZES, DUCTS, & GRILLES SHOWN ARE APPROXIMATE & NEED TO BE FIELD VERIFIED.
- SEE DETAIL 1/M501 FOR AHU COIL CONNECTIONS. PROVIDE 2-WAY CONTROL VALVE UNO.
- PROVIDE TRANSITIONS AT DUCT CONNECTIONS TO EQUIPMENT, TO MATCH UNIT CONNECTION SIZES. TRANSITIONS SHALL BE LINED WHERE CONNECTING DUCTS ARE LINED.
- BALANCE (E) AIR INLETS/OUTLETS TO CFM VALUES SHOWN. PROVIDE MANUAL DAMPERS AS NEEDED.
- NOT ALL KEYED NOTES MAY BE USED ON ALL SHEETS.

KEYED NOTES:

- PROVIDE W/ 3-WAY CONTROL VALVE.
- END OF LINE VALVES FOR FLUSHING/DRAINING.
- PROVIDE WITH NEW CURB ADAPTER. CONTRACTOR TO FIELD VERIFY EXACT LOCATION PRIOR TO BEGINNING WORK.
- INTERLOCK MOTORIZED DAMPER WITH UNIT VENTILATOR OR DAMPER.
- CONNECT TO (E) DUCTWORK.

(E) PIPING LOCATED
IN CRAWL SPACE
BELOW, UNO

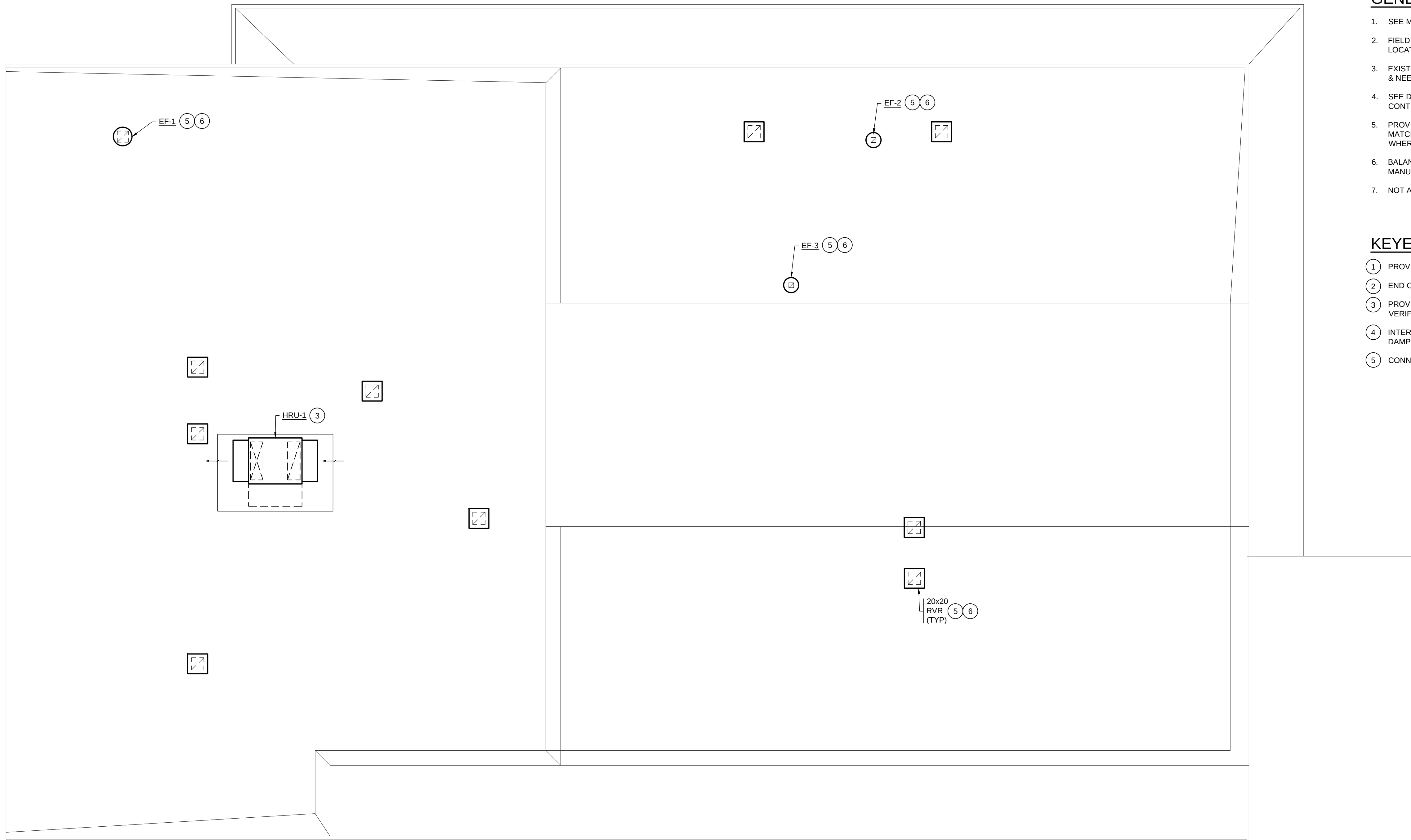
(E) 3\"/>

1 RA LONG HIGH SCHOOL - FLOOR PLAN - HVAC - SCIENCE BUILDING
SCALE: 1/8\"/>



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- GENERAL NOTES:**
- SEE MECHANICAL NOTES SHEET M001 & M002.
 - FIELD VERIFY EXISTING CONDITIONS TO CONFIRM DUCT ROUTING & LOCATIONS PRIOR TO BEGINNING WORK.
 - EXISTING PIPING SIZES, DUCTS, & GRILLES SHOWN ARE APPROXIMATE & NEED TO BE FIELD VERIFIED.
 - SEE DETAIL 1/M501 FOR AHU COIL CONNECTIONS. PROVIDE 2-WAY CONTROL VALVE UNO.
 - PROVIDE TRANSITIONS AT DUCT CONNECTIONS TO EQUIPMENT, TO MATCH UNIT CONNECTION SIZES. TRANSITIONS SHALL BE LINED WHERE CONNECTING DUCTS ARE LINED.
 - BALANCE (E) AIR INLETS/OUTLETS TO CFM VALUES SHOWN. PROVIDE MANUAL DAMPERS AS NEEDED.
 - NOT ALL KEYED NOTES MAY BE USED ON ALL SHEETS.

- KEYED NOTES:**
- PROVIDE W/ 3-WAY CONTROL VALVE.
 - END OF LINE VALVES FOR FLUSHING/DRAINING.
 - PROVIDE WITH NEW CURB ADAPTER. CONTRACTOR TO FIELD VERIFY EXACT LOCATION PRIOR TO BEGINNING WORK.
 - INTERLOCK MOTORIZED DAMPER WITH UNIT VENTILATOR OA DAMPER.
 - CONNECT TO (E) DUCTWORK.

1 RA LONG HIGH SCHOOL - ROOF PLAN - HVAC - SCIENCE BUILDING
SCALE: 1/8" = 1'-0"



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general@hultzbhu.com Job Number: 22-189

**LONGVIEW SCHOOL DISTRICT HVAC
AND INDOOR AIR QUALITY IMPROVEMENTS**
2715 LILAC STREET
LONGVIEW, WA 98632

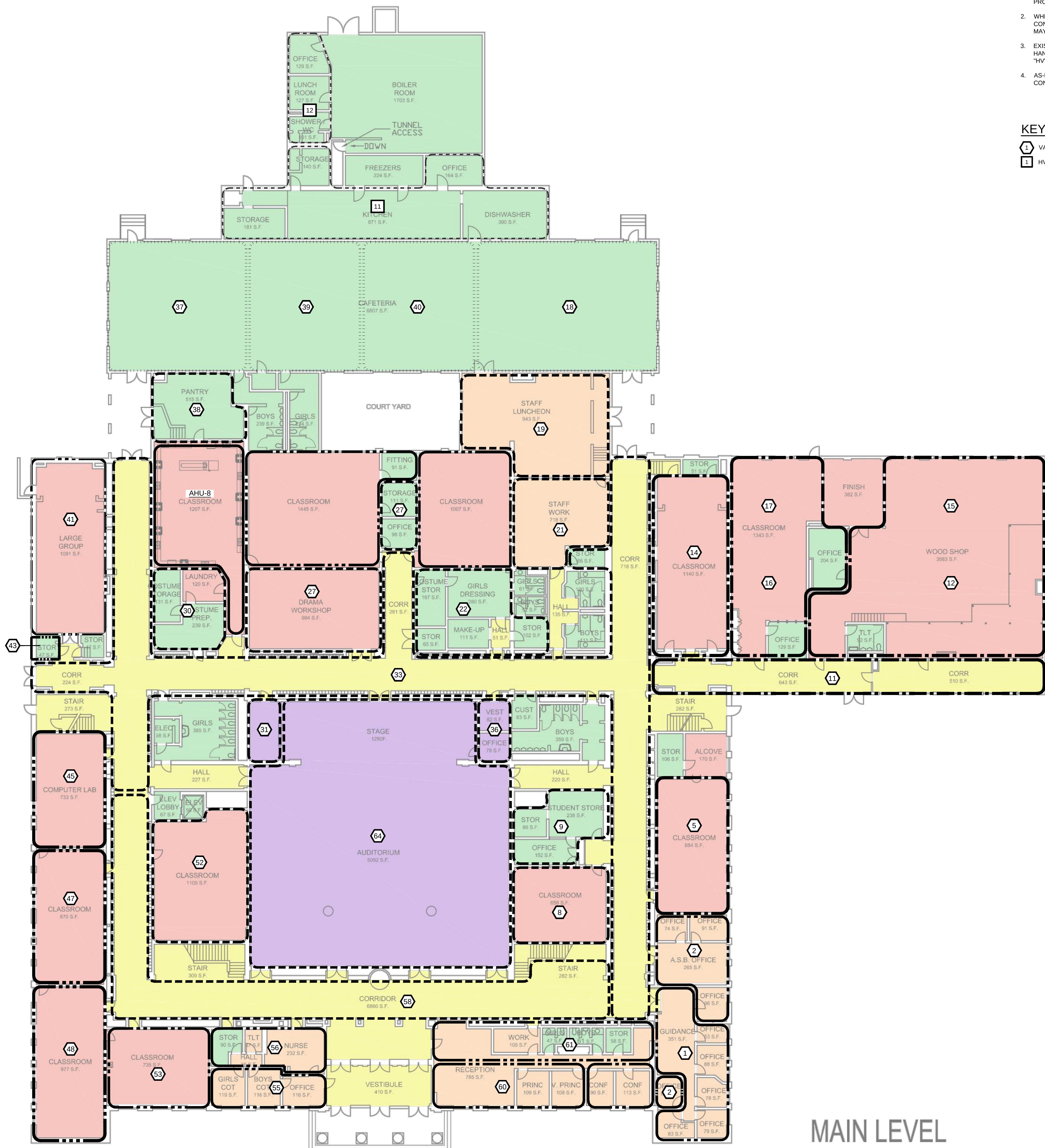
Date:	04/26/23	
Job No.:	22220.00	
Drawn By:	NMG	
Checked by:	NRH	
Revisions		
#	Date	Description

RA LONG HIGH
SCHOOL - ROOF
PLAN - HVAC -
SCIENCE BUILDING

M404

BID SET





MAIN LEVEL

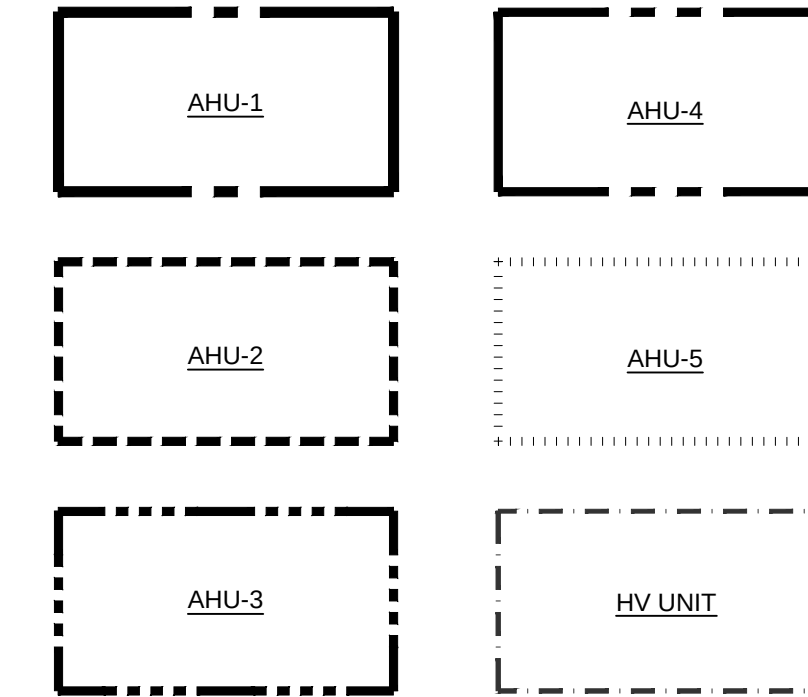
BALANCING NOTES

1. CONTRACTOR SHALL BALANCE ALL HVAC SYSTEMS TO PROVIDE THE MINIMUM OUTDOOR AIR CFM AS SCHEDULED.
2. WHERE EXISTING HVAC SYSTEM IS PROVIDED WITH CO2 CONTROLS, THE SCHEDULED MINIMUM OUTDOOR AIR CFM MAY BE REDUCED TO 50% OF THE CALCULATED VALUE.
3. EXISTING HVAC SYSTEM CONSISTS OF CENTRAL AIR HANDLERS SUPPLYING AIR TO TERMINAL VAV BOXES, AND "HV" UNITS SERVING BOTH SINGLE AND MULTI ROOM ZONES.
4. AS-BUILTS ARE AVAILABLE FOR USE BY CONTRACTOR, CONTACT ENGINEER.

KEYED NOTES

- 1 VAV - #
2 HV - #

KEY PLAN



OA VENTILATION CALCULATION
PER IMC 2018 (by Simplified Procedure Per State Amendment)

Project: RA Long High School - Main Building
No: 22-189

OUTSIDE AIR:						
Zone #	Name	VAV #	Max VAV Supply Air	Min	AHU Total OA	
AHU-1						
1	104 Classroom	VAV-1	950	270	5400	
2	107 Classroom	VAV-14	1065	639		
3	108 Drafting Room	VAV-17	460	276		
4	108 Drafting Room	VAV-18	1130	678		
5	109 Woodshop	VAV-12	2100	1260		
6	109 Woodshop	VAV-15	1525	915		
7	Corridor	VAV-11	910	546		
8	201 Classroom	VAV-3	960	576		
9	202 Classroom	VAV-6	1020	612		
10	204 Classroom	VAV-10	1020	612		
11	205 Classroom	VAV-13	940	564		
System Actual Population Pa = 269		No Zones: 11	11889.0			
AHU-2						
1	002 Corridor	VAV-8	650	400	11639	
2	003 Corridor	VAV-33	495	297		
3	004 Corridor	VAV-35	285	171		
4	005 Corridor	VAV-33	415	249		
5	007 Auditorium	VAV-6, 25, 26, 27, 28	9350	5610		
6	008 Lab	VAV-36	185	111		
7	009A Office	VAV-31	210	126		
8	009C Stage	VAV-31	210	126		
9	014 Make-up	VAV-22	90	54		
10	015 Storage	VAV-22	90	54		
11	017 Girls Dressing	VAV-22	150	90		
12	018 Storage	VAV-22	90	54		
13	019 Storage	VAV-22	90	54		
14	020 Drama Workshop	VAV-27	600	360		
15	022 Costume Prep	VAV-30	130	78		
16	023 Costume Storage	VAV-30	90	54		
17	105 Classroom	VAV-9	520	312		
18	106A Office	VAV-9	75	45		
19	106 Student Store	VAV-9	145	87		
20	110 Staff Work	VAV-21	350	210		
21	111 Staff Lunchroom	VAV-19	2000	1200		
22	113A Office	VAV-27	75	45		
23	113B Storage	VAV-27	60	36		
24	114A Laundry	VAV-38	90	54		
25	114B Party	VAV-38	200	120		
26	120 Classroom	VAV-42	1320	792		
27	041 Corridor	VAV-4	805	483		
28	042 Corridor	VAV-34	505	303		
29	043 Corridor	VAV-60	835	501		
30	051 Elev Mech/Elec	VAV-61	75	45		
31	055 Storage	VAV-61	345	207		
32	203 Computer Lab	VAV-7	2050	1230		
System Actual Population Pa = 676		No Zones: 32	7633.3			
AHU-3						
1	113 Classroom	VAV-25	1550	930	8188	
2	114 Classroom	VAV-25	1440	864		
3	114 Classroom	VAV-28	2730	1632		
4	115 Classroom	VAV-21	1035	621		
5	116A Storage	VAV-43	100	60		
6	116B Computer Lab	VAV-46	1080	648		
7	117 Classroom	VAV-47	1860	1116		
8	118 Classroom	VAV-48	1960	1176		
9	206 Classroom	VAV-20	1685	1011		
10	207 Classroom	VAV-24	2040	1224		
11	208 Classroom	VAV-28	1475	885		
12	209 Classroom	VAV-29	1830	1098		
13	210 Classroom	VAV-42	1220	732		
14	211 Classroom	VAV-44	1740	1044		
15	212 Classroom	VAV-46	1740	1044		
16	213 Classroom	VAV-48	1530	918		
System Actual Population Pa = 439		No Zones: 16	2459.3			
AHU-4						
1	100 Reception	VAV-60	420	252	2365	
2	100A Corridor	VAV-61	185	111		
3	100F Principal	VAV-60	185	111		
4	100G Vice Principal	VAV-60	185	111		
5	100H Conference	VAV-62	460	276		
6	101 Guidance	VAV-61	50	30		
7	101B Office	VAV-61	165	99		
8	101C Office	VAV-61	60	36		
9	101D Office	VAV-61	60	36		
10	101E Office	VAV-61	60	36		
11	101F Office	VAV-61	30	18		
12	101G Office	VAV-61	60	36		
13	102 Office	VAV-61	160	96		
14	103 ASB Office	VAV-62	320	192		
15	103B Office	VAV-62	85	51		
16	103A Office	VAV-61	90	54		
17	114 Classroom	VAV-53	1140	684		
18	121 Nurse	VAV-55	65	39		
19	121A Corridor	VAV-56	35	21		
20	121B Nurse	VAV-56	75	45		
21	121C Toilet	VAV-56	75	45		
22	121D Storage	VAV-56	45	27		
23	121E Girls Cot	VAV-55	190	114		
24	121F Boys Cot	VAV-55	190	114		
25	121G Office	VAV-55	185	111		
26	200 Library	VAV-67	1700	1020		
27	200 Library	VAV-68	1700	1020		
28	045 Storage	VAV-65	195	117		
29	046 Storage	VAV-64	200	120		
System Actual Population Pa = 107		No Zones: 29	8325.3			
AHU-5						
1	004 Cafeteria	VAV-19	2250	1350	1616	
2	005 Cafeteria	VAV-20	2250	1350		
3	006 Cafeteria	VAV-21	1930	1158		
System Actual Population Pa = 346		No Zones: 3	8365.0			
HV-11						
1	002 Dishwashing	NA	330	198	405	
2	003 Kitchen	NA	1000	600		
3	003 Storage	NA	145	87		
4	003 Storage	NA	240	144		
System Actual Population Pa = 14		No Zones: 4	145.0			
HV-12						
1	31-A Office	NA	150	90	40	
2	37-B Lunch Room	NA	160	96		
3	37-C Shower/WC	NA	145	87		
System Actual Population Pa = 1		No Zones: 3	455.0			

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LONGVIEW SCHOOL DISTRICT HVAC
AND INDOOR AIR QUALITY IMPROVEMENTS
2715 LILAC STREET
LONGVIEW, WA 98022

Date: 04/26/23
Job No.: 22220.00
Drawn By: NMG
Checked by: NRM
Revisions
Date Description

RA LONG HIGH
SCHOOL -
OUTSIDE AIR
CALCULATIONS

M405

BID SET



2715 LILAC STREET
LONGVIEW WA 98632

Revisions		
#	Date	Description

M406

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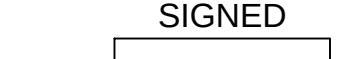
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Phone: (253) 383-3257 Fax: (253) 383-3257
general@hultzbhu.com Job Number: 22-11

The schematic diagram illustrates the HVAC system layout. It consists of five air handling units (AHU-1, AHU-2, AHU-3, AHU-4, AHU-5) and one heating/ventilating unit (HV UNIT). AHU-1 and AHU-4 are connected to AHU-2 and AHU-3. AHU-2 and AHU-3 are connected to AHU-5. AHU-5 is connected to the HV UNIT. The units are represented by rectangles with different line styles: solid for AHU-1 and AHU-4, dashed for AHU-2 and AHU-3, and dotted for AHU-5 and the HV UNIT.

1. CONTRACTOR SHALL BALANCE ALL HVAC SYSTEMS TO PROVIDE THE MINIMUM OUTDOOR AIR CFM AS SCHEDULED.
2. WHERE EXISTING HVAC SYSTEM IS PROVIDED WITH CO2 CONTROLS, THE SCHEDULED MINIMUM OUTDOOR AIR CFM MAY BE REDUCED TO 50% OF THE CALCULATED VALUE.
3. EXISTING HVAC SYSTEM CONSISTS OF CENTRAL AIR HANDLERS SUPPLYING AIR TO TERMINAL VAV BOXES, AND "HV" UNITS SERVING BOTH SINGLE AND MULTI ROOM ZONES
4. AS-BUILTS ARE AVAILABLE FOR USE BY CONTRACTOR, CONTACT ENGINEER.

1 VAV - #
1 HV - #





2715 LILAC STREET
LONGVIEW WA 98632

Revisions		
#	Date	Description

M407

BID SET

1. CONTRACTOR SHALL BALANCE ALL HVAC SYSTEMS TO PROVIDE THE MINIMUM OUTDOOR AIR CFM AS SCHEDULED.
2. WHERE EXISTING HVAC SYSTEM IS PROVIDED WITH CO2 CONTROLS, THE SCHEDULED MINIMUM OUTDOOR AIR CFM MAY BE REDUCED TO 50% OF THE CALCULATED VALUE.
3. EXISTING HVAC SYSTEM CONSISTS OF CENTRAL AIR HANDLING SUPPLYING AIR TO TERMINAL VAV BOXES, AND "HV" UNITS SERVING BOTH SINGLE AND MULTI ROOM ZONES.
4. AS-BUILTS ARE AVAILABLE FOR USE BY CONTRACTOR, CONTRACT ENGINEER.

The schematic diagram illustrates the layout of the test facility. It consists of six main components arranged in two columns. The left column contains three rooms labeled AHU-1, AHU-2, and AHU-3 from top to bottom. The right column contains three rooms labeled AHU-4, AHU-5, and HV UNIT from top to bottom. AHU-1, AHU-2, and AHU-3 are connected by a vertical duct system. AHU-4 and AHU-5 are connected by a vertical duct system. The HV UNIT is connected to the bottom of the AHU-4/AHU-5 duct system. The rooms are connected to a central horizontal duct system. AHU-4 and AHU-5 have multiple air outlets indicated by small circles along their right walls.

1 VAV - #
1 HV - #



Project: RA Long High School - Gym Building
No: 22-109

Project: RA Long High School - Gym Building
No: 22-109

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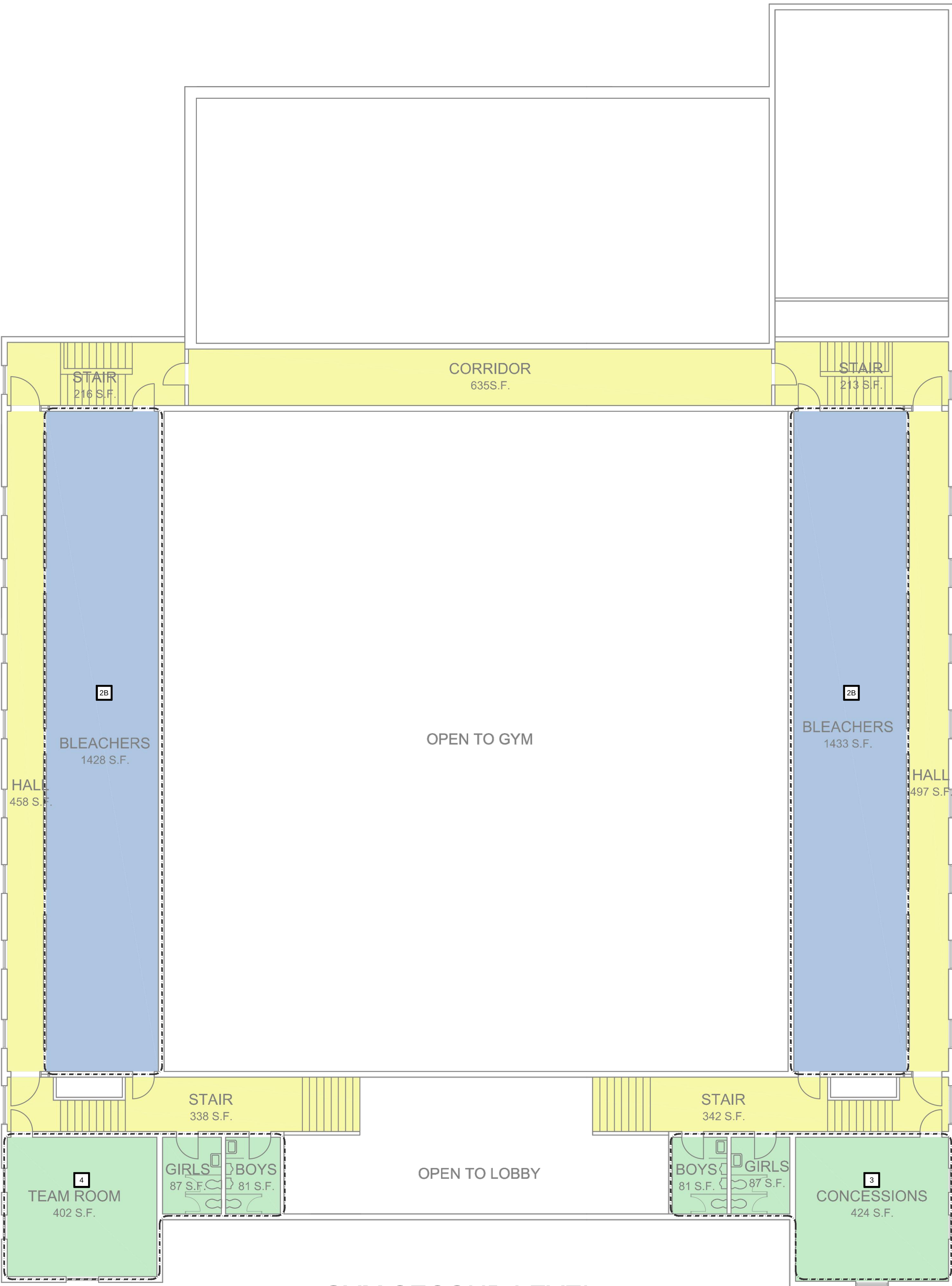
OUTSIDE AIR:				
HVAC Unit	Zone #	Name	Occupy Category	Total OA
HW-1	1	001 Lobby	Lobbies/Prefunction	490
System Actual Population Ps = 40				
No Zones: 1				
HW-2A	1	002 Gymnasium	Gym	2700
System Actual Population Ps = 0				
No Zones: 1				
HW-3	1	005 Showers	Shower Room	
	2	006 Coath Training	Office	110
	3	007 P.E. Office	Office	
	4	008 Boys Locker Room	Boys Locker Room	
	5	013 Corridor	Corridor	
	6	200 Corridor	Corridor	
	7	203 Concessions	Corridor	
System Actual Population Ps = 2				
No Zones: 7				
HW-4	1	028 Corridor	Corridor	
	2	029 Custodian	Janitors Closet	140
	3	033 Girls Locker Room	Sports Locker Room	
	4	036 Couch	Office	
	5	040 Storage	Storage	
	6	211 Team Room	Office	
	7	214 Corridor	Corridor	
System Actual Population Ps = 3				
No Zones: 7				
HW-6	1	027 Cardio Room	Aerobics Room	975
System Actual Population Ps = 35				
No Zones: 1				
HW-7	1	018 Weight Room	Weight Room	800
System Actual Population Ps = 24				
No Zones: 1				
HW-8	2	016 Storage	Storage	0
	2	014 Custodian	Janitors Closet	
System Actual Population Ps = 0				
No Zones: 2				
HW-9	1	020 Storage	Storage	0
System Actual Population Ps = 0				
No Zones: 1				
VU-2B	2	205 Bleachers	Spectator Area	
	2	209 Bleachers	Spectator Area	2900
System Actual Population Ps = 247				
No Zones: 2				
HW-10	1	046 Gymnasium	Gym	2100
HW-11	2	046 Gymnasium	Gym	
HW-15	3	046 Gymnasium	Gym	
HW-16	4	046 Gymnasium	Gym	
System Actual Population Ps = 0				
No Zones: 1				

EXHAUST:				Occup Category	Selecte Exhaust
HVAC Unit	Zone #	Name			
HRU-3	1	005 Showers	Showers Room		155
	2	008 Boys Locker Rm	Sports Locker Room		4410
	3	201 Boys	Toilet Room		170
	4	202 Girls	Toilet Room		200
					4935
HRU-4	1	029 Custodian	Janitor's Closet		60
	2	033 Girls Locker Room	Sports Locker Room		4445
	3	214-1 Girls	Toilet Room		200
	4	214-2 Boys	Toilet Room		170
					4937

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GYM SECOND LEVEL

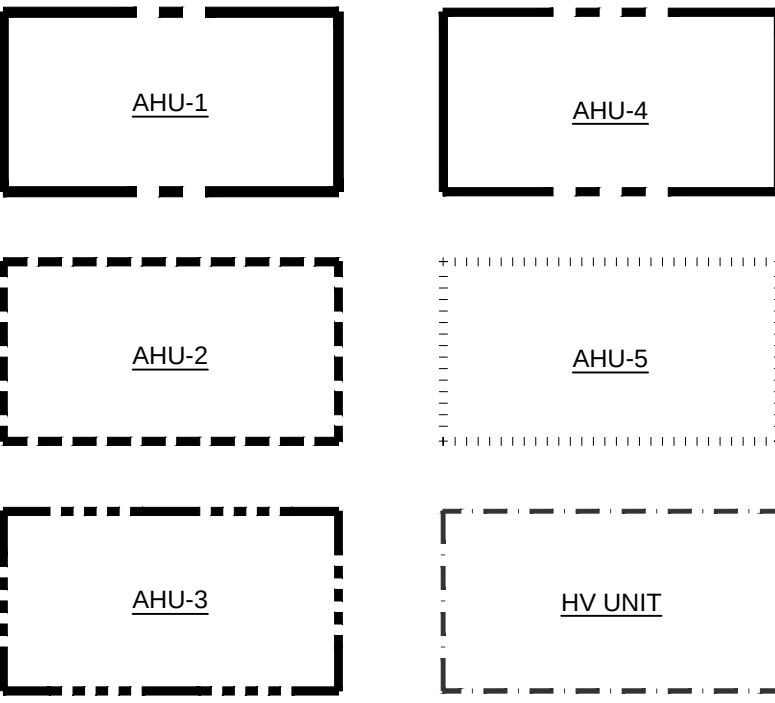
BALANCING NOTES

- 1. CONTRACTOR SHALL BALANCE ALL HVAC SYSTEMS TO PROVIDE THE MINIMUM OUTDOOR AIR CFM AS SCHEDULED.
- 2. WHERE EXISTING HVAC SYSTEM IS PROVIDED WITH CO2 CONTROLS, THE SCHEDULED MINIMUM OUTDOOR AIR CFM MAY BE REDUCED TO 50% OF THE CALCULATED VALUE.
- 3. EXISTING HVAC SYSTEM CONSISTS OF CENTRAL AIR HANDLERS SUPPLYING AIR TO TERMINAL VAV BOXES, AND "HV" UNITS SERVING BOTH SINGLE AND MULTI ROOM ZONES.
- 4. AS-BUILTS ARE AVAILABLE FOR USE BY CONTRACTOR, CONTACT ENGINEER.

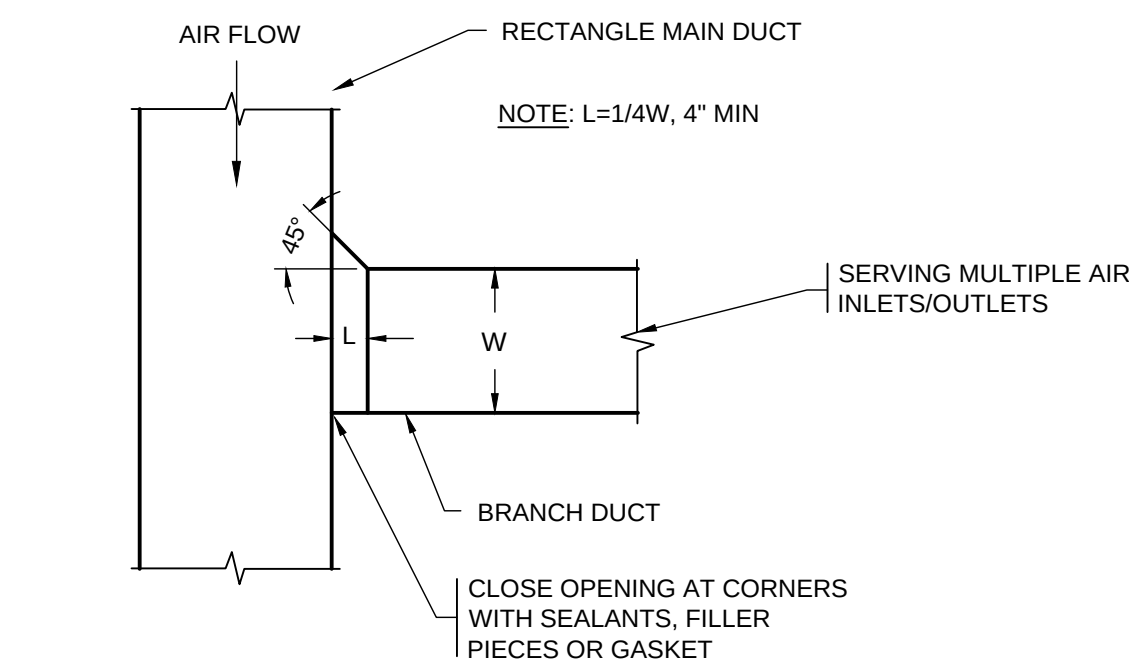
KEYED NOTES

- 1 VAV - #
- 2 HV - #

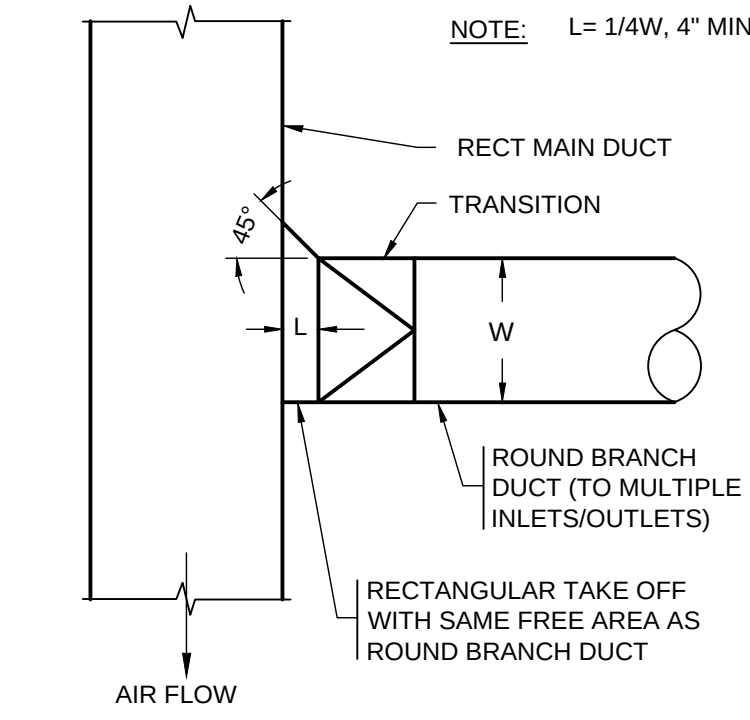
KEY PLAN



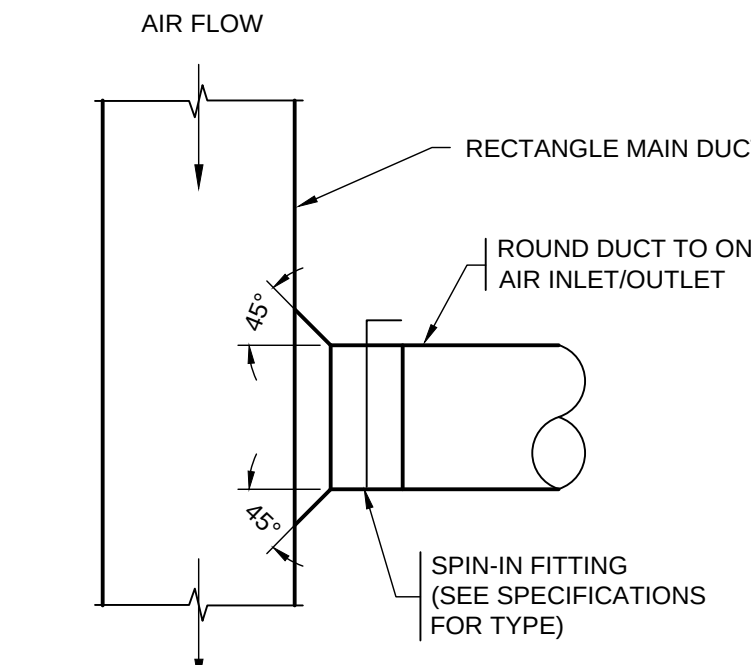
Date:	04/26/23	
Job No.:	22220.00	
Drawn By:	NMG	
Checked by:	NRH	
Revisions		
#	Date	Description



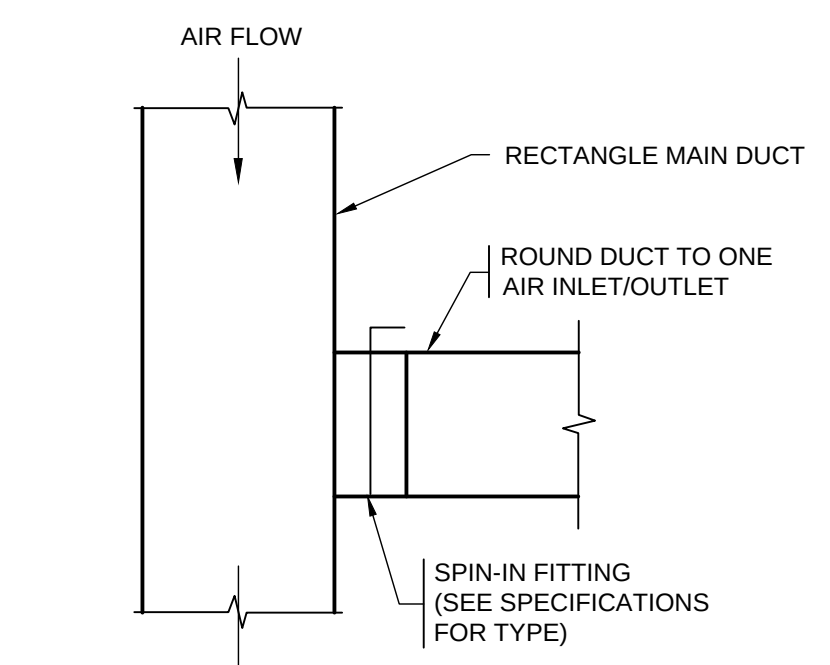
**RECT-TO-RECT
BRANCH DUCT CONNECTION** 4
NTS M501



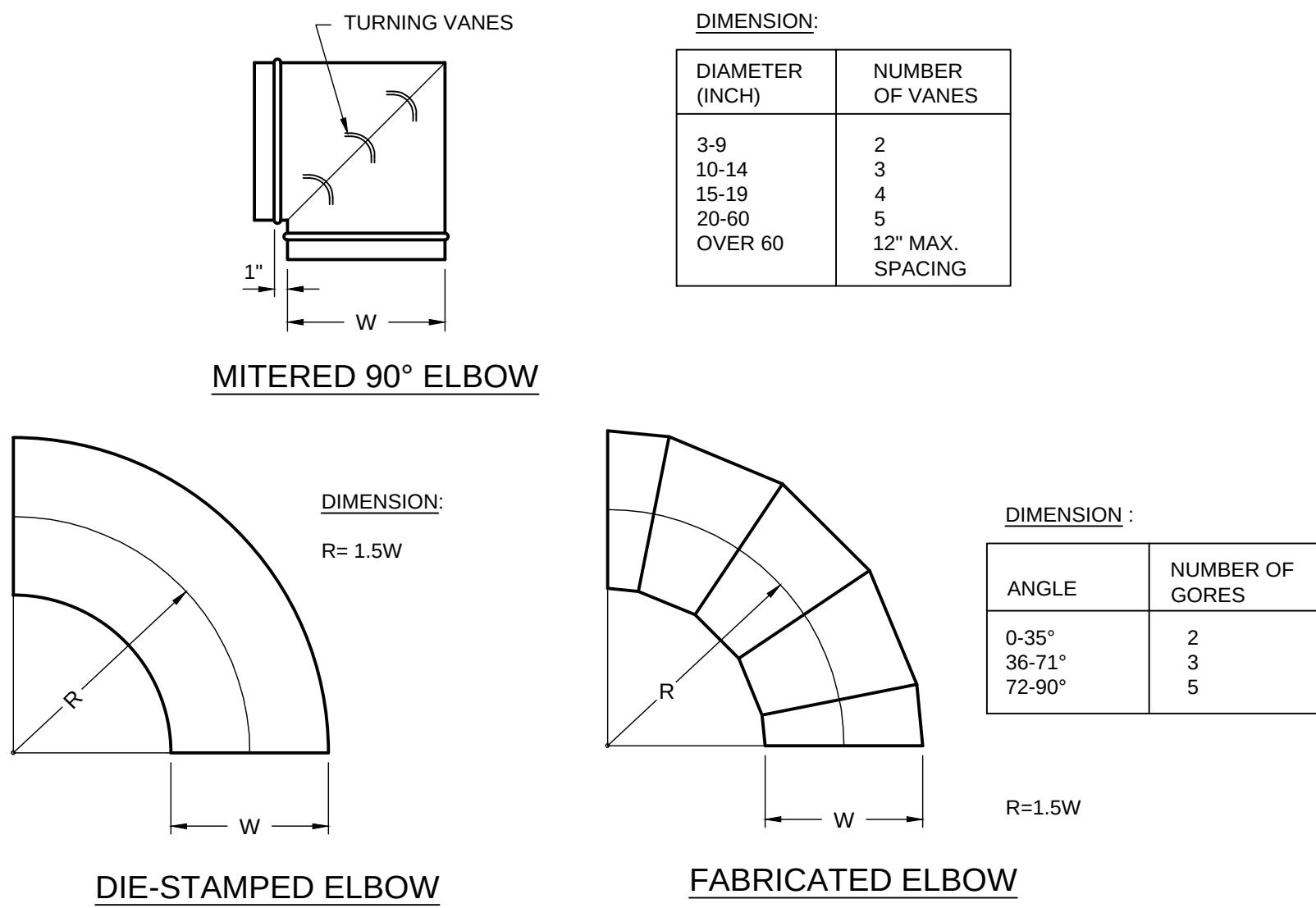
**RECT-TO-ROUND
BRANCH DUCT CONNECTION** 3
NTS M501



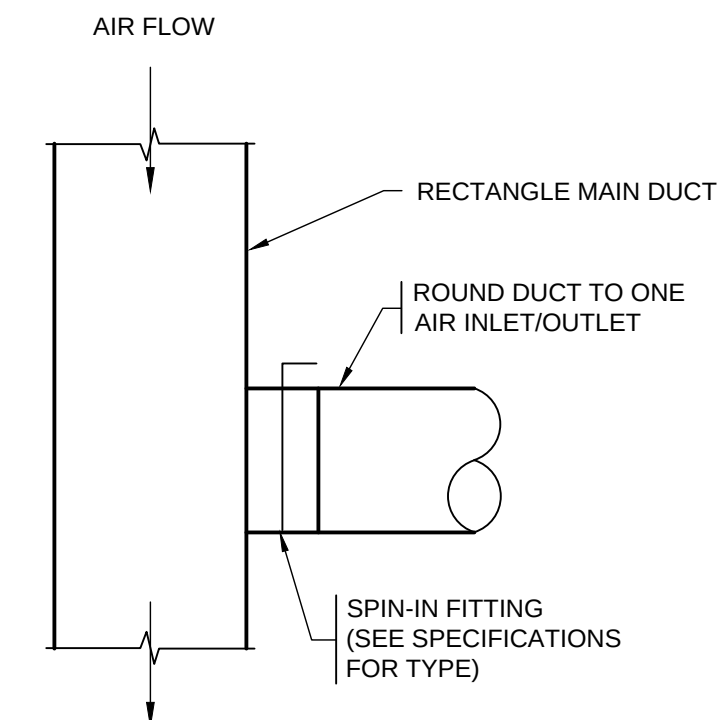
**RECT-TO-ROUND
BRANCH DUCT CONNECTION** 2
NTS M501



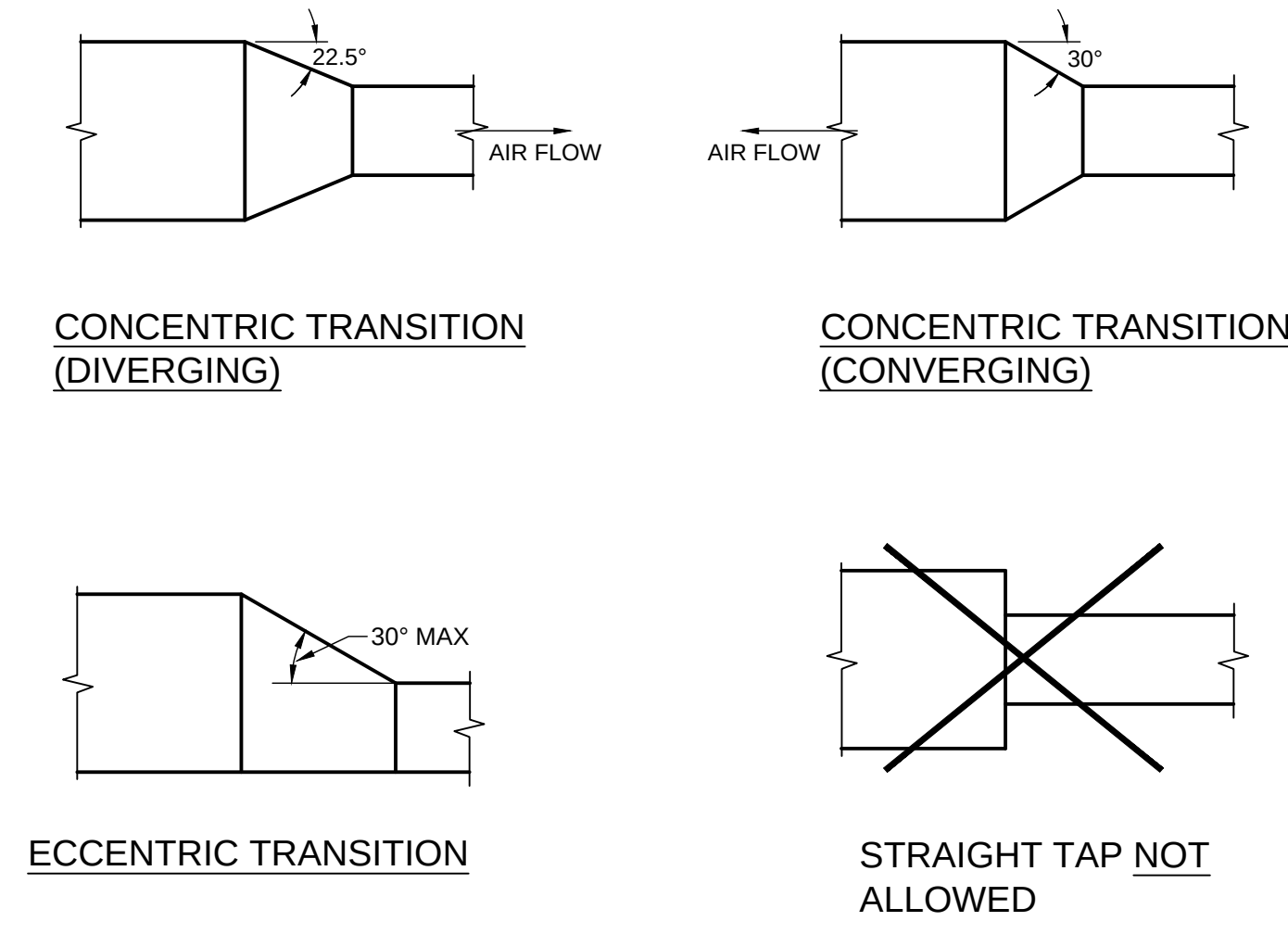
**RECT-TO-RECT
BRANCH DUCT CONNECTION** 1
NTS M501



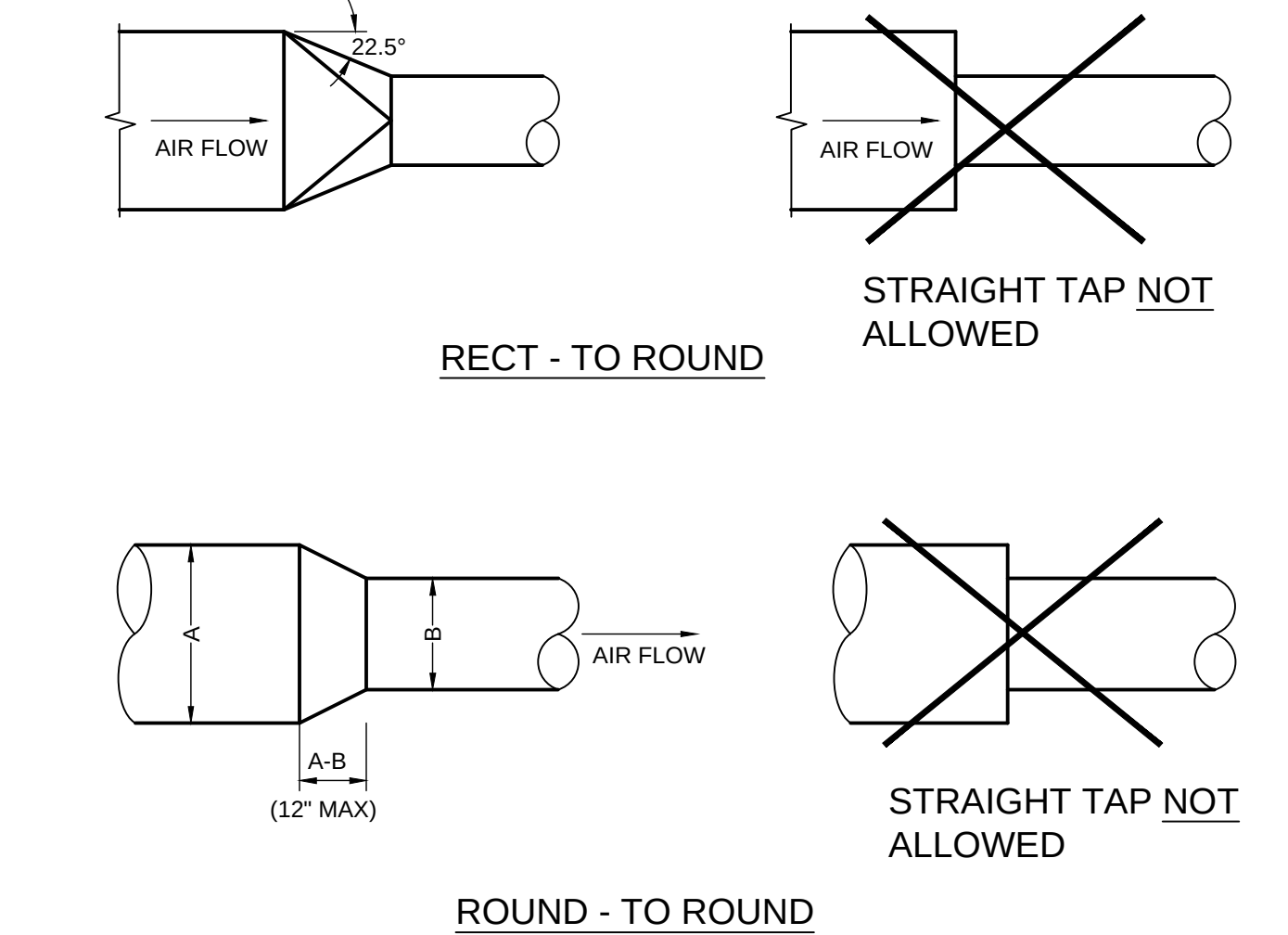
ELBOWS - ROUND 10
NTS M501



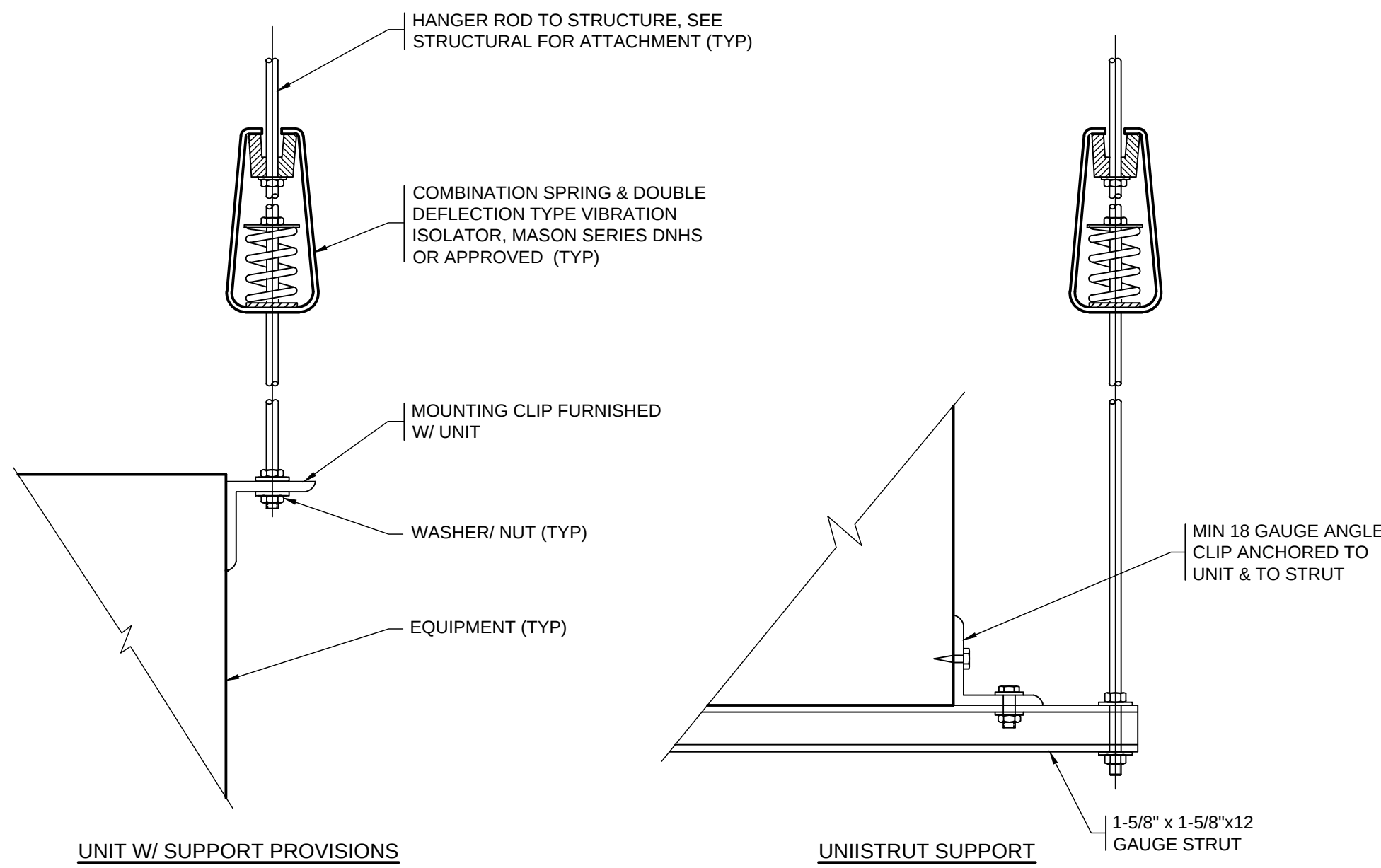
**RECT-TO-ROUND
BRANCH DUCT CONNECTION** 7
NTS M501



RECT-TO-RECT TRANSITIONS 6
NTS M501

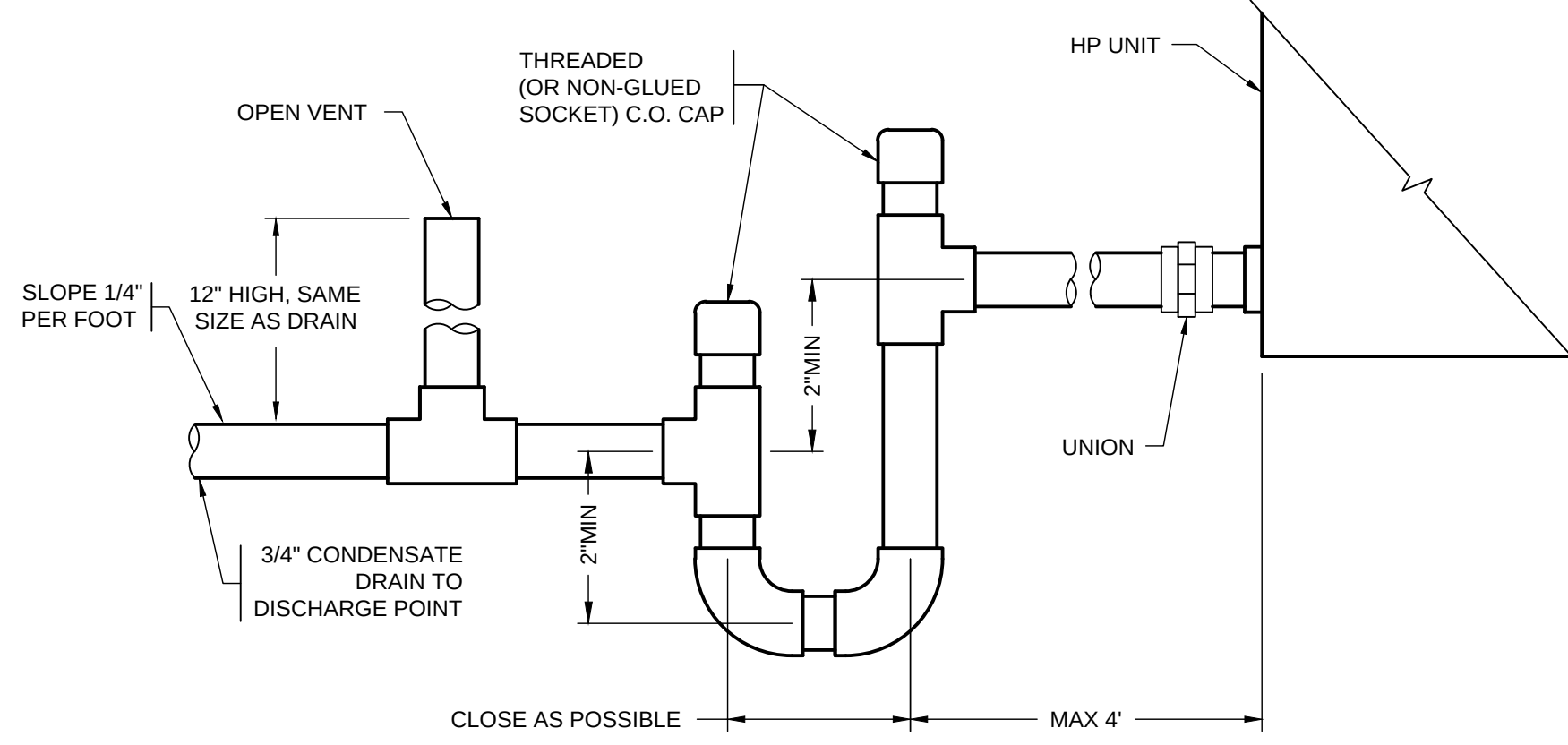


ROUND TRANSITIONS 5
NTS M501

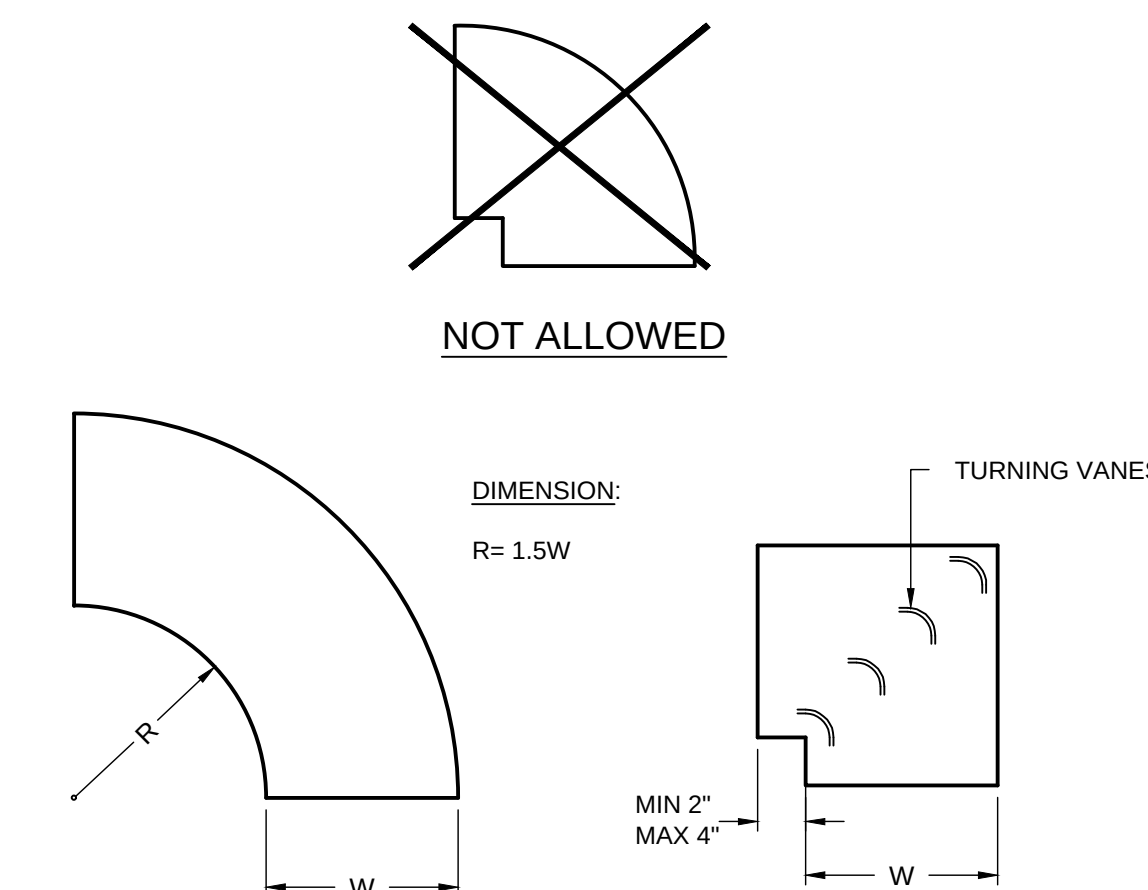


- NOTES:**
- ALL SUSPENDED HVAC EQUIPMENT W/ ROTATING COMPONENTS SHALL HAVE VIBRATION ISOLATORS AS SHOWN.
 - VIBRATION ISOLATORS SHALL BE SELECTED FOR 1" DEFLECTION.
 - FOR INTERNALLY ISOLATED UNITS PROVIDE DOUBLE DEFLECTION NEOPRENE HANGER (MASON SERIES HD OR APPROVED) IN LIEU OF TYPE SHOWN. SIZE FOR 1/8" DEFLECTION.
 - SEE STRUCTURAL FOR ATTACHMENT TO STRUCTURE & OTHER ANCHORING REQUIREMENTS.
 - MOUNT SPRING ISOLATOR AS CLOSE TO EQUIPMENT AS POSSIBLE.
 - NOT REQUIRED FOR CEILING TYPE EXHAUST FANS OR UNIT HEATERS.

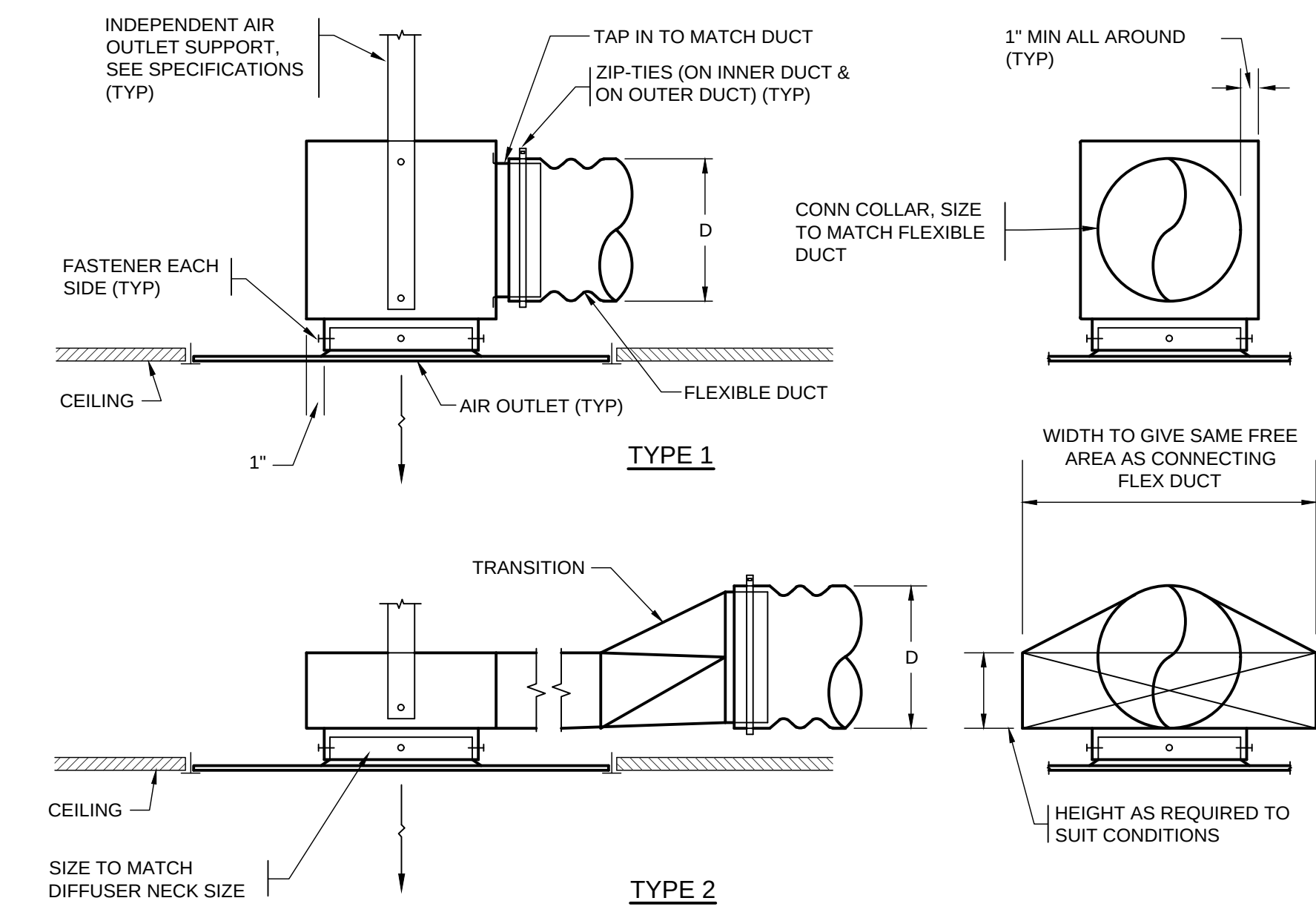
SUSPENDED EQUIP. SUPPORT 2
NTS M501



CONDENSATE DRAIN DETAIL 1
NTS M501



ELBOWS - RECTANGULAR 9
NTS M501



- NOTES:**
- PROVIDE TYPE 1 UNLESS BUILDING CONDITIONS REQUIRE LOWER PROFILE - THEN USE TYPE 2.
 - CONSTRUCT PLENUM BOXES OF MIN. 26 GA. GALV. STEEL.
 - NOT ALLOWED AT TRANSFER DUCTS.
 - LINE PLENUM & DUCT TO AIR OUTLET WHERE SO NOTED ON PLANS OR IN SPECIFICATIONS.
 - CEILING TYPE & AIR OUTLET FRAME STYLE MAY VARY FROM THAT DEPICTED.
 - NOT ALL SUPPORTS ARE SHOWN FOR CLARITY.
 - SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

**TIGHT CONDITION - FLEX DUCT
AIR OUTLET CONNECTION** 8
NTS M501

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DISCOVERY HIGH SCHOOL - MECHANICAL DETAILS

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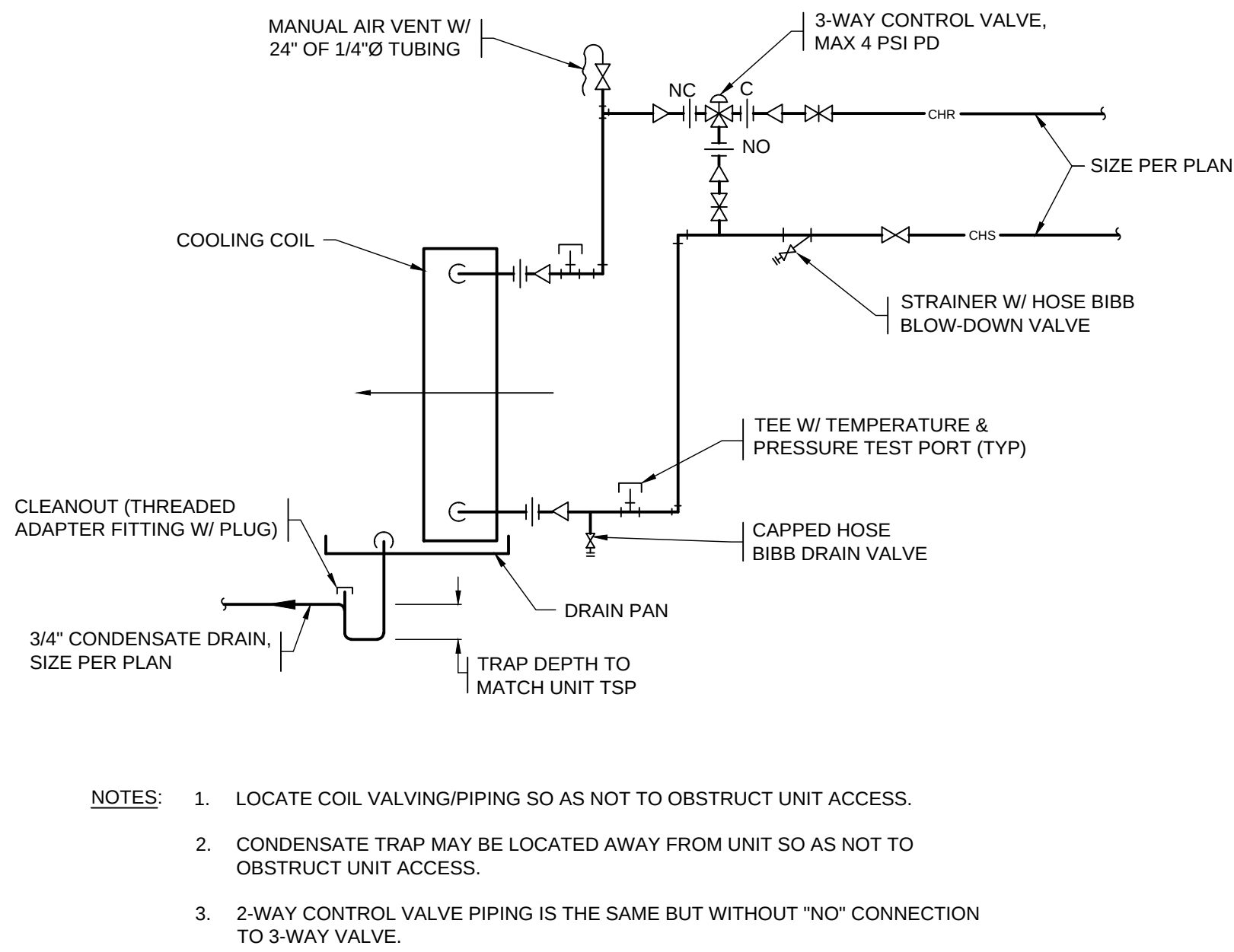
BID SET

CITY MULTI
SYSTEM SCHEMATIC DWG.



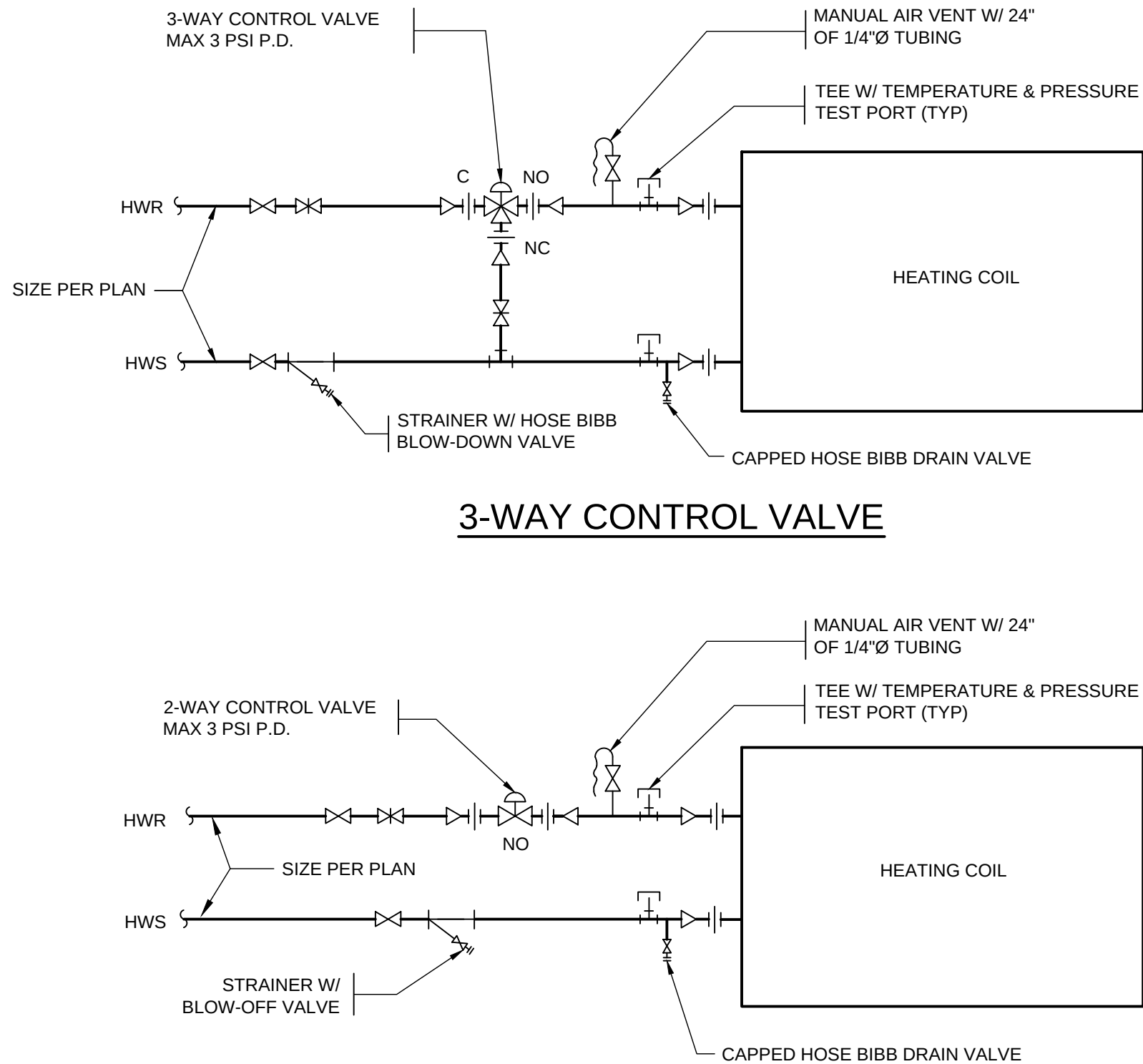
NOTE:

THIS DIAGRAM HAS BEEN PROVIDED BY THE VRF MFR AND IS PRELIMINARY & APPROXIMATE ONLY. IT DOES NOT SHOW ALL REQ'D CONTROL DEVICES NOR ALL CONNECTIONS, NOR A DESIGN FOR OTHER MFR'S. OBTAIN FROM VRF MFR UPDATED DIAGRAM WITH ALL PIPING SIZES, CONTROLS, WIRING, AND RELATED REQUIREMENTS. SUBMIT SHOP DRAWINGS AS SPECIFIED.



COOLING COIL PIPING DETAIL

2
M503



2-WAY CONTROL VALVE

HEATING COIL PIPING DETAIL

1
M503

Revisions		
#	Date	Description



ABBREVIATIONS			
(SOME ABBREVIATIONS MAY NOT BE USED ON DRAWINGS)			
ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
A or AMP	AMPERES	MECH	MECHANICAL
AC	ALTERNATING CURRENT	MH	MANHOLE
A/C	AIR CONDITIONING	MIN	MINIMUM
AIC	AMPERE INTERRUPTING CAPACITY	MLO	MAIN LUGS ONLY
AL	ALUMINUM	MOP, MOCP	MAXIMUM OVERCURRENT PROTECTION
ARCH	ARCHITECTURAL	MTD	MOUNTED
ATC	AUTOMATIC TEMPERATURE CONTROL	MTG	MOUNTING
ATS	AUTOMATIC TRANSFER SWITCH	NC	NORMALLY CLOSED
AWG	AMERICAN WIRE GAUGE	N, NEUT	NEUTRAL
BIL	BASIC IMPULSE LEVEL	NIC	NOT IN CONTRACT
BKR	BREAKER	NO	NORMALLY OPEN
BLDG	BUILDING	NTS	NOT TO SCALE
C	CONDUIT	OC	ON CENTER
C.O.	CONDUIT ONLY	OD	OUTSIDE DIAMETER
°C	DEGREES CELSIUS	OH	OVERHEAD
CB	CIRCUIT BREAKER	PA	PUBLIC ADDRESS
CCTV	CLOSED CIRCUIT TELEVISION	PB	PULLBOX
CFM	CUBIC FEET PER MINUTE	PF	POWER FACTOR
CKT	CIRCUIT	ø or PH	PHASE
CL	CENTER LINE	PNL	PANEL
CLG	CEILING	PR	PAIR
CONC	CONCRETE	PRI	PRIMARY
CT	CURRENT TRANSFORMER	PT	POTENTIAL TRANSFORMER
CU	COPPER	PVC	POLYVINYL CHLORIDE
CW	COLD WATER	RECPT	RECEPTACLE
BD	DECIBELS	REQ	REQUIRED
DC	DIRECT CURRENT	RF	RADIO FREQUENCY
DIA	DIAMETER	RM	ROOM
DIV	DIVISION	RMS	ROOT MEAN SQUARE
DPDT	DOUBLE POLE, DOUBLE THROW	SEC	SECONDARY
DPST	DOUBLE POLE, SINGLE THROW	SHT	SHEET
DWG	DRAWING	SMR	SURFACE METAL RACEWAY
EGC	EQUIPMENT GROUND CONDUCTOR	SN	SOLID NEUTRAL
ELEC	ELECTRIC	SP	SINGLE POLE
EMT	ELECTRICAL METALLIC TUBING	SPD	SURGE PROTECTIVE DEVICE
EXST, (E)	EXISTING	SPDT	SINGLE POLE, DOUBLE THROW
EV	ELECTRIC VEHICLE	SPST	SINGLE POLE, SINGLE THROW
°F	DEGREES FAHRENHEIT	SS	STAINLESS STEEL
FA	FIRE ALARM	STD	STANDARD
FC	FOOTCANDLE	SW	SWITCH
FLA	FULL LOAD AMPS	SWBD	SWITCHBOARD
FLEX	FLEXIBLE CONDUIT	TEL	TELEPHONE
GALV	GALVANIZED	TV	TELEVISION
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	TTB	TELECOMMUNICATIONS TERMINAL BOARD
GND	GROUND	TYP	TYPICAL
H—O—A	HAND — OFF — AUTO	UL	UNDERWRITERS LABORATORY
HP	HORSEPOWER	UF	UNDERFLOOR
HPF	HIGH POWER FACTOR	UG	UNDERGROUND
H & V	HEATING AND VENTILATION	V	VOLTS
HVAC	HEATING, VENTILATION & AIR CONDITIONING	VA	VOLT AMPERES
HZ	HERTZ	VAC	VOLTS ALTERNATING CURRENT
IDF	INTERMEDIATE DISTRIBUTION FRAME	VAR	REACTIVE VOLT AMPERES
J—BOX	JUNCTION BOX	VAV	VARIABLE AIR VOLUME
KV	KILOVOLTS	VD	VOLTAGE DROP
KVA	KILOVOLT AMPERES	VDC	VOLTS DIRECT CURRENT
KVAR	REACTIVE KILOVOLT AMPERES	VFD	VARIABLE FREQUENCY DRIVE
KW	KILOWATTS	VT	VAPORTIGHT
KWH	KILOWATT HOURS	W	WATTS
LT	LIGHT	WP	WEATHERPROOF
LTG	LIGHTING	/W	WITH
MAX	MAXIMUM	W/O	WITHOUT
MCA	MINIMUM CIRCUIT AMPS	XFER	TRANSFER
MCB	MAIN CIRCUIT BREAKER	XFMR	TRANSFORMER
MCC	MOTOR CONTROL CENTER	XLP	CROSS—LINKED POLYETHYLENE
MCM, KCM	THOUSAND CIRCULAR MILS	XP	EXPLOSION PROOF
MDF	MAIN DISTRIBUTION FRAME	Z	IMPEDANCE

ELECTRICAL LEGEND			
(SOME SYMBOLS MAY NOT BE USED ON DRAWINGS)			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	DETAIL SYMBOL: # — IDENTIFYING NUMBER B — SHEET WHERE DETAIL TAKEN C — SHEET WHERE DETAIL SHOWN		PANELBOARD
	BUBBLE NOTE TAG SYMBOL: # — IDENTIFYING NUMBER		CROSS LINES INDICATE NUMBER OF CONDUCTORS IF MORE THAN TWO WIRE CIRCUIT. LONG DENOTES NEUTRAL. DOT DENOTES GROUND. CONDUIT IS 1/2" AND CONDUCTOR IS #12 AWG UNLESS OTHERWISE NOTED OR SCHEDULED.
	LIGHTING OUTLET — CEILING		WIRING CONCEALED IN CEILING OR WALL
	LIGHTING OUTLET — WALL		WIRING HOMERUN
	STRIP LUMINAIRE (LENGTH TO SCALE)		FEEDER CALLOUT X—Y—Z. SEE SCHEDULE.
	SURFACE FIXTURE — ROUND		VOICE (TELEPHONE) OUTLET WITH JACK
	SURFACE MOUNT LUMINAIRE		HEAT DETECTOR
	LUMINAIRE WITH EMERGENCY LIGHTING UNIT		SMOKE DETECTOR
	SWITCH SUBSCRIPTS: 2 DOUBLE POLE 3 THREE WAY 4 FOUR WAY D DIMMER OS OCCUPANCY SENSOR K KEY OPERATED LV LOW VOLTAGE LVM LOW VOLTAGE MASTER M MANUAL MOTOR STARTER W/OVERLOADS MC MOMENTARY CONTACT P SWITCH W/PILOT LIGHT T TIMER WP WEATHERPROOF a, b, c MULTIGANG SWITCH STATION		FIRE ALARM CONTROL PANEL
	DISCONNECT SWITCH		CIRCUIT BREAKER
	FUSED DISCONNECT SWITCH		FUSE
	DUPLEX RECEPTACLE (NEMA 5—20R)		TRANSFORMER
	SUBSCRIPT: IG ISOLATED GROUND WC WATER COOLER REF REFRIGERATOR COP COPIER HWD HOT WATER DISPENSER MWO MICROWAVE OVEN P PEDESTAL WP WEATHERPROOF C CEILING DW DISHWASHER IWB INTERACTIVE WHITE BOARD TV VIDEO DISPLAY OUTLET. REFER TO ARCHITECTURAL DETAILS FOR MOUNTING HEIGHT		DEVICE SIZE / FUSE OR TRIP RATING — No. OF POLES
	GFCI DUPLEX RECEPTACLE (NEMA 5—20R)		CONTACT — NORMALLY OPEN
	JUNCTION BOX		RELAY CONTACT — NORMALLY CLOSED
	EQUIPMENT CONNECTION		RELAY COIL
			PUSHBUTTON OPERATOR — NORMALLY OPEN
			PILOT LIGHT — 'G' INDICATED GREEN, 'R' INDICATED RED
			AUTOMATIC TRANSFER SWITCH
			FUSED SWITCH
			HEAT DETECTOR
			SMOKE DETECTOR
			PRIMARY ELEVATOR RECALL
			SECONDARY ELEVATOR RECALL
			HEAVY LINE WEIGHT = NEW WORK (RECEPTACLE SHOWN)
			STANDARD LINE WEIGHT = EXISTING TO REMAIN (RECEPTACLE SHOWN)
			CROSS HATCH LINE WORK = ELECTRICAL DEMOLITION (RECEPTACLE SHOWN)
			BROKEN LINE WORK = ELECTRICAL DEMOLITION (RECEPTACLE SHOWN)

GENERAL ELECTRICAL NOTES:

- SEE GENERAL NOTES SHEET G1.0.
- CONTRACTOR SHALL CAREFULLY COORDINATE WORK W/ ALL OTHER TRADES, ESPECIALLY IN CEILING SPACES WHERE SPACE IS TIGHT & MULTIPLE SYSTEMS NEED TO BE REMOVED TO ALLOW FOR THE WORK AND THEN REINSTALLED.
- FOR ALL WORK DONE OFF NORMAL WORK HOUR, PROPER NOTIFICATION/COORDINATION MUST BE DONE WITH THE OWNER & THEIR APPROVAL MUST BE SECURED MINIMUM 7 WORK DAYS PRIOR TO PROCEEDING.
- ALL ELECTRICAL DEVICE LOCATION SHOWN ARE SCHEMATIC, CONTRACTOR SHALL SELECT SUITABLE LOCATION TO PROVIDE PROPER ACCESS CODE REQUIRED CLEARANCES & COORDINATED W/ OTHER TRADES.
- REGULATORY REQUIREMENTS: NATIONAL ELECTRICAL CODE, STATE AND LOCAL ELECTRICAL AND BUILDING CODES, LOCAL UTILITY CO. REQUIREMENTS. OBTAIN AND PAY FOR REQUIRED PERMITS.
- CONDUCTORS COPPER BUILDING WIRE, TYPE THWN UNLESS OTHERWISE INDICATED.
- CIRCUIT DIRECTORY: PROVIDE TYPEWRITTEN INDEX OF CIRCUITS LOCATED ON INSIDE DOOR OF EACH PANEL. IDENTIFY LOAD TYPE AND LOCATION USING FINAL ROOM NAMES OR NUMBERS VERIFIED BY OWNER. REVISED ALL PANEL CIRCUIT DIRECTORIES WHERE NEW EQUIPMENT IS FED BY THE PANEL.
- PROVIDE POWER CONNECTIONS TO ALL EQUIPMENT BEING FURNISHED OR INSTALLED UNDER THE CONTRACT.
- FIELD VERIFY EXISTING PANELS, CIRCUITS, AND MATCH NEW EQUIPMENT VOLTAGE/PHASE TO CIRCUIT INDICATED (OR TO EXISTING CIRCUITS) BEFORE ORDERING MATERIALS.
- PORTIONS OF (E) RACEWAY & CONDUCTORS MAY BE REUSED TO SERVE NEW EQUIPMENT WHERE SUITABLE (I.E. PROPER SIZE, LOCATION, TYPE, ETC.); UNO.
- ALL ELECTRICAL PANELS WHICH SERVE EQUIPMENT WHICH IS REVISED OR REPLACED AS PART OF THIS PROJECT, SHALL HAVE THEIR PANEL DIRECTORIES UPDATED TO REFLECT ALL CHANGES IN CIRCUITS/LOADS AND ALL EQUIPMENT DESIGNATIONS.

REMODEL ELECTRICAL NOTES:

- IT IS ASSUMED THAT EXITING WIRING ABOVE CEILING AND IN CRAWLSPACES ARE NOT SUPPORTED PER CODE. INCLUDE NEW CONDUIT SUPPORTS FOR EXISTING WIRING ACCESSED DURING CONSTRUCTION.
- CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS & LOCATIONS OF ALL ITEMS BEFORE BIDDING & AGAIN BEFORE BEGINNING ANY WORK.

ELECTRICAL EQUIPMENT CONNECTION NOTES:

- VERIFY VOLTAGE, PHASE, FLA/MCA OF EACH CONNECTION WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN. NOTIFY ARCHITECT/ENGINEER WHEN SCHEDULED SUPPLY WILL NOT MEET NEC REQUIREMENTS.
- OUTLETS, DISCONNECTS, CONTROLLERS, AND EQUIPMENT CONNECTIONS FOR OUTDOOR EQUIPMENT SHALL BE WEATHER PROOF.
- LOCATION OF OUTLETS, DISCONNECTS, CONTROL DEVICES, AND EQUIPMENT CONNECTIONS ARE TO BE LOCATED IN FIELD BY THE CONTRACTOR. UNLESS OTHERWISE INDICATED ON PLANS, INSTALL SCHEDULED DISCONNECTS AND CONTROL DEVICES INSIGHT OF EQUIPMENT. ARRANGE WIRING AND EQUIPMENT TO AVOID INTERFERENCE WITH OTHER WORK AND TO MAXIMIZE ACCESSIBILITY FOR MAINTENANCE.
- COORDINATE WITH THE OTHER INSTALLING CONTRACTORS TO ENSURE NEC REQUIRED ACCESS TO DISCONNECTS IS PROVIDED FOR EACH PIECE OF EQUIPMENT.
- PROVIDE SMOKE DETECTORS IN HEATING AND COOLING SYSTEMS PER INTERNATIONAL MECHANICAL CODE. SEE MECHANICAL DIVISION EQUIPMENT SCHEDULES FOR ADDITIONAL UNITS RATED OVER 2000 CFM AND PROVIDE DUCT DETECTOR AS REQUIRED
- WIRING BETWEEN EQUIPMENT DISCONNECT AND POINT OF CONNECTION SHALL COMPLY WITH NEC BASED ON EQUIPMENT NAMEPLATE RATING EXCEPT MINIMUM BRANCH CIRCUIT RATING
- SIZE OF DISCONNECT SWITCH AND MOTOR STARTER SHALL BE SIZED TO COMPLY WITH NEC REQUIREMENTS. WHERE INDICATED MOTOR CONTROL IS NOT LOCATED IN SIGHT OF MOTOR AS DEFINED BY NEC, PROVIDE ADDITIONAL DISCONNECTING MEANS TO COMPLY WITH NEC 430.102.
- WIRING SIZES ARE BASED ON 60 DEGREE C. FOR AMPACITIES 100 AMPERES AND LESS. FOR FEEDERS LESS THAN 100 FEET IN LENGTH, CONDUCTOR SIZES MAY BE SELECTED BASED ON 75 DEGREE C. WHERE EQUIPMENT INSTALLED IS LABELED FOR 75 DEGREE C. WIRING.

LONGVIEW SCHOOL DISTRICT HVAC
AND INDOOR AIR QUALITY IMPROVEMENTS

2715 LILAC STREET
LONGVIEW, WA 98032

Date:	04/05/23	
Job No.:	22220.00	
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Revisions		
#	Date	Description

LEGEND, NOTES &
ABBREVIATIONS

DISCOVERY HS MECHANICAL EQUIPMENT CONNECTION SCHEDULE																			
NAME	DESCRIPTION	LOCATION	MAXIMUM RATINGS					[CU] FEEDER	CIRCUIT#	DISCONNECT	CONTROLS						REMARKS		
			HP	KVA	FLA	MCA	MOCP	VOLT/PH			#12 EACH PHASE + NEUTRAL +GND, UNO.	BY	DESCRIPTION	STARTER BY DESCRIPTION	SC	PB		TC	T- STAT
DOAS-1	DOAS ENERGY RECOVERY	SW SCHOOL		1.75	8.4	10.40	15	208	1		•							REQUIRES 2 ELECTRICAL CONNECTIONS	
DOAS-2	DOAS ENERGY RECOVERY	NW SCHOOL		1.75	8.4	10.40	15	208	1		•								
DOAS-3	DOAS ENERGY RECOVERY	CENTRAL SCHOOL		0.87	4.2	5.20	15	208	1		•								
DOAS-4	DOAS ENERGY RECOVERY	SE SCHOOL		0.87	4.2	5.20	15	208	1		•								
DOAS-5	DOAS ENERGY RECOVERY	NE SCHOOL		0.87	4.2	5.20	15	208	1		•								
HP-1	OUTDOOR HEAT PUMP	OUTDOOR	30.20	(2) 42.4	(2) 53	(2) 60	208	3	(2) 1°C - 3#8CU + #10G		•								
BC-1	BRANCH CONTROLLER	ATTIC		0.78	0.97	15	208	1			•								
BC-2	BRANCH CONTROLLER	ATTIC		0.41	0.51	15	208	1			•								
HP-1A	INDOOR HEAT PUMP	ROOM 1		0.08	0.40	0.50	15	208	1		•								
HP-1B	INDOOR HEAT PUMP	ROOM 1		0.08	0.40	0.50	15	208	1		•								
HP-3	INDOOR HEAT PUMP	ROOM 3		0.08	0.40	0.50	15	208	1		•								
HP-3B	INDOOR HEAT PUMP	ROOM 3B		0.04	0.19	0.24	15	208	1		•								
HP-6	INDOOR HEAT PUMP	TRUANCY OFFICE		0.35	1.70	2.13	15	208	1		•								
HP-5A	INDOOR HEAT PUMP	ROOM 5		0.10	0.48	0.60	15	208	1		•								
HP-5B	INDOOR HEAT PUMP	ROOM 5		0.08	0.40	0.50	15	208	1		•								
HP-11A	INDOOR HEAT PUMP	ROOM 11		0.08	0.40	0.50	15	208	1		•								
HP-11B	INDOOR HEAT PUMP	ROOM 11		0.08	0.40	0.50	15	208	1		•								
HP-13	INDOOR HEAT PUMP	ROOM 13		0.04	0.19	0.24	15	208	1		•								
HP-15	INDOOR HEAT PUMP	ROOM 15		0.04	0.21	0.26	15	208	1		•								
HP-16A	INDOOR HEAT PUMP	ROOM 16		0.04	0.19	0.24	15	208	1		•								
HP-16B	INDOOR HEAT PUMP	ROOM 16		0.04	0.19	0.24	15	208	1		•								
HP-17	INDOOR HEAT PUMP	ROOM 17		0.04	0.19	0.24	15	208	1		•								
HP-18	INDOOR HEAT PUMP	ROOM 18		0.04	0.19	0.24	15	208	1		•								
HP-19	INDOOR HEAT PUMP	ROOM 19		0.04	0.19	0.24	15	208	1		•								
HP-21A	INDOOR HEAT PUMP	ROOM 21		0.08	0.40	0.50	15	208	1		•								
HP-21B	INDOOR HEAT PUMP	ROOM 21		0.08	0.40	0.50	15	208	1		•								
HP-22A	INDOOR HEAT PUMP	ROOM 22		0.08	0.40	0.50	15	208	1		•								
HP-22B	INDOOR HEAT PUMP	ROOM 22		0.08	0.40	0.50	15	208	1		•								
HP-23	INDOOR HEAT PUMP	COORDOOR		0.08	0.40	0.50	15	208	1		•								
HP-24	INDOOR HEAT PUMP	ROOM 14		0.08	0.40	0.50	15	208	1		•								
HP-25	INDOOR HEAT PUMP	ROOM 15		0.08	0.40	0.50	15	208	1		•								
EH-1	ELECTRIC HEATER	ENTRYWAY		1.50	12.5	15.63	20	120	1		•								
EH-2	ELECTRIC HEATER	STORAGE 22A		1.50	12.5	15.63	20	120	1		•								
EF-1	EXHAUST FAN	RESTROOM		0.02	1.0	1.25	15	120	1		•								
EF-2	EXHAUST FAN	RESTROOM		0.02	1.0	1.25	15	120	1		•								

EQUIPMENT CONNECTION SCHEDULE NOTES:

1. VERIFY VOLTAGE, PHASE, FLA/MCA OF EACH CONNECTION WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN. NOTIFY ARCHITECT/ENGINEER WHEN SCHEDULED SUPPLY WILL NOT MEET NEC REQUIREMENTS.

2. OUTLETS, DISCONNECTS, CONTROLLERS, AND EQUIPMENT CONNECTIONS FOR ROOF TOP AND OTHER OUTDOOR EQUIPMENT SHALL BE WEATHER PROOF.

3. LOCATION OF OUTLETS, DISCONNECTS, CONTROL DEVICES, AND EQUIPMENT CONNECTIONS ARE DIAGRAMMATIC AND TO BE LOCATED IN FIELD BY THE CONTRACTOR AS APPROVED BY THE ENGINEER. UNLESS OTHERWISE INDICATED ON PLANS, INSTALL SCHEDULED DISCONNECTS AND CONTROL DEVICES IN SIGHT OF EQUIPMENT. ARRANGE WIRING AND EQUIPMENT TO AVOID INTERFERENCE WITH OTHER WORK AND TO MAXIMIZE ACCESSIBILITY FOR MAINTENANCE AND REPAIRS.

4. COORDINATE WITH THE OTHER INSTALLING CONTRACTORS TO ENSURE NEC REQUIRED ACCESS TO DISCONNECTS IS PROVIDED FOR EACH PIECE OF EQUIPMENT.

5. PROVIDE SMOKE DUCT DETECTORS IN HEATING AND COOLING SYSTEMS PER INTERNATIONAL MECHANICAL CODE. SEE DIVISION 25 EQUIPMENT SCHEDULES FOR ADDITIONAL UNITS RATED OVER 2000 CFM AND PROVIDE DUCT DETECTOR AS REQUIRED.

6. WIRING BETWEEN EQUIPMENT DISCONNECT AND POINT OF CONNECTION SHALL COMPLY WITH NEC BASED ON EQUIPMENT NAMEPLATE RATING EXCEPT MINIMUM BRANCH CIRCUIT RATING SHALL BE 20 AMPERES.

7. SIZE OF DISCONNECT SWITCH AND MOTOR STARTER SHALL BE SIZED TO COMPLY WITH NEC REQUIREMENTS. WHERE INDICATED MOTOR CONTROL IS NOT LOCATED IN SIGHT OF MOTOR AS DEFINED BY NEC, PROVIDE ADDITIONAL DISCONNECTING MEANS TO COMPLY WITH NEC 430.102.

8. WIRING SIZES ARE BASED ON 60 DEGREE C. FOR AMPACITIES 100 AMPERES AND LESS. FOR FEEDERS LESS THAN 100 FEET IN LENGTH, CONDUCTOR SIZES MAY BE SELECTED BASED ON 75 DEGREE C. WHERE EQUIPMENT INSTALLED IS LABELED FOR 75 DEGREE C. WIRING.

9. SCHEDULE LEGEND: • = FURNISH AND INSTALL NEW UNDER DIVISION 26
 ○ = INSTALL UNDER DIVISION 26; FURNISHED WITH EQUIPMENT OR BY OTHERS.
 X = FURNISH AND INSTALL BY OTHERS (NOT DIVISION 26)
 + = EXISTING, RELOCATED EQUIPMENT

RA LONG HS MECHANICAL EQUIPMENT CONNECTION SCHEDULE										
NAME	DESCRIPTION	LOCATION	MAXIMUM RATINGS					(CU) FEEDER		REMARKS
			HP	KVA	FLA	MCA	MOCP	VOLT/PH	#12 EACH PHASE + NEUTRAL + GND. UNO.	
HJU-1	HEAT RECOVERY UNIT	SCIENCE BUILDING ROOF	10		46.7	56.4	60	208	3	1" C - 3#6CU + #10G
UV-1	UNIT VENTILATOR	SCIENCE 130	1/4		5.8	7.3	15	115	1	
UV-2	UNIT VENTILATOR	SCIENCE 131	1/4		5.8	7.3	15	115	1	
UV-3	UNIT VENTILATOR	SCIENCE 132	1/4		5.8	7.3	15	115	1	
UV-4	UNIT VENTILATOR	SCIENCE 133	1/4		5.8	7.3	15	115	1	
UV-5	UNIT VENTILATOR	SCIENCE 135	1/4		5.8	7.3	15	115	1	
UV-6	UNIT VENTILATOR	CLASSROOM 134	1/4		5.8	7.3	15	115	1	
UV-7	UNIT VENTILATOR	CLASSROOM 137	1/4		5.8	7.3	15	115	1	
UV-8	UNIT VENTILATOR	CLASSROOM 138	1/4		5.8	7.3	15	115	1	
UV-9	UNIT VENTILATOR	SCIENCE 138	1/4		5.8	7.3	15	115	1	
UV-10	UNIT VENTILATOR	COMPUTER ROOM 143	1/4		5.8	7.3	15	115	1	
UV-11	UNIT VENTILATOR	WORK ROOM 144	1/4		5.8	7.3	15	115	1	
EF-1	EXHAUST	ELEC ROOM	1/4	0.67	5.8	7.3	15	115	1	
EF-2	EXHAUST	STORAGE	1/4	0.67	5.8	7.3	15	115	1	
EF-3	EXHAUST	CLASSROOM	1/4	0.67	5.8	7.3	15	115	1	

EQUIPMENT CONNECTION SCHEDULE NOTES:

1. VERIFY VOLTAGE, PHASE, FLA/MCA OF EACH CONNECTION WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN. NOTIFY ARCHITECT/ENGINEER WHEN SCHEDULED SUPPLY WILL NOT MEET NEC REQUIREMENTS.

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4. COORDINATE WITH THE OTHER INSTALLING CONTRACTORS TO ENSURE NEC REQUIRED ACCESS TO DISCONNECTS IS PROVIDED FOR EACH PIECE OF EQUIPMENT.

5. PROVIDE SMOKE DUCT DETECTORS IN HEATING AND COOLING SYSTEMS PER INTERNATIONAL MECHANICAL CODE. SEE DIVISION 25 EQUIPMENT SCHEDULES FOR ADDITIONAL UNITS RATED OVER 2000 CFM AND PROVIDE DUCT DETECTOR AS REQUIRED.

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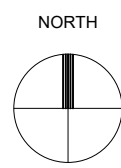
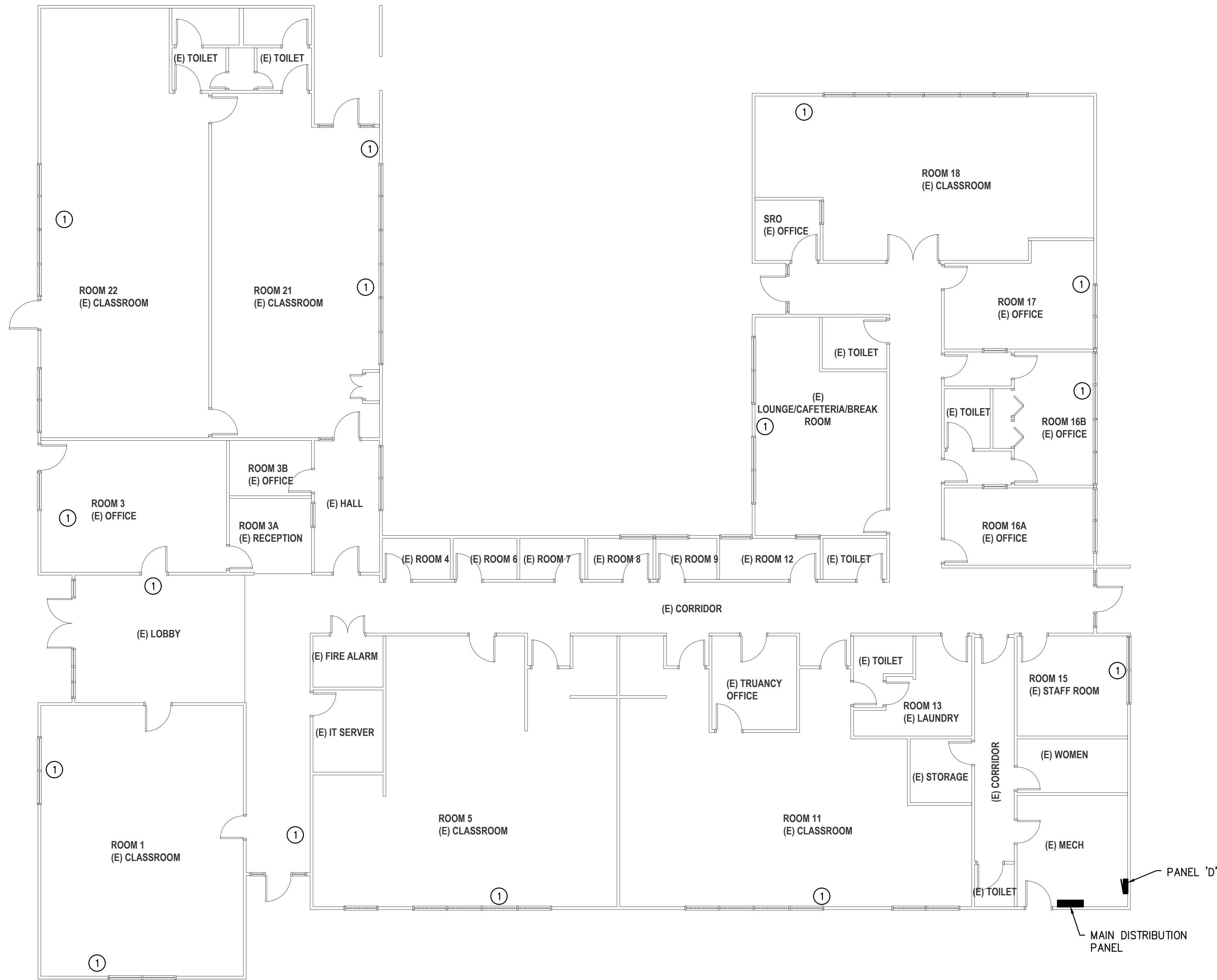
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LONGVIEW SCHOOL DISTRICT HVAC
AND INDOOR AIR QUALITY IMPROVEMENTS

2715 LILAC STREET
LONGVIEW, WA 98632

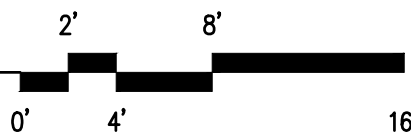
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#	Date Description

MECHANICAL
EQUIPMENT
SCHEDULE



DISCOVERY HIGH SCHOOL - FIRST FLOOR PLAN - ELEC DEMO

SCALE: 1/8" = 1'-0"



GENERAL NOTES:

1. SEE ELECTRICAL NOTES ON SHEET E001.
2. SEE MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND DESCRIPTION.

PLAN NOTES:

- ① REMOVE (E) HVAC UNIT AS INDICATED. REMOVE CONDUCTORS BACK TO SERVING ELECTRICAL PANEL. REMOVE EXPOSED CONDUIT.

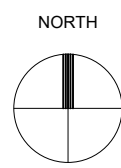
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2715 LILAC STREET
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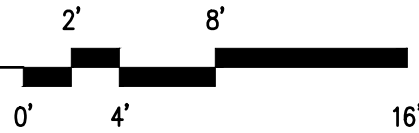
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LEVEL 1 - DISCOVERY
HIGH SCHOOL - ELEC
DEMO PLAN



DISCOVERY HIGH SCHOOL - ATTIC PLAN - ELEC DEMO

SCALE: 1/8" = 1'-0"



GENERAL NOTES:

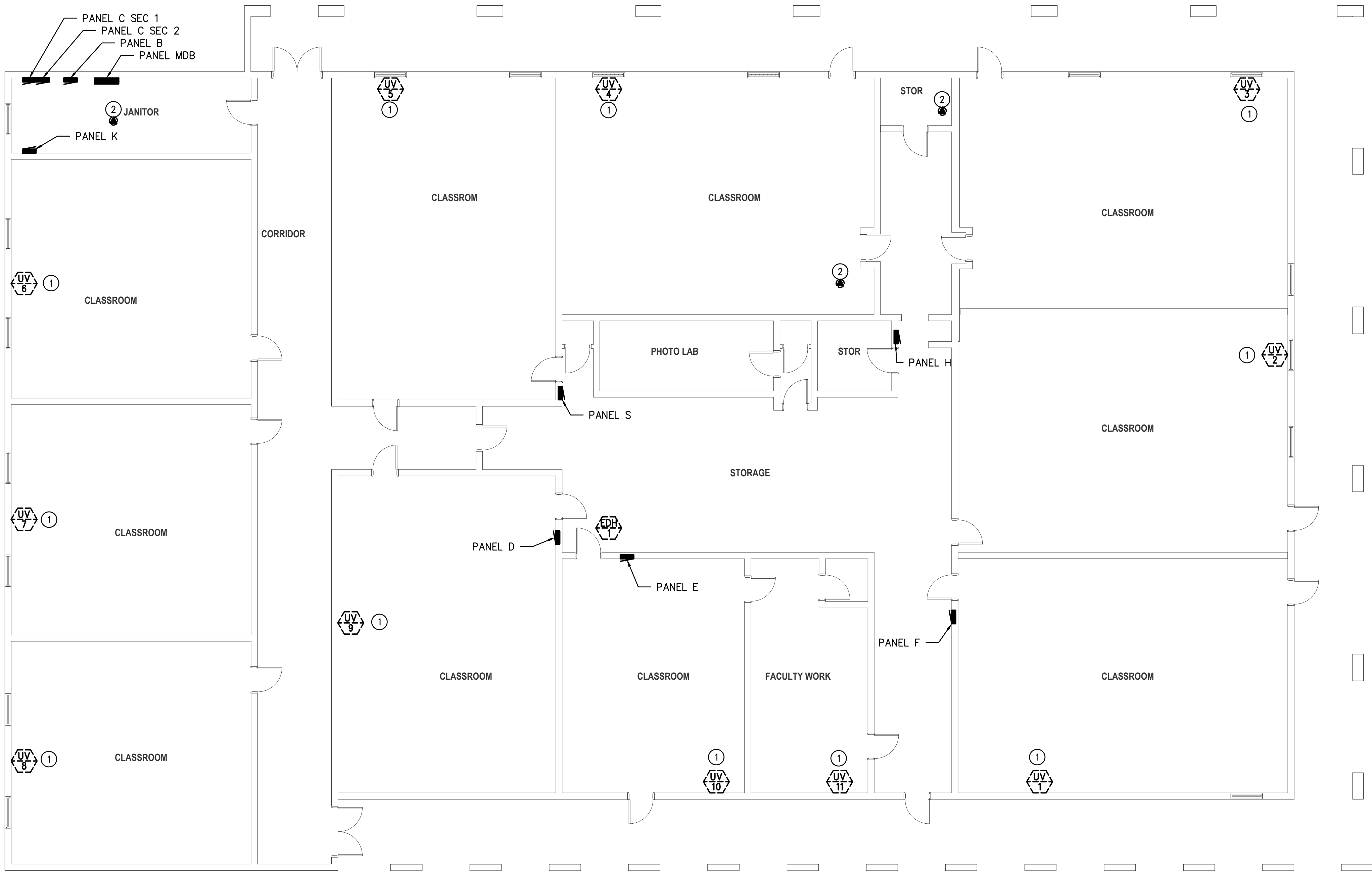
- 1. SEE ELECTRICAL NOTES ON SHEET E001.
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- GENERAL NOTES:
1. SEE ELECTRICAL NOTES ON SHEET E001.
 2. SEE MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND DESCRIPTION.

- ELECTRICAL PLAN NOTES:
- ① REMOVE ELECTRICAL CONNECTION TO EXISTING UNIT VENTILATOR. MAINTAIN CIRCUIT AND CONDUCTORS FOR RE-USE ON NEW EQUIPMENT.
 - ② REMOVE ELECTRICAL CONNECTION TO EXISTING EXHAUST FAN. MAINTAIN CIRCUIT AND CONDUCTORS FOR REUSE ON NEW EQUIPMENT.

RA LONG HIGH SCHOOL - ELEC DEMO PLAN - SCIENCE BUILDING
SCALE: 1/8" = 1'-0"

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general@hultzbhu.com Job Number: 22-189

LONGVIEW SCHOOL DISTRICT HVAC
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2715 LILAC STREET
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RA LONG HIGH
SCHOOL - ELEC
DEMO PLAN -
SCIENCE BUILDING

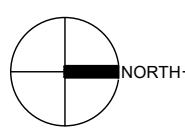
E103

integrus
ARCHITECTURE

117 SOUTH MAIN STREET, SUITE 100, SEATTLE, WA 98104
TELEPHONE: (206) 222-5133 FAX: (206) 222-5138

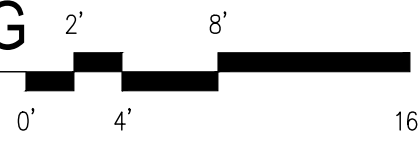
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RA LONG HIGH SCHOOL - ROOF PLAN - DEMO - SCIENCE BUILDING

SCALE: 1/8" = 1'-0"



GENERAL NOTES:

1. SEE ELECTRICAL NOTES ON SHEET E001.
2. SEE MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND DESCRIPTION.

PLAN NOTES:

- ① REMOVE (E) HVAC UNIT AS INDICATED. REMOVE CONDUCTORS BACK TO SERVING ELECTRICAL PANEL. REMOVE EXPOSED CONDUIT.

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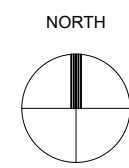
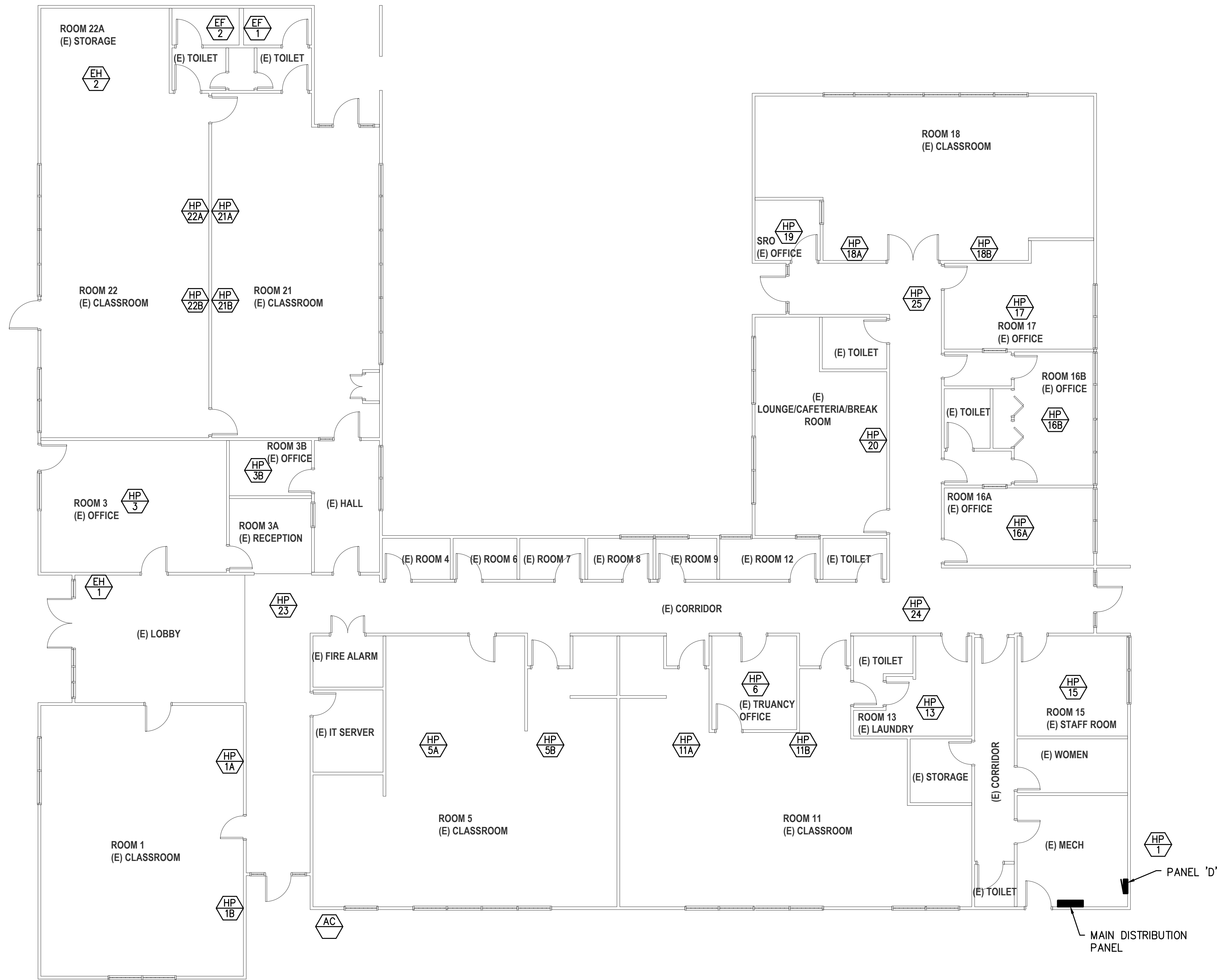
RA LONG HIGH
SCHOOL - ROOF
PLAN - DEMO -
SCIENCE BUILDING

E104

90% SET

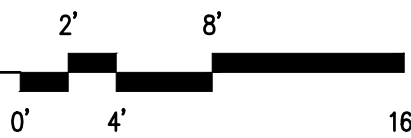
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ARCHITECTURE

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DISCOVERY HIGH SCHOOL - FIRST FLOOR PLAN - ELECTRICAL

SCALE: 1/8" = 1'-0"



GENERAL NOTES:

1. SEE ELECTRICAL NOTES ON SHEET E001.
2. SEE MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND DESCRIPTION.

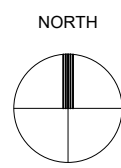
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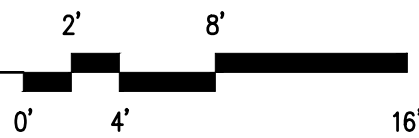
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LEVEL 1 - DISCOVERY
HIGH SCHOOL -
ELECTRICAL PLAN



DISCOVERY HIGH SCHOOL - ATTIC PLAN - ELECTRICAL

SCALE: 1/8" = 1'-0"



GENERAL NOTES:

- 1. SEE ELECTRICAL NOTES ON SHEET E001.
- 2. SEE MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND DESCRIPTION.

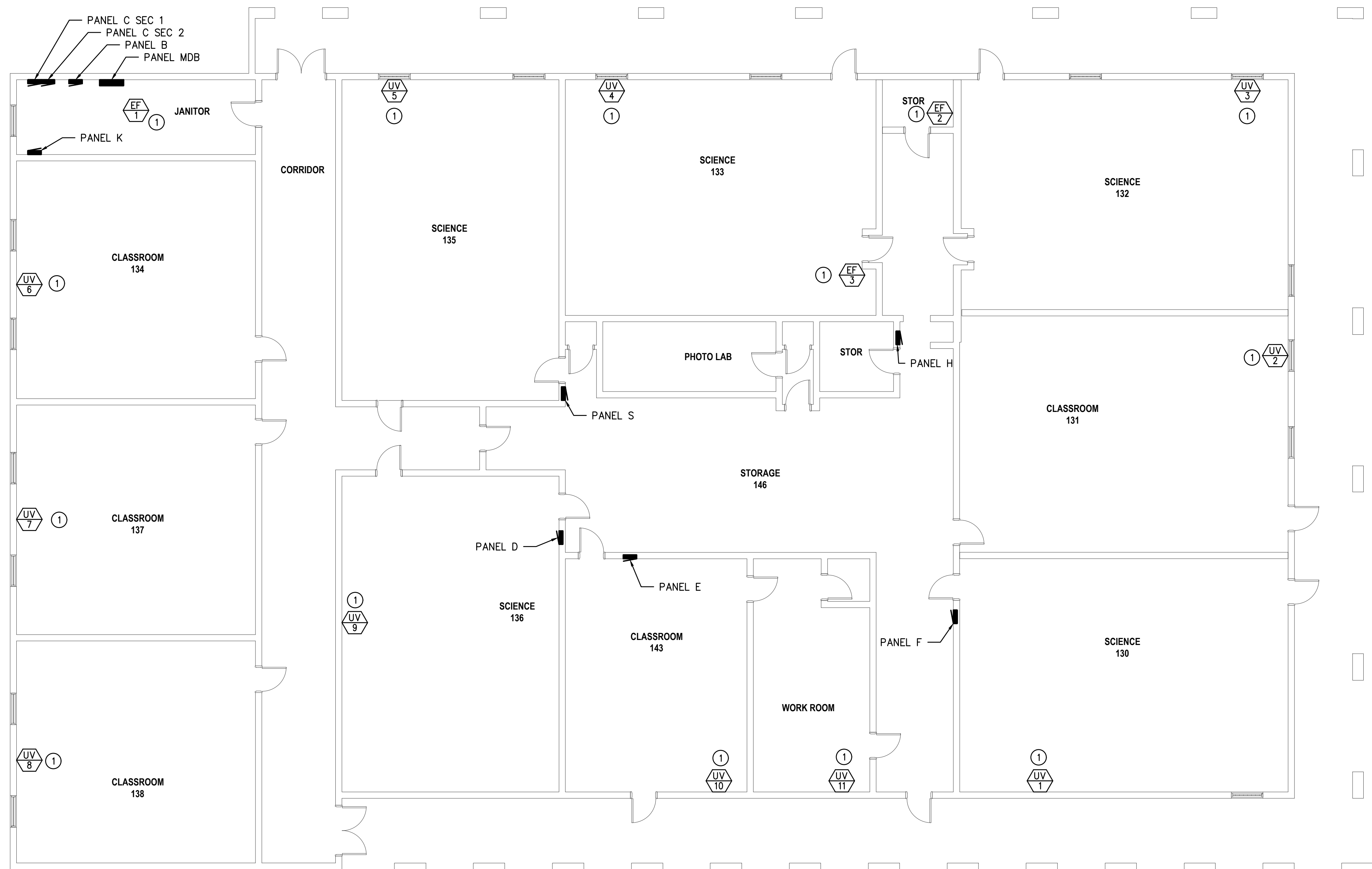
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ATTIC - DISCOVERY
HIGH SCHOOL -
ELECTRICAL PLAN



NORTH
RA LONG HIGH SCHOOL - ELECTRICAL PLAN - SCIENCE BUILDING
SCALE: 1/8" = 1'-0"

- GENERAL NOTES:
- SEE ELECTRICAL NOTES ON SHEET E001.
 - SEE MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND DESCRIPTION.
- PLAN NOTES:
- CONNECT EQUIPMENT REUSING EXISTING CONDUCTORS AND CIRCUIT FROM REMOVED.

LONGVIEW SCHOOL DISTRICT HVAC
AND INDOOR AIR QUALITY IMPROVEMENTS

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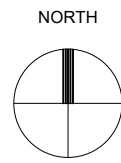
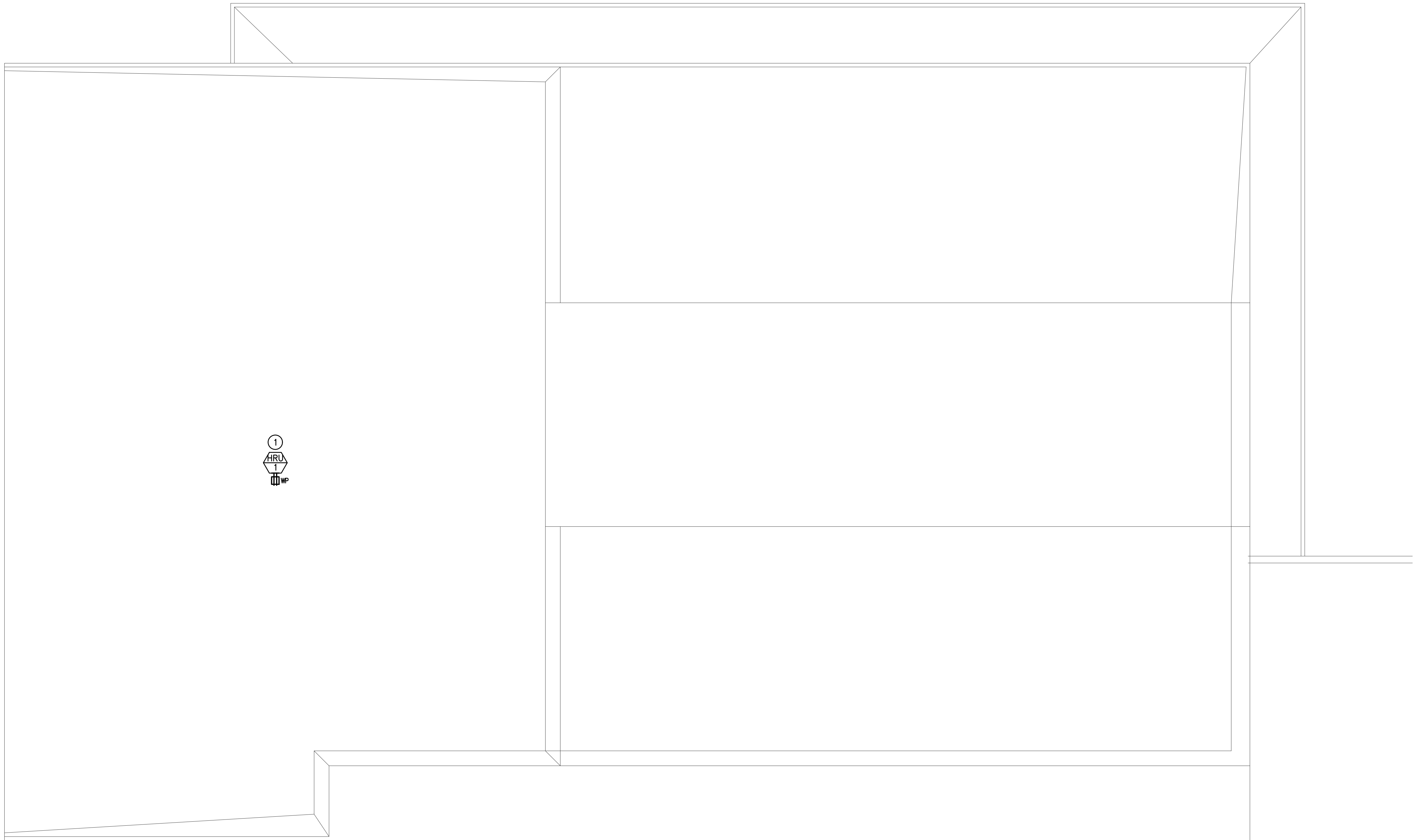
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Job No.:	22220.00	
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Checked by:	PC	
Revisions		
#	Date	Description

RA LONG HIGH
SCHOOL -
ELECTRICAL PLAN -
SCIENCE BUILDING

HULTZ  BHU
engineers inc
1111 Fawcett Ave Suite 100 Tacoma, WA 98402
Phone: (253) 383-3257 Fax: (253) 383-3283
general@hultzbhu.com Job Number: 22-189

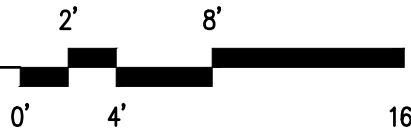
E303

90% SET



RA LONG HIGH SCHOOL - ROOF PLAN - SCIENCE BUILDING

SCALE: 1/8" = 1'-0"



GENERAL NOTES:

1. SEE ELECTRICAL NOTES ON SHEET E001.
2. SEE MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND DESCRIPTION.

PLAN NOTES:

- ① RE-FEED FROM PANEL 'K'. PROVIDE NEW 60A, 3Ø CIRCUIT BREAKER IN PANEL 'K'. CONNECT AS SHOWN ON MECHANICAL EQUIPMENT SCHEDULE.

LONGVIEW SCHOOL DISTRICT HVAC
AND INDOOR AIR QUALITY IMPROVEMENTS

2715 LILAC STREET
LONGVIEW, WA 98632

Date: 04/05/23
Job No.: 22220.00
Drawn By: AD
Checked by: PC

Revisions		
#	Date	Description

RA LONG HIGH
SCHOOL - ROOF PLAN
- SCIENCE BUILDING

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E304

integrus
ARCHITECTURE

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