

CLEVELAND METROPOLITAN SCHOOL DISTRICT

LUIS MUÑOZ MARÍN

ELEMENTARY SCHOOL

AC-5 RTU REPLACEMENT 2020



PROJECT SITE LOCATION – 1701 CASTLE AVENUE, CLEVELAND, OHIO 44113
NO SCALE

PROJECT FORMAT OVERVIEW

EACH DESIGN PROFESSIONAL UTILIZED IN CONTRACTOR'S PROPOSAL HAS THE LIBERTY TO ACT WITH THE OWNER'S BEST INTERESTS IN MIND, BASED ON THE INDIVIDUAL SITUATIONS AND BOUNDARIES PRESENTED BEFORE DESIGN BEGINS AND BASED ON QUALIFIED PROFESSIONAL EXPERIENCE. THE CRITERIA SET FORTH IN THESE SPECIFICATIONS AND DRAWINGS IS INTENDED TO BE A GUIDELINE TO LIMIT THE RISKS OF DISSATISFACTION OVER THE BALANCED TOTAL LIFE OF THIS PROJECT, THE FACILITY AND THE OWNER. GENERAL GOALS ARE TO MAKE THE TASKS ASSOCIATED WITH LONG-TERM OWNING/MANAGING THE FACILITY AS EFFECTIVE AND EFFICIENT AS POSSIBLE, INCLUDING THE LIMITATION OF EQUIPMENT/SERVICE PROVIDERS TO THOSE NOTED AS BEING OWNER-PREFERRED AND/OR LISTED WITHIN THESE SPECIFICATIONS.

PROVIDE MATERIALS FOR COMPLETING MECHANICAL AND ASSOCIATED ELECTRICAL INSTALLATIONS AND OTHER FINISHES ACCORDING TO APPLICATIONS REQUIRED USING INDUSTRY STANDARD MEANS-AND-METHODS AND COMMON BEST PRACTICES.

THESE SCHEMATIC DRAWINGS SHOW INTENDED CONFIGURATION OF EQUIPMENT AND MATERIALS WHERE NOTED ALONG WITH EXISTING CONFIGURATIONS FOR REFERENCE TO NEW WORK AND DEMOLITION SCOPES. COORDINATE REMOVAL OF EXISTING AND INSTALLATION OF NEW EQUIPMENT, FIXTURES AND FURNISHINGS WITH INFRASTRUCTURE ALREADY IN-PLACE. CONTRACTOR IS HIGHLY ENCOURAGED TO FIELD VERIFY ALL COUNTS, MEASUREMENTS, DIMENSIONS AND PATHS. DESIGNS AND WORK SHALL COMPLY WITH APPLICABLE REQUIREMENTS OF NATIONAL, STATE & LOCAL CODES AND BEST PRACTICES.

DRAWING INDEX		
1	T.01	TITLE PAGE, NOTES & DRAWING INDEX
2	M.01	RTU AC-5 DETAILS AND ROOF PLAN
3	M.02	3 RD FLOOR MECHANICAL PLAN AND ZONING
4	A.01	ALT-1 LIGHTING AND CEILING REPLACEMENTS
5	E.01	EXISTING 3 RD FLOOR ELECTRICAL DETAILS
6	E.02	EXISTING SINGLE-LINE DIAGRAM
7	SI.01	SYSTEM ARCHITECTURE
8	SI.02	NEW JACE WIRING DIAGRAM
9	SI.03	NEW VAV CONTROL AND WIRING DIAGRAM

MECHANICAL SYSTEMS – GENERAL NOTES

(APPLIES TO ALL MECHANICAL DRAWINGS)

(1) GENERAL HVAC INTENT:

GENERAL INTENT IS TO DESIGN AND PROPERLY INSTALL A FULLY-FUNCTIONAL AND COMPLIANT HVAC SYSTEM TO CORRESPOND DIRECTLY TO NOTED/DESIGNED UPDATES TO THE BUILDING. IT IS EXPECTED THAT A SYSTEM TO REPLACE THE EXISTING ITEMS WHERE NOTED AS A BASIS-OF-DESIGN AND BE COMPLETELY COORDINATED WITH ACCOMPANYING DOCUMENTED SCOPES OF WORK.

(2) DESIGN CRITERIA:

PROPOSERS SHOULD REFER TO OVERALL SPECIFICATIONS AND ACCOMPANYING OWNER'S PROJECT REQUIREMENTS (OPR) DOCUMENTS PUBLISHED FOR DESIGN INTENT AND GUIDELINES.

(3) DESIGN & CONSTRUCTION COORDINATION:

PROPOSERS TO IDENTIFY AND COORDINATE REMOVALS OF EXISTING EQUIPMENT (REFER TO SHEET KEY NOTES) AND COMPLETE IMPLEMENTATION OF NEW HVAC SYSTEM. THIS COORDINATION/CONSTRUCTION INCLUDES, BUT IS NOT LIMITED TO:

- MAIN HVAC EQUIPMENT (PACKAGED ROOFTOP HVAC AHU, ZONE VARIABLE AIR VOLUME COMPONENTS)
- CENTRAL & LOCAL VENTILATION EQUIPMENT (OUTSIDE AIR, EXHAUST AIR, RELIEF AIR, ETC.)
- SPACE TERMINAL HVAC EQUIPMENT (ELECTRIC REHEAT VAV)
- AUXILIARY HEATING-ONLY EQUIPMENT WHERE APPLICABLE
- EXHAUST FLUES & CONDENSATE DRAINAGE
- INTERFACE TO SYSTEMS INTEGRATION COMPONENTS FOR NEW PACKAGED HVAC CONTROL SYSTEMS
- HVAC ELECTRIC POWER SYSTEMS
- HVAC LOW-VOLTAGE SYSTEM COMPONENTS (UNITARY CONTROLS, INTERFACE TO FIRE ALARM/SECURITY SYSTEMS, ETC.)
- EVALUATION/USE OF SUBSTRATE COMPONENTS IN GOOD CONDITION (ROOFS, CEILING/FLOORS, MISC. SUPPORTS, ETC.)

(4) MAIN EQUIPMENT LOCATIONS – GENERAL NOTES:

COORDINATED WITH ESTABLISHED PROJECT GUIDELINES, PROPERLY DESIGN/LOCATE NEW HVAC EQUIPMENT FOR FUNCTIONALITY, CORRECTIONAL FACILITY SECURITY, ACOUSTICAL PERFORMANCE & SERVICING AND MAKE PREPARATIONS FOR ALL ASSOCIATED WORK REQUIRED BY OVERALL SCOPES OF WORK (POWER, CONTROL, DRAINS, CEILINGS, LIGHTS, ETC.).

- OUTDOOR EQUIPMENT: COORDINATION WITH EXISTING PENETRATIONS, NEW ROOF CURBS AND ROOF WARRANTIES IN-EFFECT.
- INDOOR EQUIPMENT: ABOVE-CEILING, NEW VAV TO MATCH SPACE LAYOUT/FUNCTIONS
- CENTRAL VENTILATION EQUIPMENT – EXISTING MECHANICAL/UTILITY SPACES
- AUXILIARY TERMINAL HEATING EQUIPMENT TO REMAIN AS IS

(5) MECHANICAL PIPING, VENTING & DRAINING:

DESIGN AND PROPERLY INSTALL GAS HEATING SYSTEMS, FITTINGS, VALVES, INSULATION ACCORDING TO MANUFACTURER'S INSTRUCTIONS. INTENT IS NOT TO DISTURB FINISHED SUBSTRATE (ROOF, WALLS, HARD CEILINGS, FLOORS) BEYOND WHAT IS REQUIRED FOR NEW SYSTEM IMPLEMENTATION. PROVIDE CONDENSATE PANS/DRAIN LINES FOR PROPER REMOVAL OF CONDENSATE. PROVIDE APPLIANCE VENTS/FLUES FOR PROPER REMOVAL OF EXHAUST GASES AND PRESSURE RELIEF.

(6) HVAC CONTROLS:

DESIGN AND PROPERLY INSTALL PACKAGED UNITARY CONTROL SYSTEMS AND COMPONENTS AS REQUIRED FOR THE NEW HVAC SYSTEM. EXCEPT FOR VENDOR-DESIGNED PACKAGED SYSTEM OR UNITARY CONTROLS, REFER TO SYSTEMS ARCHITECTURE DIAGRAMS AND FLOOR PLANS FOR SCOPE DESCRIPTIONS. REFER TO INTEGRATION ONLY INSTRUCTIONS ON 'SI' DRAWING SHEETS.

(7) HVAC-RELATED POWER SYSTEMS:

DESIGN AND PROPERLY INSTALL ELECTRIC POWER SYSTEMS REQUIRED TO SERVICE NEW HVAC SYSTEMS. COORDINATE SCOPES OF WORK WITH MAIN POWER SYSTEMS/EQUIPMENT UPGRADES (SIZING, LOCATION, DISTRIBUTION PANELS, ETC.) – REFER TO MAIN ELECTRICAL SYSTEMS SCOPE NOTES.

(8) AS-BUILTS:

EXPECTATION IS TO DELIVER THE OWNER A COMPLETE PROJECT AS-BUILT DRAWING SET INCLUDING EQUIPMENT SCHEDULES, FLOOR LAYOUTS, ELECTRICAL RECIRCUITING, HVAC PIPE & DUCT PATHS AND SIZES, ZONING LAYOUTS, THERMOSTAT LOCATIONS, ETC.

MAIN ELECTRICAL SYSTEMS – GENERAL NOTES

(APPLIES TO ALL ELECTRICAL DRAWINGS)

(1) GENERAL ELECTRICAL INTENT:

GENERAL INTENT IS TO DESIGN AND INSTALL A FULLY-FUNCTIONAL AND COMPLIANT ELECTRICAL POWER SYSTEM (EQUIPMENT AND DISTRIBUTION) TO CORRESPOND DIRECTLY TO NOTED/DESIGNED UPDATES TO THE BUILDINGS.

(2) DESIGN CRITERIA:

PROPOSERS SHOULD REFER TO OVERALL SPECIFICATIONS AND ACCOMPANYING OWNER'S PROJECT REQUIREMENT (OPR) DOCUMENTS PUBLISHED FOR DESIGN INTENT AND GUIDELINES.

(3) DESIGN & CONSTRUCTION COORDINATION:

PROPOSERS TO IDENTIFY AND COORDINATE REMOVALS OF EXISTING EQUIPMENT (REFER TO DEMOLITION NOTES) AND COMPLETE IMPLEMENTATION OF UPDATES TO THE ELECTRICAL POWER SYSTEM, AS NEEDED. THIS COORDINATION/ CONSTRUCTION INCLUDES, BUT IS NOT LIMITED TO:

- MAIN SWITCHGEAR & SUB-TRANSFORMER EQUIPMENT
- DISTRIBUTION PANELS (HVAC POWER, LIGHTING/LIGHTING CONTROL PANELS, RECEPTACLE PANELS, INCLUDING RE- WORKS OF LEGACY PANELS AS REQUIRED, ETC.)
- SPECIALTY ELECTRICAL SYSTEMS (INFORMATION TECHNOLOGY SERVER ROOM POWER, ELEVATOR MACHINE ROOMS, ETC.)
- PROCESS ELECTRICAL SYSTEMS (KITCHENS, ELEVATOR MACHINE ROOMS, ETC.)
- LOW-VOLTAGE ELECTRICAL SYSTEMS (FIRE-ALARM/DESIGN-BUILD, SECURITY INFRASTRUCTURE (HEAD-END POWER, DOORS, ETC.)
- INTERFACE TO SYSTEMS INTEGRATION COMPONENTS (POWER/COMMUNICATION FOR POWER MONITORING, UTILITY METERS, DISTRIBUTED CONTROLLERS – REFER TO SCOPE DESCRIPTIONS FOR WORK BY AGM ENERGY SYSTEMS)
- EVALUATION/USE OF SUBSTRATE COMPONENTS IN GOOD CONDITION (ROOFS, CEILING/FLOORS, MISC. SUPPORTS, ETC.).

(4) MAIN EQUIPMENT LOCATIONS – GENERAL NOTES:

COORDINATED WITH ESTABLISHED PROJECT GUIDELINES, PROPERLY DESIGN/LOCATE NEW MAIN ELECTRICAL EQUIPMENT FOR FUNCTIONALITY, SAFETY & SERVICING AND MAKE PREPARATIONS FOR ALL ASSOCIATED WORK REQUIRED BY OVERALL SCOPES OF WORK (PANELS, EQUIPMENT, CONTROLS, WALLS, CEILINGS, FLOORS, ETC.).

- OUTDOOR EQUIPMENT: ROOF, WEATHERPROOFED FOR EXTERIOR APPLICATION
- INDOOR EQUIPMENT: IN EXISTING ACCESSIBLE/SERVICEABLE UTILITY ROOMS.
- INDOOR PANEL/LOAD CENTER/LIGHTING CONTROL EQUIPMENT – EXISTING MECHANICAL/UTILITY SPACES AND EXISTING WALL LOCATIONS PREFERRED, SELECTED/CONSTRUCTED FOR HEAVY-DUTY ENVIRONMENTS.

(5) MAIN ELECTRIC RACEWAYS:

DESIGN AND PROPERLY INSTALL MAIN ELECTRIC POWER FEEDS, RACEWAYS AND CABLES WITH INSULATION/ACCESS ACCORDING TO USUAL & CUSTOMARY METHODS AND PERTINENT REGULATIONS. INTENT IS NOT TO DISTURB FINISHED SUBSTRATE (WALLS, HARD CEILINGS, FLOORS) BEYOND WHAT IS REQUIRED FOR NEW SYSTEM IMPLEMENTATION.

(6) HVAC-RELATED POWER SYSTEMS:

DESIGN AND PROPERLY INSTALL ELECTRIC POWER SYSTEMS REQUIRED TO SERVICE NEW HVAC SYSTEMS. COORDINATE SCOPES OF WORK WITH MAIN POWER SYSTEMS/EQUIPMENT UPGRADES (SIZING, LOCATION, DISTRIBUTION PANELS, ETC.).

(7) EXISTING ELECTRICAL LIGHTING/EMERGENCY LIGHTING SYSTEMS:

(ALT-1) DESIGN AND PROPERLY INSTALL NEW MAIN INTERIOR LIGHTING/EMERGENCY LIGHTING SYSTEMS, PANELS, CONDUIT, WIRING, ETC. MAKING AESTHETICALLY-ACCEPTABLE CHOICES AT ALL LOCATIONS WHERE NEW WORK MEETS THE EXISTING FINISHED SUBSTRATE (WALLS, HARD CEILINGS, FLOORS).

(8) AS-BUILTS:

EXPECTATION IS TO DELIVER THE OWNER AN ELECTRICAL AS-BUILT DRAWING SET INCLUDING PANEL SCHEDULES, FLOOR LAYOUTS,, REFLECTED CEILING PLAN AND FIXTURE CIRCUITING, REVISED ONE-LINE DIAGRAM, ETC.

PROJECT TITLE:
CLEVELAND METROPOLITAN SCHOOL DISTRICT:
LUIS MUÑOZ MARÍN
ELEMNETARY SCHOOL
AC-5 RTU REPLACEMENT 2020



DRAWING TITLE:
TITLE PAGE,
NOTES &
DRAWING INDEX

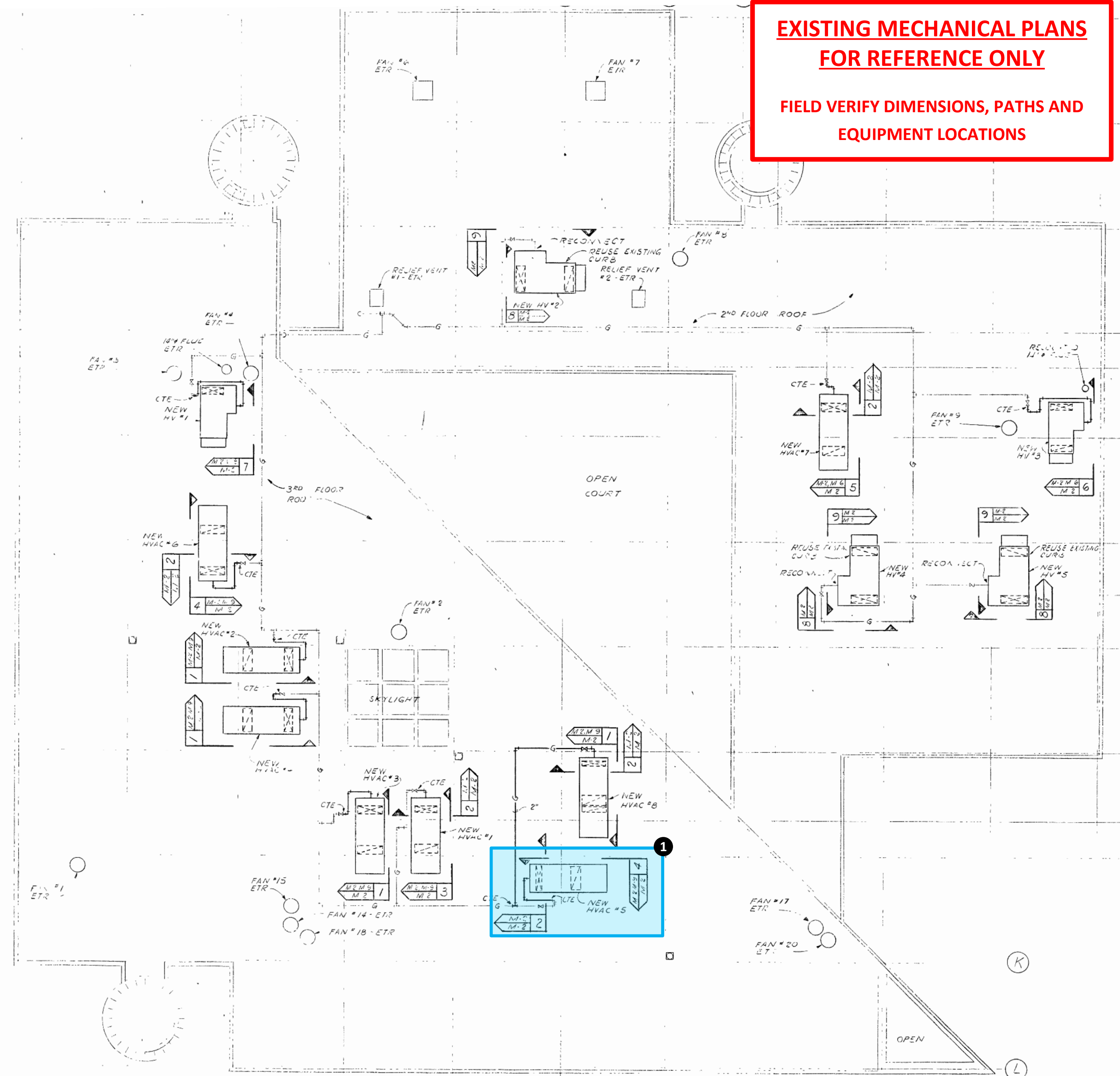
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PAGE: 1 of 9

PROJECT NUMBER: 80753
DATE DRAWN: 10/9/2019
BY: RDM
REVISION # 1 FOR PROPOSAL
DATE 6/23/20
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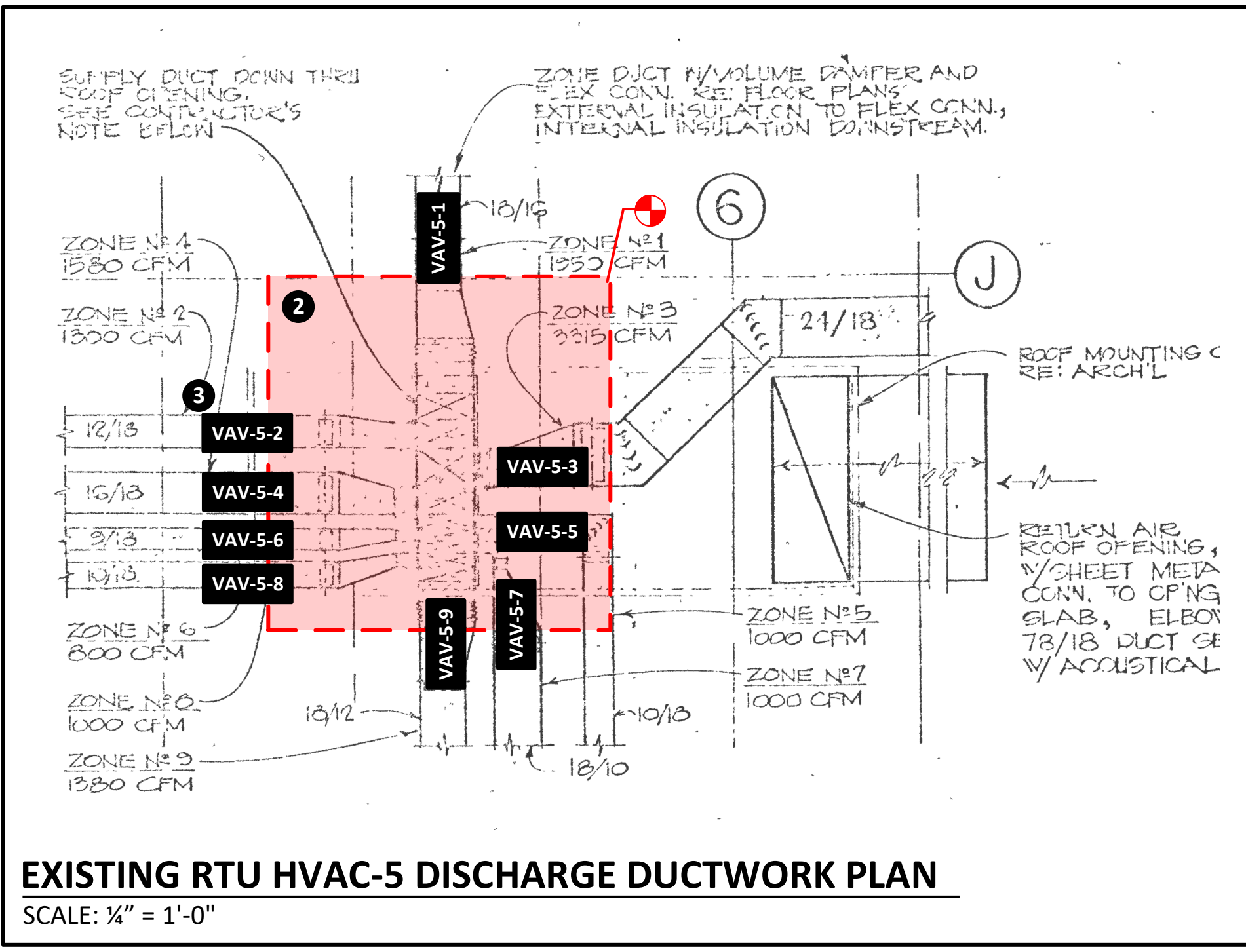
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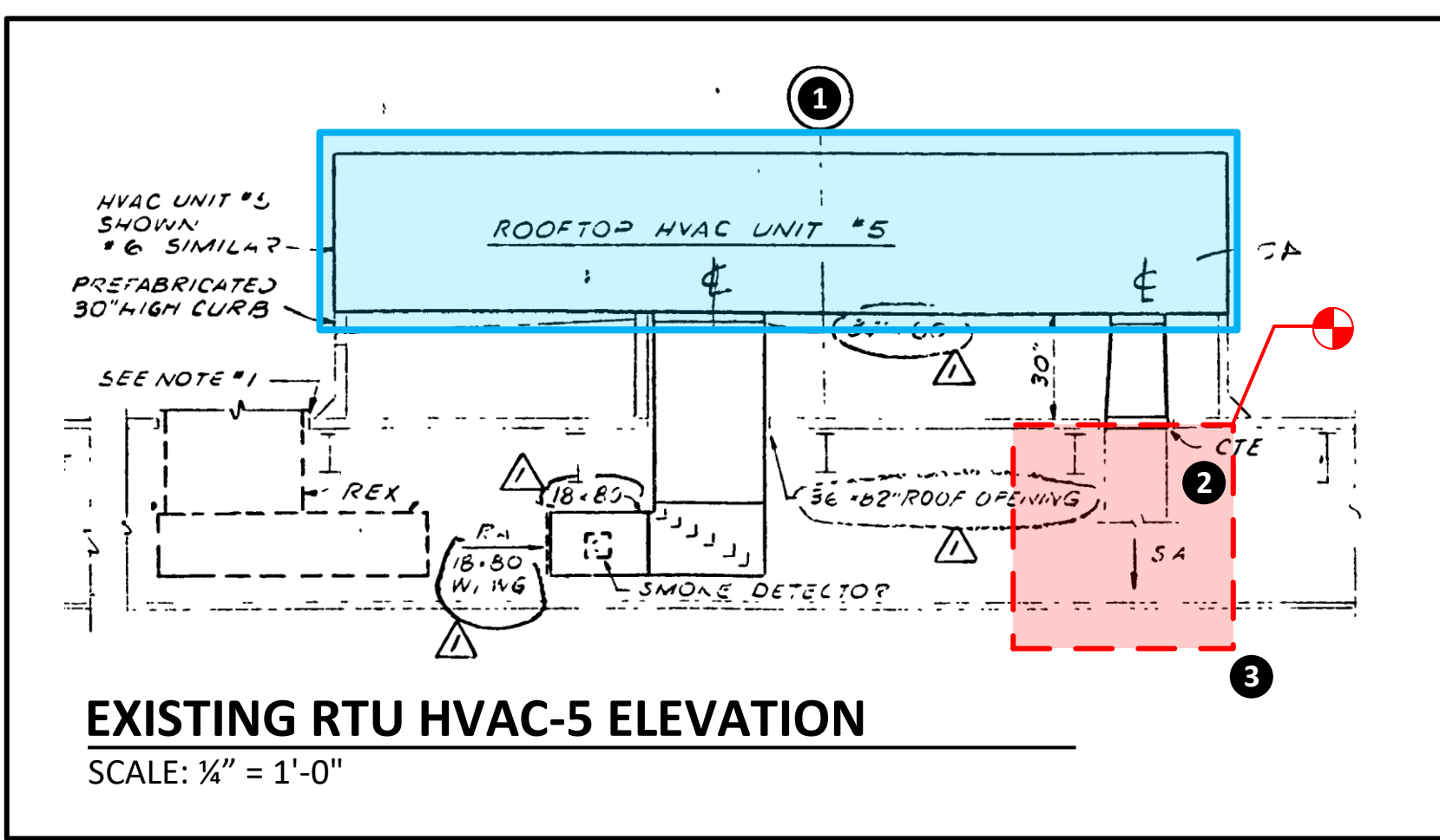
EXISTING MECHANICAL ROOF PLAN
SCALE: 1/16" = 1'-0"

**EXISTING MECHANICAL PLANS
FOR REFERENCE ONLY**

**FIELD VERIFY DIMENSIONS, PATHS AND
EQUIPMENT LOCATIONS**



EXISTING RTU HVAC-5 DISCHARGE DUCTWORK PLAN
SCALE: 1/4" = 1'-0"



EXISTING RTU HVAC-5 ELEVATION
SCALE: 1/4" = 1'-0"

Legend for drawing elements:

- BASE SCOPE
- ALTERNATE
- DEMO/REWORK

- SHEET KEYNOTES:**
- PROVIDE AND INSTALL NEW VARIABLE AIR VOLUME ROOFTOP AIR HANDLING UNIT (AC-5). DEMOLISH EXISTING UNIT AND SYSTEMS NOT-TO-REMAIN. INTENT IS TO REUSE AS MUCH EXISTING DUCTWORK AS POSSIBLE. COORDINATE SIZING AND PROVISION OF NEW MATCHING ROOF CURB.
 - REWORK EXISTING SUPPLY AIR MAIN DISTRIBUTION TRUNK DUCTWORK FOR NEW VARIABLE AIR VOLUME TERMINALS.
 - SIZE, PROVIDE AND INSTALL NEW VARIABLE AIR VOLUME TERMINALS, WITH ELECTRIC REHEAT, OFF THE MAIN DUCT DISTRIBUTION BELOW NEW HVAC-5 UNIT.

- MECHANICAL NEW WORK GENERAL NOTES:**
- INSTALL ALL NEW EQUIPMENT AND ASSOCIATED DEVICES PER MANUFACTURER'S RECOMMENDATIONS, MAINTAINING REQUIRED CLEARANCES.
 - PROVIDE ALL HANGERS, SUPPORTS AND MISCELLANEOUS COMPONENTS REQUIRED FOR A COMPLETE INSTALLATION.
 - REFER TO SHEET M.02 FOR ADDITIONAL GENERAL MECHANICAL AND VAV INSTALLATION NOTES AND DETAILS.

- ELECTRICAL WORK GENERAL NOTES:**
- DISCONNECT AND MAKE SAFE EXISTING ELECTRICAL FEEDS TO EQUIPMENT OR DEVICES PRIOR TO WORK.
 - THE PROPOSER IS RESPONSIBLE FOR DESIGNING AND IMPLEMENTING ANY ELECTRICAL SYSTEM MODIFICATIONS REQUIRED FOR POWERING HVAC EQUIPMENT AND SYSTEM CONTROLS.
 - WHILE THE PROVIDED EXISTING MECHANICAL PLAN BACKGROUNDS ARE BELIEVED TO BE ACCURATE, THE PROPOSER IS TO FIELD VERIFY DEPICTED ELECTRICAL INFRASTRUCTURE FOR ACCURACY.
 - ELECTRICAL INSTALLATIONS AND MODIFICATIONS ARE TO BE ACCOMPLISHED UTILIZING INDUSTRY-STANDARD MEANS/METHODS AND IN ACCORDANCE WITH LOCAL AND NATIONAL ELECTRIC CODES.

HVAC-5 VAV SCHEDULE		
TAG	CFM	SIZE
VAV-5-01	2050	VERIFY
VAV-5-02	1300	VERIFY
VAV-5-03	3315	VERIFY
VAV-5-04	1655	VERIFY
VAV-5-05	1000	VERIFY
VAV-5-06	800	VERIFY
VAV-5-07	1000	VERIFY
VAV-5-08	1000	VERIFY
VAV-5-09	1380	VERIFY

ROOF TOP UNIT SCHEDULE																																										
SUPPLY FAN PERFORMANCE				RETURN FAN PERFORMANCE				AIR FLOW				REGENERATION CAPACITY				ELECTRICAL CHARACTERISTICS				ZONE AIR QUANTITIES				HEIGHT METERS																		
UNIT MARK	AREA SQ. FT.	TOTAL CFM	EFFICIENCY %	TYPE	CFM	EFFICIENCY %	TYPE	ENT. CFM	ENT. SF	ENT. SF	TOTAL MBH	SENS. MBH	ENT. ARE SQ. FT.	ENT. ARE SQ. FT.	ENT. ARE SQ. FT.	ENT. ARE SQ. FT.	ENT. ARE SQ. FT.	ENT. ARE SQ. FT.	ENT. ARE SQ. FT.	ENT. ARE SQ. FT.																						
HVAC#1	1ST FLOOR NORTH	4,500	20%	1.0	---	---	---	450	60	102	175	215	80.0	67.0	54.0	56.1	89.0	10	76.3	460	3 ^φ	12	HVAC#1	500	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	RVA-230						
HVAC#2	1ST FLOOR SOUTH	13,500	---	0.8	CENT.	8100	0.4	682	80	104	341	278	---	---	61.9	60.3	---	---	15	3	100.9	---	7	HVAC#2	1200	1000	1200	1300	1400	1500	1600	1700	1800	1900	2000	RVA-300						
HVAC#3	2ND FLOOR NORTH	13,500	---	0.6	---	---	---	---	---	---	298	263	---	---	61.9	60.3	---	---	---	---	---	---	11	HVAC#3	1100	900	1300	1000	1000	1500	1200	800	600	3310	800	RVA-250						
HVAC#4	2ND FLOOR SOUTH	13,500	---	0.6	---	---	---	---	---	---	---	263	---	---	61.9	60.3	---	---	---	---	---	---	8	HVAC#4	1000	1200	1260	1200	1000	800	4760	4760	---	---	---	---	---	---	---	---	---	
HVAC#5	3RD FLOOR NORTH	13,500	---	0.4	---	---	---	---	---	---	---	263	---	---	61.9	60.3	---	---	---	---	---	---	9	HVAC#5	2050	1300	3315	1655	1000	800	1000	1000	1500	---	---	---	---	---	---	---	---	---
HVAC#6	3RD FLOOR SOUTH	13,500	---	0.4	---	---	---	---	---	---	---	263	---	---	61.9	60.3	---	---	---	---	---	---	10	HVAC#6	1000	1000	900	1000	1300	1100	900	1000	1500	1650	---	---	---	---	---	---	---	
HVAC#7	MUSIC DEPT KITCHEN HEAD	13,500	20%	0.4	CENT.	8100	0.4	682	80	104	298	263	80.0	67.0	61.9	60.3	89.0	15	3	91.9	---	6	HVAC#7	4500	4170	915	1465	935	1425	---	---	---	---	---	---	---	---	---	---	---	RVA-230	
HV #1	LOCKER ROOMS	4,500	100%	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	HV #1	---	---	---	---	---	---	---	---	---	---	---	---	---	RSH-15M				
HV #2	GYM	20,000	50%	---	CENT.	10000	0.6	975	45	82.6	---	---	---	---	---	---	---	---	---	---	---	---	HV #2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	RSH-20M				
HV #3	GYM	4,500	60%	---	CENT.	7600	0.4	682	60	104	---	---	---	---	---	---	---	---	---	---	---	---	HV #3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	RCH-15M			
HV #4	GYM	20,000	20%	---	CENT.	18000	0.6	975	60	104	---	---	---	---	---	---	---	---	---	---	---	---	HV #4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	REH-20M		
HV #5	GYM	20,000	20%	---	CENT.	18000	0.6	975	60	104	---	---	---	---	---	---	---	---	---	---	---	---	HV #5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	REH-20M		

EXISTING RTU SCHEDULE
NO SCALE



ROOFTOP UNIT AC-5

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1701 Castle Ave.
Cleveland, OH 44113



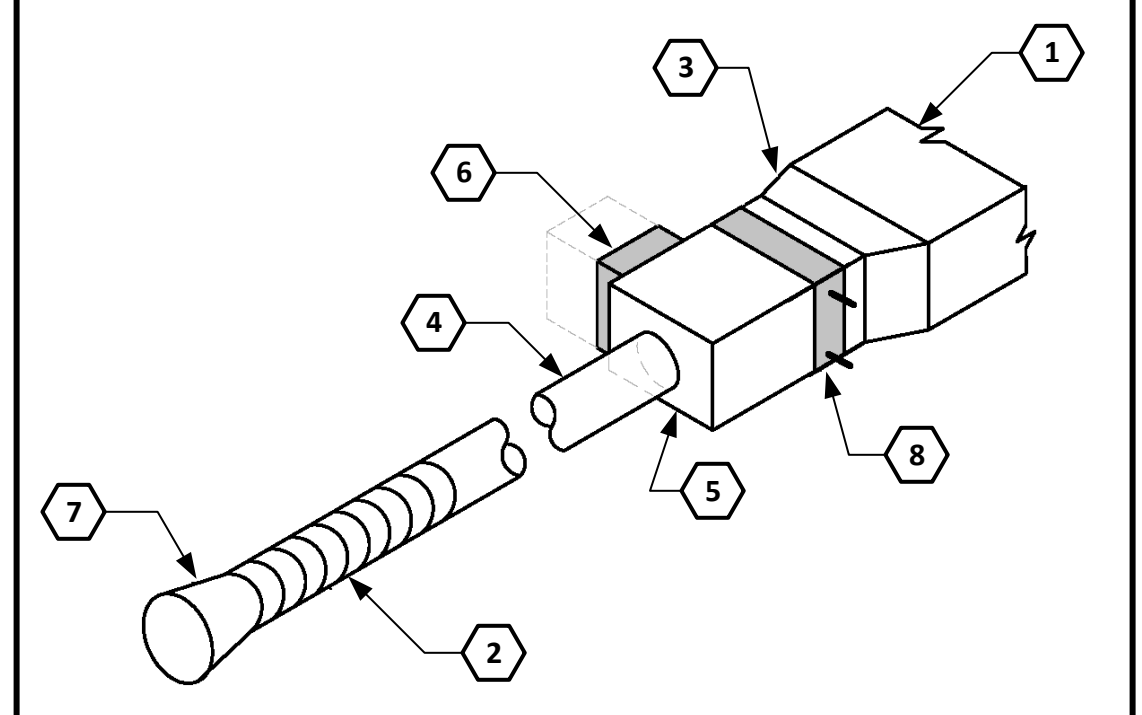
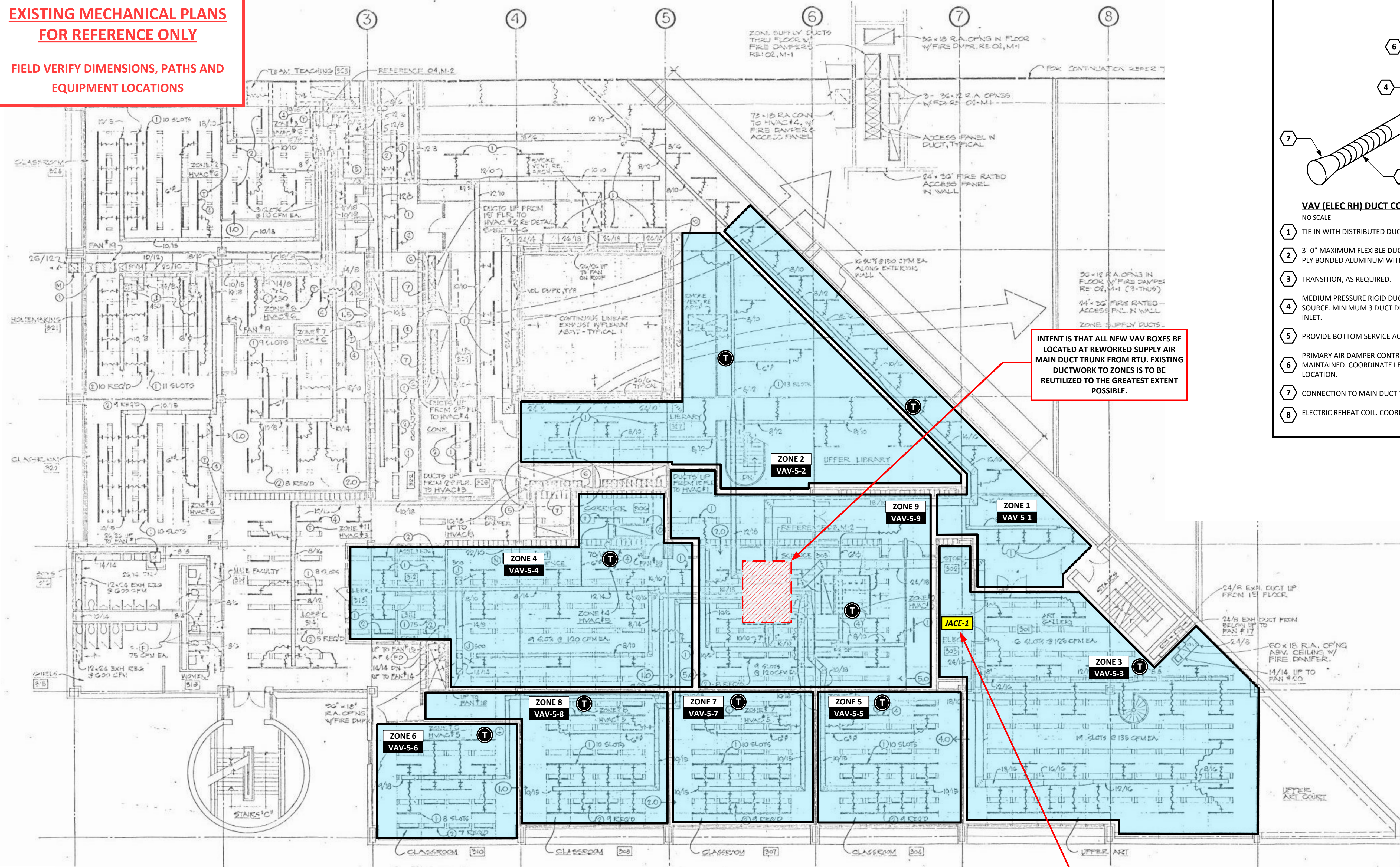
DRAWING TITLE:
**RTU AC-5 DETAILS
AND ROOF PLAN**

DRAWING NUMBER:

M.01

**EXISTING MECHANICAL PLANS
FOR REFERENCE ONLY**

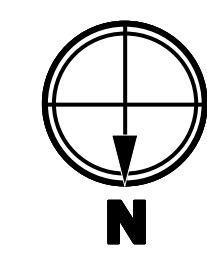
**FIELD VERIFY DIMENSIONS, PATHS AND
EQUIPMENT LOCATIONS**



- VAV (ELEC RH) DUCT CONNECTION DETAIL**
NO SCALE
- 1 TIE IN WITH DISTRIBUTED DUCT TRUNK. FIELD VERIFY LOCATION.
 - 2 3'-0" MAXIMUM FLEXIBLE DUCTWORK SIMILAR TO CLEVAFLEX TYPE 12FV (TWO-PLY BONDED ALUMINUM WITH JACKET AND INSULATION).
 - 3 TRANSITION, AS REQUIRED.
 - 4 MEDIUM PRESSURE RIGID DUCTWORK CONNECTION FROM PRIMARY AIR SOURCE. MINIMUM 3 DUCT DIAMETERS OF STRAIGHT SHEET METAL DUCT AT VAV INLET.
 - 5 PROVIDE BOTTOM SERVICE ACCESS PANEL.
 - 6 PRIMARY AIR DAMPER CONTROL PANEL. MINIMUM NEC CLEARANCE SHALL BE MAINTAINED. COORDINATE LEFT HAND OR RIGHT HAND SELECTION TO SUIT BOX LOCATION.
 - 7 CONNECTION TO MAIN DUCT TRUNK.
 - 8 ELECTRIC REHEAT COIL. COORDINATE WITH AVAILABLE POWER ON SITE.

- GENERAL MECHANICAL-ELECTRICAL NOTES:**
- THE DRAWINGS ARE TO BE USED AS A GUIDELINE FOR DEMOLITION. THE MECHANICAL CONTRACTOR MUST VISIT THE SITE PRIOR TO BIDDING TO VERIFY ALL WORK REQUIRED FOR A COMPLETE JOB AND INCLUDE THE COST OF SUCH WORK IN THEIR BID.
 - THE MECHANICAL CONTRACTOR SHALL COORDINATE LOSS OF EXISTING SERVICES TO THE EXISTING AREA AS REQUIRED.
 - IF NECESSARY, THE MECHANICAL CONTRACTOR SHALL PROVIDE TEMPORARY SERVICES IN THE EXISTING AREAS BEING SERVED BY UNIT BEING REPLACED.
 - ANY MECHANICAL EQUIPMENT AND DEVICES SHOWN AS BEING REMOVED SHALL BE REMOVED COMPLETELY INCLUDING TEMPERATURE CONTROLS.
 - ALL WALLS, CEILING, FLOORS, ETC. BEING DISTURBED BY THE WORK SHALL BE RETURNED TO FINISHED CONDITIONS TO MATCH EXISTING. CUTTING, PATCHING AND PAINTING ARE TO BE INCLUDED, AS NECESSARY.
 - EXISTING EQUIPMENT AND MATERIALS BEING REMOVED SHALL BE TURNED OVER TO THE OWNER. IF NOT REQUIRED BY OWNER, THE CONTRACTOR SHALL REMOVE SAID EQUIPMENT AND MATERIALS FROM THE PREMISES AND DISPOSE OF IN A LEGAL MANNER.
 - CONTRACTOR TO VERIFY ALL EXISTING FIELD CONDITIONS BEFORE COMMENCING WORK.
 - INSTALL ALL MECHANICAL AND ELECTRICAL EQUIPMENT IN ACCESSIBLE LOCATIONS.
 - PRIOR TO DEMOLITION AND REPLACEMENT WORK, PREPARE WORK AREAS TO BE SAFE AND PROTECT ADJACENT EQUIPMENT AND FINISHES NOT BEING REPLACED.
 - MECHANICAL CONTRACTOR TO PROVIDE COMPLETE TEST AND BALANCE SERVICES TO SET PERFORMANCE PARAMETERS OF NEW EQUIPMENT AND SYSTEMS BEING UPDATED.
 - CONTRACTOR EQUIPMENT SHALL COORDINATE SIZES OF EXISTING SUPPORTS AND FOOTPRINT OF EACH REPLACED OR NEW UNIT. MODIFY PADS, RAILS, CURBS, SUPPORTS, HANGERS, ETC AS REQUIRED FOR PROPER SUPPORT AND SERVICEABILITY.

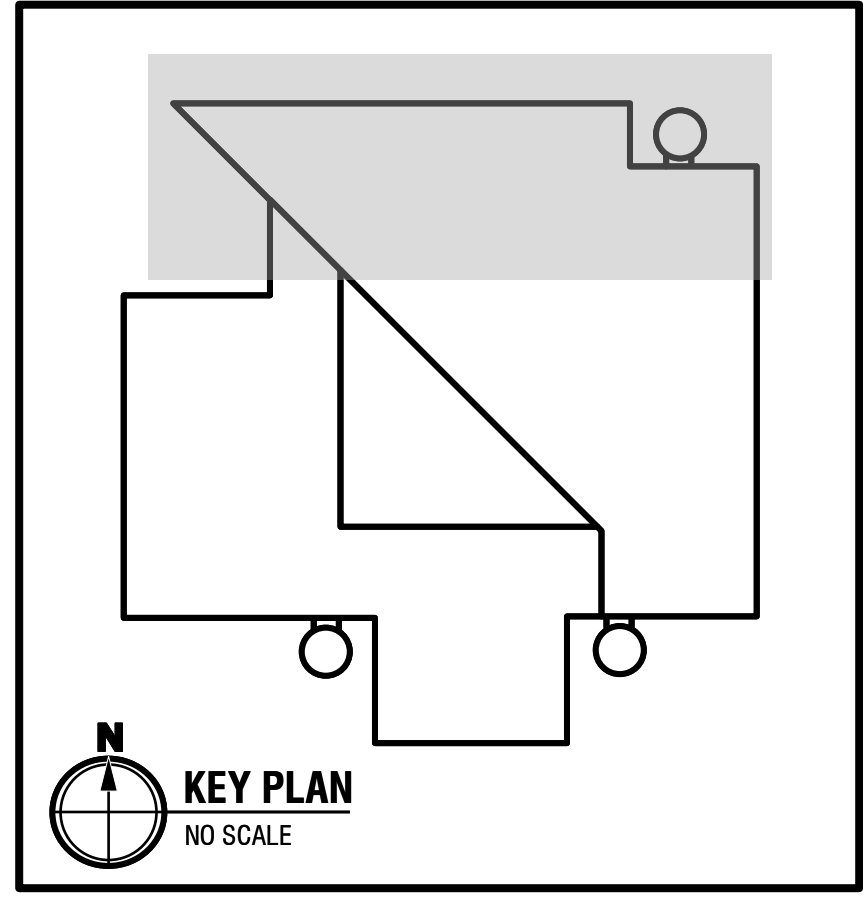
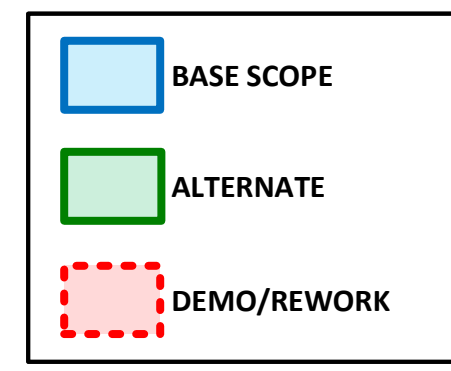
- TERMINAL BOX AND DUCTWORK INSTALLATION NOTES:**
- ALL DUCT SIZES ON DRAWINGS REPRESENT INTERNAL NET DIMENSIONS. DUCTWORK SIZE SHALL BE INCREASED AS REQUIRED TO ACCOMMODATE INTERNAL SOUND LINING, DOUBLE-WALL CONSTRUCTION, INSULATION, ETC.
 - DUCTWORK CONSTRUCTION, INCLUDING SHEET METAL GAUGES AND SEAM CONSTRUCTIONS METHODS, SHALL CONFORM TO SMACNA STANDARDS.
 - SEAMS AND JOINTS SHALL BE CONSTRUCTED WITH LIQUID-TIGHT, CONTINUOUS WELDS ON THE EXTERNAL SURFACE OF THE DUCT.
 - REFER TO SPECIFICATIONS FOR ADDITIONAL DUCTWORK REQUIREMENTS.
 - PROVIDE ALL HANGERS, SUPPORTS AND MISC. STEEL FOR THE INSTALLATION OF DUCTWORK.
 - FIELD VERIFY ABOVE CEILING CLEARANCES AND OBSTACLE AVOIDANCE BEFORE FABRICATING DUCTWORK.
 - **ALT-1 ONLY:** COORDINATE NEW SUPPLY AIR DIFFUSERS WITH NEW SIMULTANEOUS CEILING WORK.
 - CONTRACTOR IS RESPONSIBLE FOR RELOCATING OR REWORK OF EXISTING INFRASTRUCTURE TO ACCOMMODATE NEW DUCTWORK AND VAV BOXES. INCLUDING, BUT NOT LIMITED TO, DUCTWORK, PIPING, CONDUIT, LIGHT FIXTURES, CEILING GRID/TILES, ETC.
 - REFER TO VAV DUCT CONNECTION DETAIL ON THIS SHEET AND INSTALL VAV BOX PER MANUFACTURER'S RECOMMENDATIONS.
 - PROVIDE 120-1-60 POWER TO EACH VAV BOX.
 - LOCATE ZONE THERMOSTATS IN SPACES NOTED ON DRAWINGS. FIELD VERIFY BEST LOCATION WITH EXISTING CONDITIONS.
 - PROVIDE COMPLETE TEST AND BALANCE SERVICES AT END OF PROJECT.



EXISTING THIRD FLOOR NORTH MECHANICAL PLAN

SCALE: NONE

LOCATION OF EXISTING JACE PANEL. REFER TO SHEET SI.01 FOR BACNET SERIAL COMMUNICATION CHAIN TO VAV CONTROLLERS AND RTU HVAC-5 CONTROLLER.



PROJECT TITLE:
**CLEVELAND METROPOLITAN SCHOOL DISTRICT:
LUIS MUÑOZ MARÍN
ELEMENTARY SCHOOL
AC-5 RTU REPLACEMENT 2020**

1701 Castle Ave.
Cleveland, OH 44113

DRAWING TITLE:
**3RD FLOOR
MECHANICAL
PLAN AND ZONING**

DRAWING NUMBER:

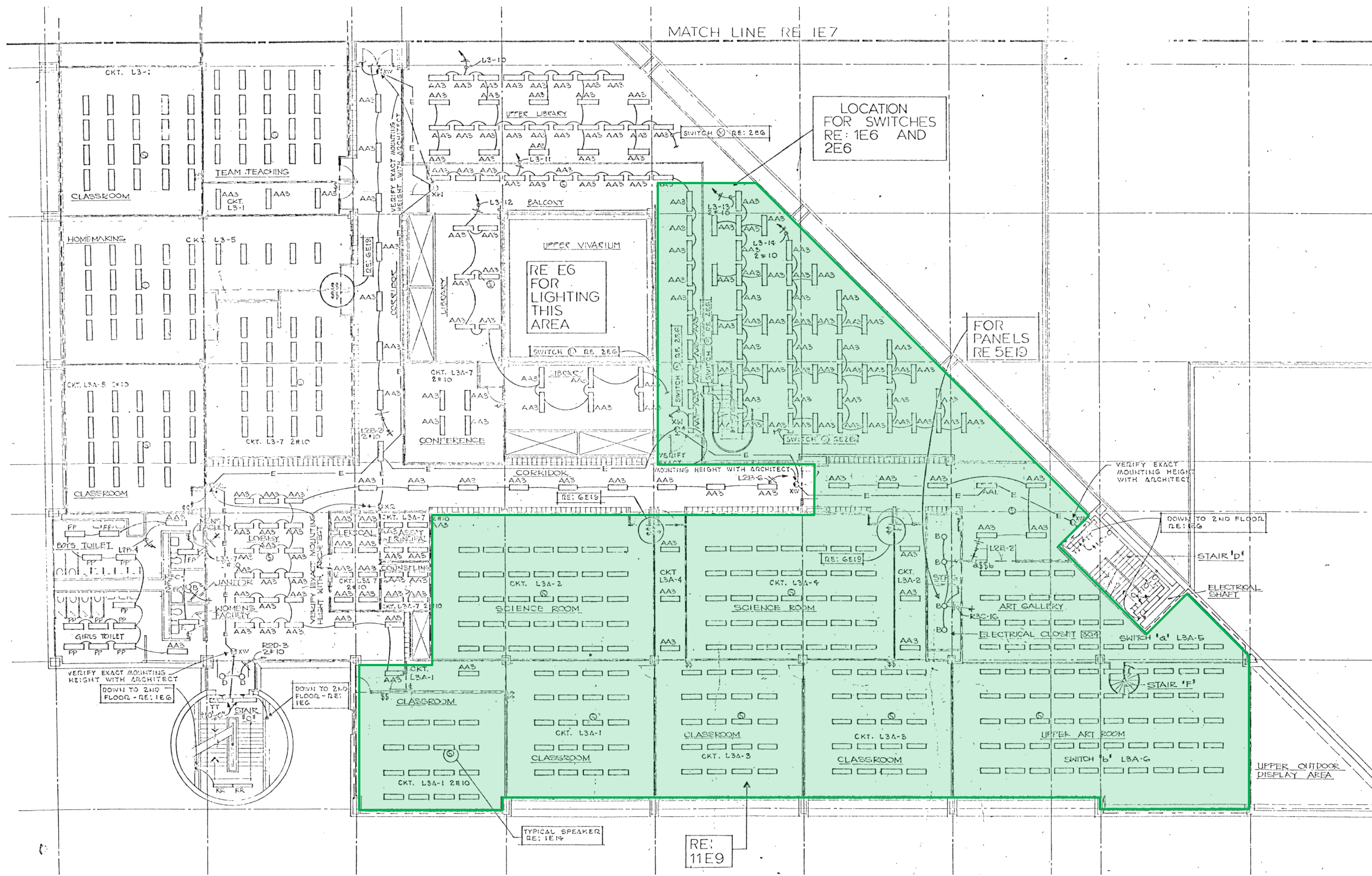
M.02

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PROJECT NUMBER:	80753	DATE DRAWN:	10/9/2019	REVISION #	1	DATE	6/23/20	SCALE:	AS NOTED
BY:	RDW	FOR PROPOSAL		2					
		3							



DRAWING NOTES:

- GREEN SHADED AREAS DENOTE ALTERNATE SCOPE FOR LIGHTING AND CEILING GRID REPLACEMENT. PROPOSER IS TO COMPLETELY DESIGN NEW GRID LAYOUT, INCLUDING AIR DISTRIBUTION AND LIGHTING PHOTOMETRICS. DESIGNS SHOULD CONFORM TO OHIO SCHOOL DESIGN MANUAL STANDARDS.
- DEMOLISHED MATERIALS INCLUDING CEILING TILES/GRIDS, DIFFUSERS, LIGHT FIXTURES, LAMPS, BALLASTS, ETC., ARE TO BE COMPLETELY REMOVED AND PROPERLY DISPOSED OF. CMSSD IS TO BE GIVEN SALVAGE RIGHTS ON ANY MATERIAL PRIOR TO DISPOSAL.
- AIR DISTRIBUTION REVISIONS SHALL INCLUDE NEW 24" SQUARE DIFFUSERS/RETURNS AND ANY REQUIRED DUCTWORK MODIFICATIONS TO ACCOMMODATE NEW DIFFUSER LAYOUT.
- NEW LIGHT FIXTURES SHALL BE 2X4 OR 2X2 FLAT PANEL LED. CLASSROOMS SHALL BE 0-10V DIMMING AND HAVE NEW WALL TOUCHPAD CONTROL. ADDITIONAL SPACE OR FIXTURE-INTEGRATED SENSORS REQUIRED ARE TO BE DETERMINED BY PROPOSER BASED ON THE NATURE OF THE REPLACEMENT APPLICATION AND ENFORCED ENERGY CODES.
- EXISTING LIGHTING PLANS, SCHEDULES AND OTHER ELECTRICAL PLANS ARE PROVIDED FOR REFERENCE ONLY. THESE PLANS REPRESENT AVAILABLE CMSSD RECORDS AND MAY CONSTITUTE A COMBINATION OF CONSTRUCTION AND AS-BUILT DOCUMENTS. FINAL FIXTURE COUNTS, CONFIGURATIONS, MEASUREMENTS, LOCATIONS, PATHS, ETC. FOR THIS PROJECT MUST BE FIELD VERIFIED BY PROPOSER/ CONTRACTOR.
- CONTRACTOR WILL CREATE FINAL DESIGN FOR NOTED ELECTRICAL SYSTEMS BASED ON PROJECT GOALS, OVERALL BENEFITS TO SYSTEM OPERATION & MAINTENANCE AND SITE LIMITATIONS.
- EXIT SIGNS ONLY NEED TO BE REPLACED IF NOT ALREADY LED. EMERGENCY AND CONSTANT OPERATION CIRCUIT FIXTURES SHOULD RETAIN THAT FUNCTION.
- REFER TO OVERALL SPECIFICATION FOR LED LIGHTING SELECTION GUIDELINES.
- PROPOSERS WILL BE REQUIRED TO PRESENT DESIGNS FOR REFLECTED CEILING AND LIGHTING LAYOUTS DURING THE SUBMITTAL PHASE. PRELIMINARY DESIGN INFORMATION FOR EXPECTED TILE, DIFFUSER AND FIXTURE SELECTION ARE REQUESTED TO BE INCLUDED WITH PROPOSALS.

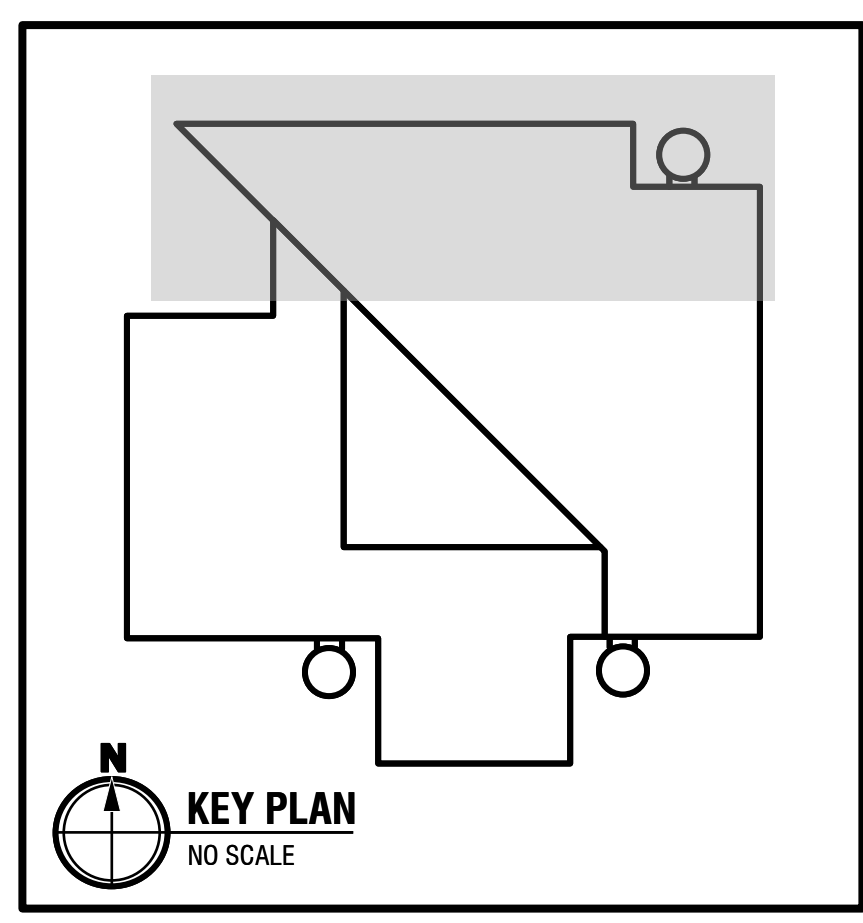
GENERAL INSTALLATION NOTES:

- EQUIPMENT LOCATIONS SHOWN ARE SCHEMATIC IN NATURE. FIELD VERIFY LOCATIONS BASED ON DUCT/CONDUIT ROUTING, OBSTRUCTIONS AND FLOW PATHS.
- ALL DEVICES/FIXTURES ARE TO BE INSTALLED ACCORDING TO MANUFACTURER'S WRITTEN RECOMMENDATIONS.
- PENETRATIONS THROUGH SUBSTRATE (WALLS, CEILINGS, FLOORS) SHOULD BE DONE TO MINIMIZE DISTURBANCE AND REPAIR, SEAL OR PAINT/PATCH AS REQUIRED TO MAINTAIN ENVIRONMENT AESTHETICS.
- ALL WIRING SHALL BE IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS, NATIONAL ELECTRIC CODE AND ANY APPLICABLE STATE OR LOCAL CODES. WHERE PLENUM RATED CABLE IS PERMITTED, IT SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES TO THE STRUCTURE, BE PROPERLY SUPPORTED OR ANCHORED AND IN A NEAT, WORKMAN-LIKE MANNER.
- THE CONTRACTOR SHALL SUPPLY ALL MATERIAL REQUIRED FOR THE INSTALLATIONS, EXCEPT THAT WHICH IS SPECIFICALLY NOTED AS 'BY THE OWNER'.



EXITING THIRD FLOOR NORTH LIGHTING PLAN
SCALE: NONE

BASE SCOPE
 ALTERNATE
 DEMO/REWORK



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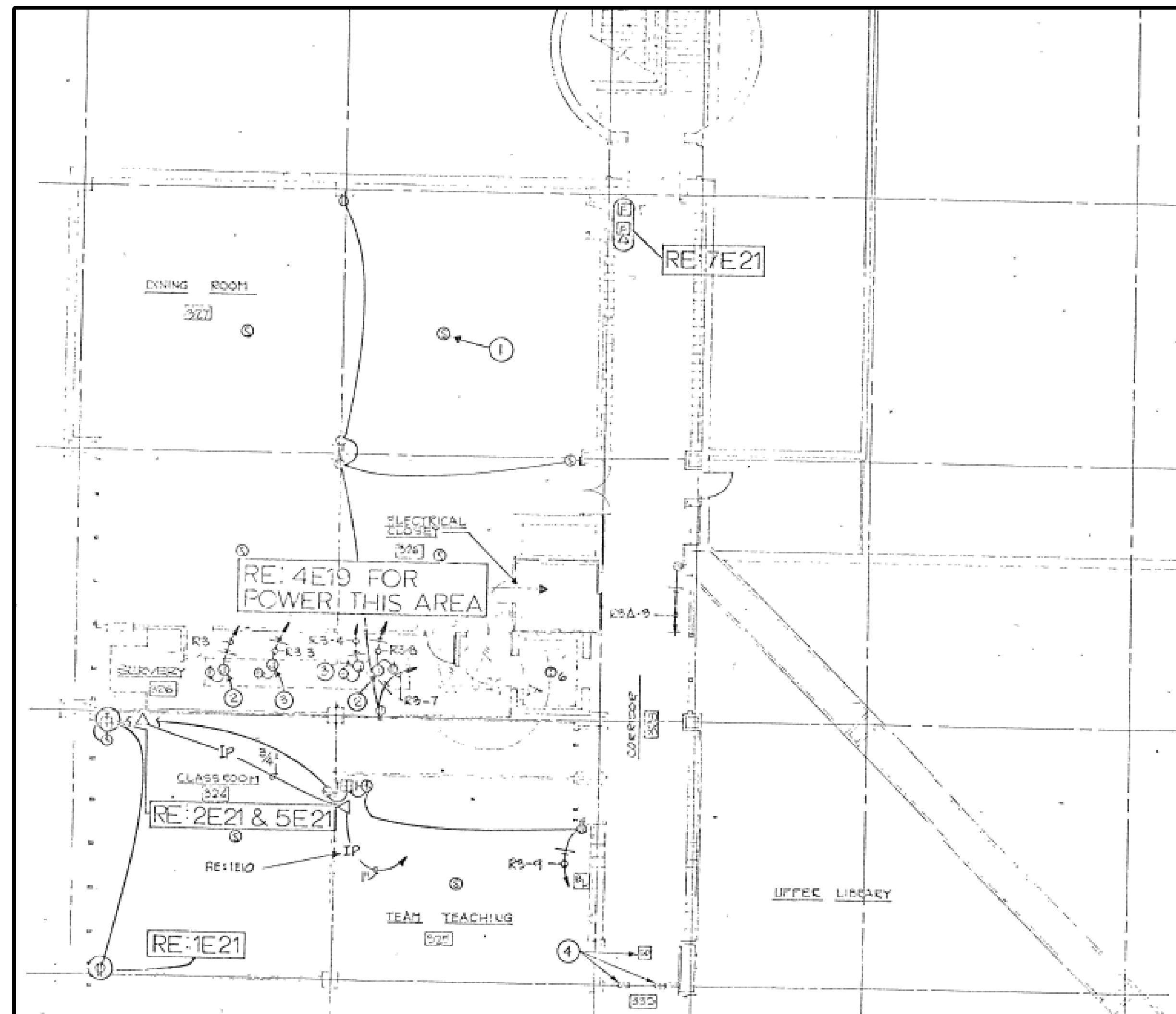
PROJECT NUMBER:	80857	DATE DRAWN:	02/18/20
BY:	LSH	DATE:	6/23/20
#	1	REVISION	FOR PROPOSAL
	2		
	3		
SCALE:		AS NOTED	

PROJECT TITLE:
CLEVELAND METROPOLITAN SCHOOL DISTRICT:
LUIS MUÑOZ MARÍN
ELEMNETARY SCHOOL
AC-5 RTU REPLACEMENT 2020
 1701 Castle Ave.
 Cleveland, OH 44113

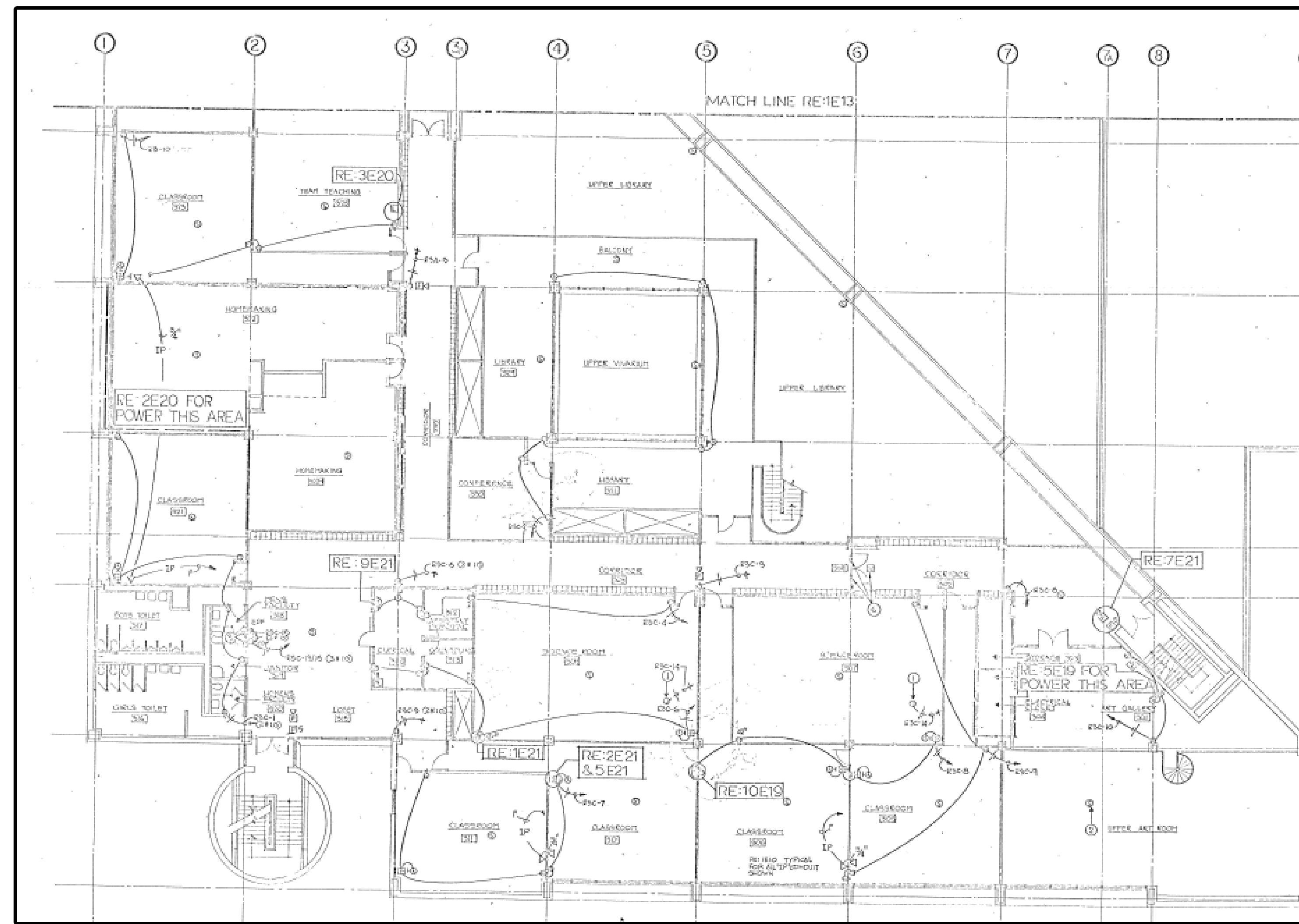


DRAWING TITLE:
ALT-1 LIGHTING
AND CEILING
REPLACEMENTS

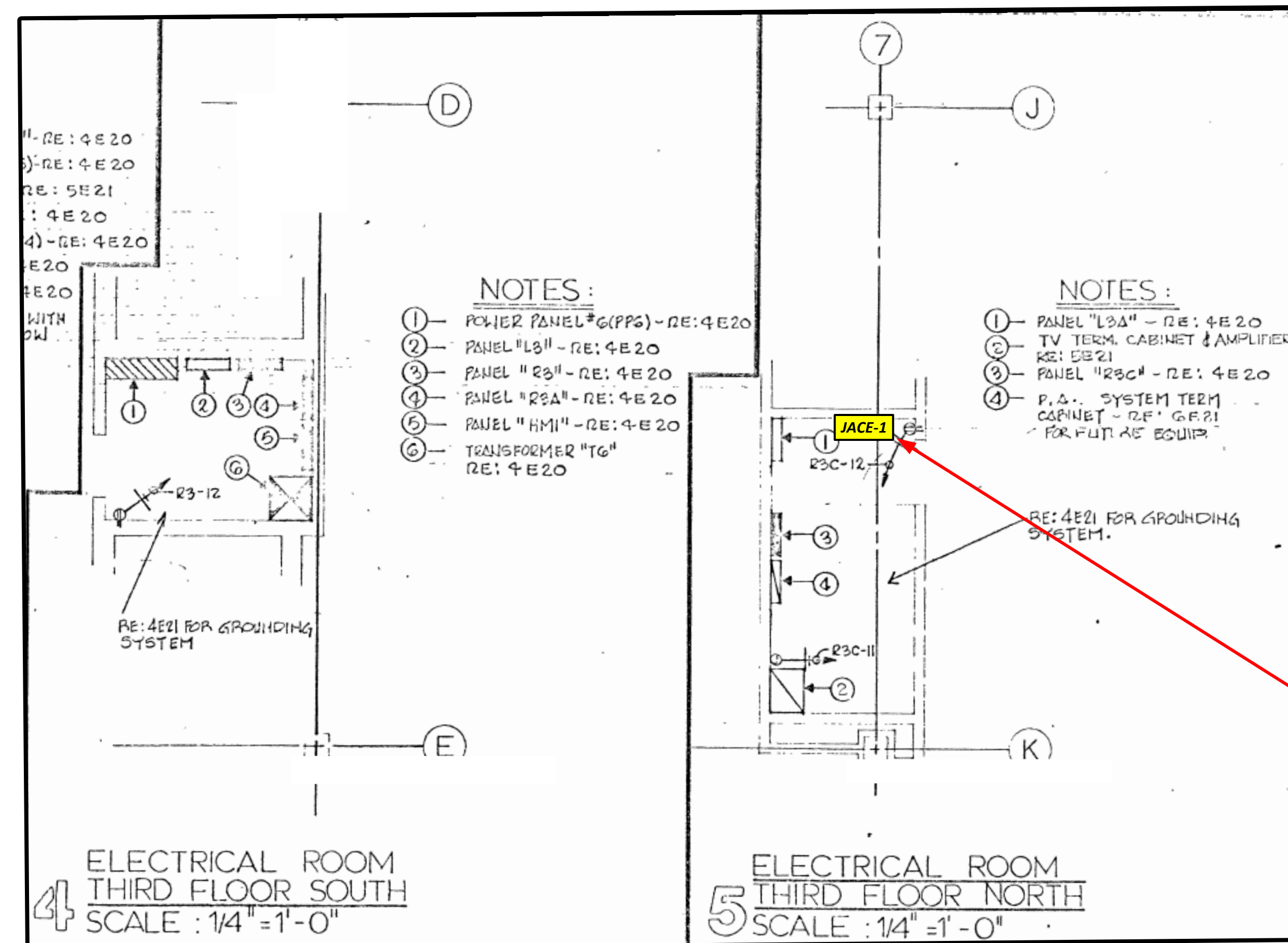
DRAWING NUMBER:
A.01
 PAGE: 4 of 9



EXISTING THIRD FLOOR POWER PLAN (SOUTH)
SCALE: NONE



EXISTING THIRD FLOOR POWER PLAN (NORTH)
SCALE: NONE



EXISTING THIRD FLOOR ELECTRICAL ROOMS
SCALE: NONE

LOCATION OF EXISTING JACE PANEL.
REFER TO SHEET SI.01 FOR BACNET
SERIAL COMMUNICATION CHAIN TO VAV
CONTROLLERS AND RTU HVAC-S
CONTROLLER.

**EXISTING ELECTRICAL PLANS
FOR REFERENCE ONLY**
FIELD VERIFY DIMENSIONS, PATHS AND
EQUIPMENT LOCATIONS

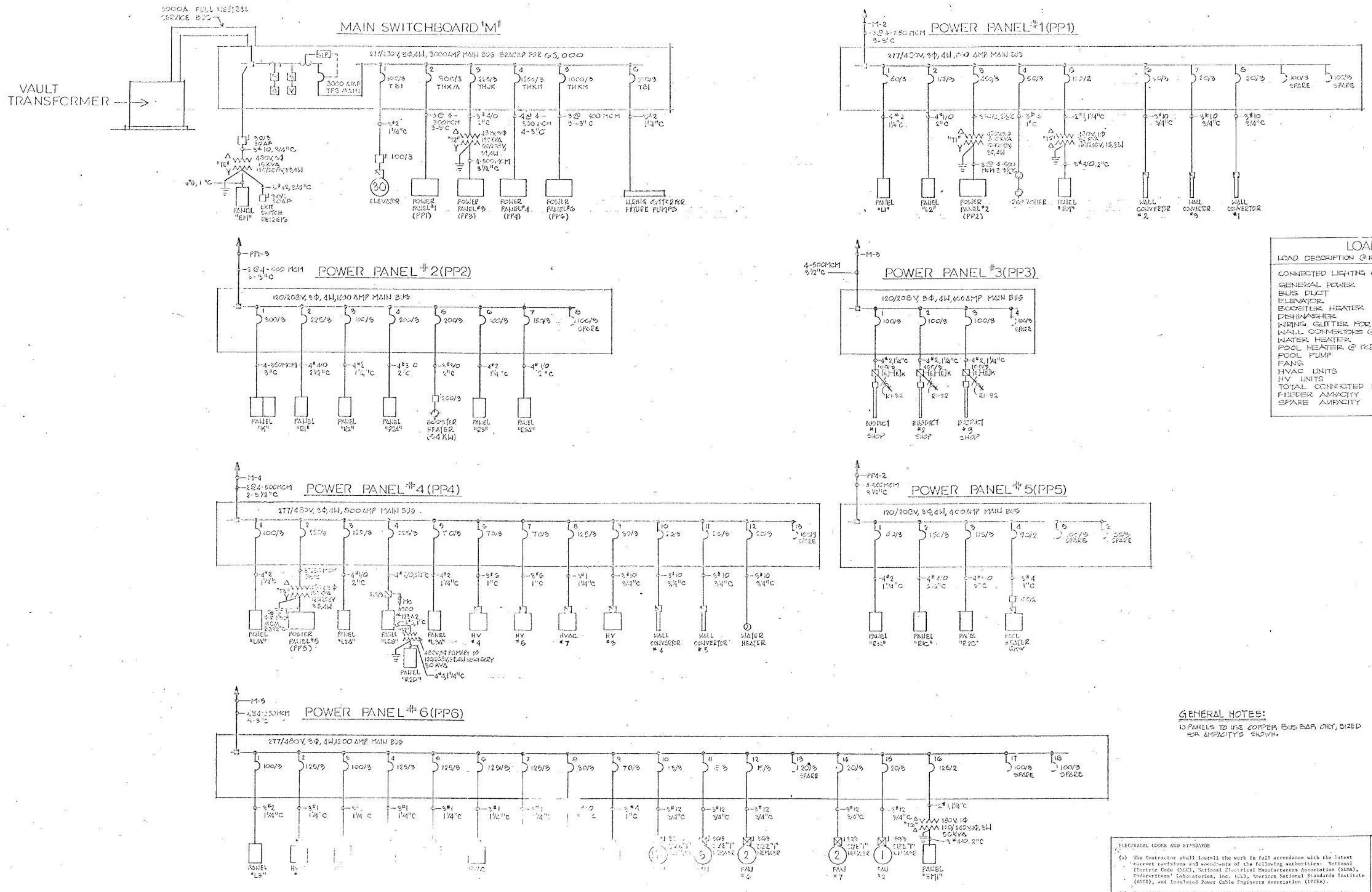
PROJECT NUMBER:	80753	
DATE DRAWN:	10/9/2019	
BY:	RDM	
#	REVISION	DATE
1	FOR PROPOSAL	6/23/20
2		
3		
SCALE:	AS NOTED	

PROJECT TITLE:
CLEVELAND METROPOLITAN SCHOOL DISTRICT:
**LUIS MUÑOZ MARÍN
ELEMENTARY SCHOOL**
AC-5 RTU REPLACEMENT 2020
1701 Castle Ave.
Cleveland, OH 44113



DRAWING TITLE:
**EXISTING 3RD FL
ELECTRICAL
DETAILS**

DRAWING NUMBER:
E.01
PAGE: 5 of 9



LOAD ANALYSIS	
LOAD DESCRIPTION @ 100% UNLESS NOTED OTHERWISE	
CONNECTED LIGHTING @ 125%	523.9 AMPS
GENERAL POWER	744.5 AMPS
BUS DUCT	240.0 AMPS
ELEVATOR	40.0 AMPS
BOOSTER HEATER	35.0 AMPS
DEHWASHER	20.0 AMPS
WIRING GLITTER FOR FUTURE	42.5 AMPS
WALL CONVERTERS @ 125%	90.0 AMPS
WATER HEATER	14.4 AMPS
POOL HEATER @ 125%	15.0 AMPS
POOL PUMP	1.0 AMPS
FANS	16.0 AMPS
HVAC UNITS	636.7 AMPS
HV UNITS	185.7 AMPS
TOTAL CONNECTED LOAD	2645.6 AMPS
FEEDER CAPACITY	2000.0 AMPS
SPARE CAPACITY	645.4 AMPS

GENERAL NOTES:
 1) PANELS TO USE COPPER BUS BAR ONLY, SIZED FOR CAPACITY'S SHOWN.

ELECTRICAL CODES AND STANDARDS
 (a) The Contractor shall install all work in full accordance with the latest current editions and amendments of the following authorities: National Electric Code (NEC), National Electrical Manufacturers Association (NEMA), Underwriters' Laboratories, Inc. (UL), American National Standards Institute (ANSI), and Insulated Power Cable Engineers Association (IPCEA).
 (b) In addition to the above requirements and the work as described in this manual, comply with all local codes. Where discrepancies exist between codes and drawings or specifications, the more stringent requirement shall prevail.

EXISTING SINGLE LINE DIAGRAM
 SCALE: NONE

EXISTING ELECTRICAL PLANS FOR REFERENCE ONLY
 FIELD VERIFY DIMENSIONS, PATHS AND EQUIPMENT LOCATIONS

PROJECT NUMBER:	80753
DATE DRAWN:	10/9/2019
BY:	RDW
REVISION #	1
DATE	6/23/20
FOR PROPOSAL	2
	3
SCALE:	AS NOTED

PROJECT TITLE:
CLEVELAND METROPOLITAN SCHOOL DISTRICT:
LUIS MUÑOZ MARÍN
ELEMNETARY SCHOOL
AC-5 RTU REPLACEMENT 2020
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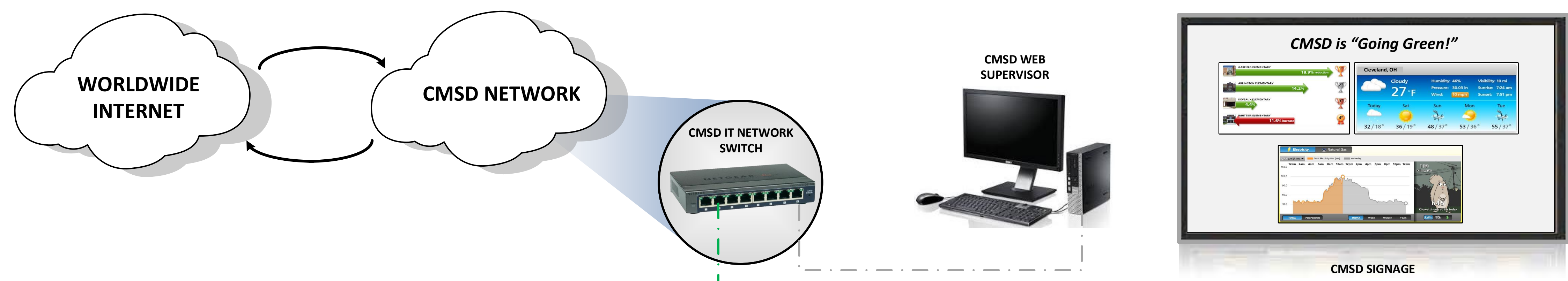


DRAWING TITLE:
EXISTING SINGLE LINE DIAGRAM

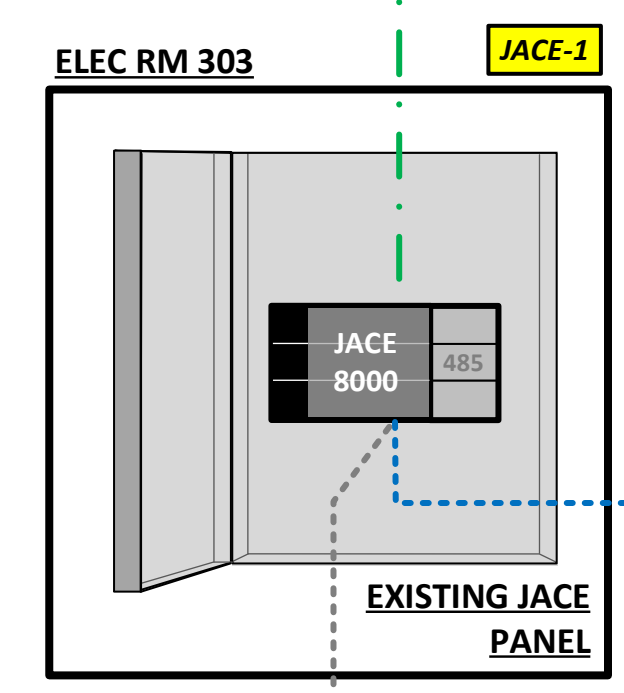
DRAWING NUMBER:

E.02

INTEGRATION SUPERVISOR ENTERPRISE LEVEL



HEAD END INTEGRATION AND SYSTEMS METERING

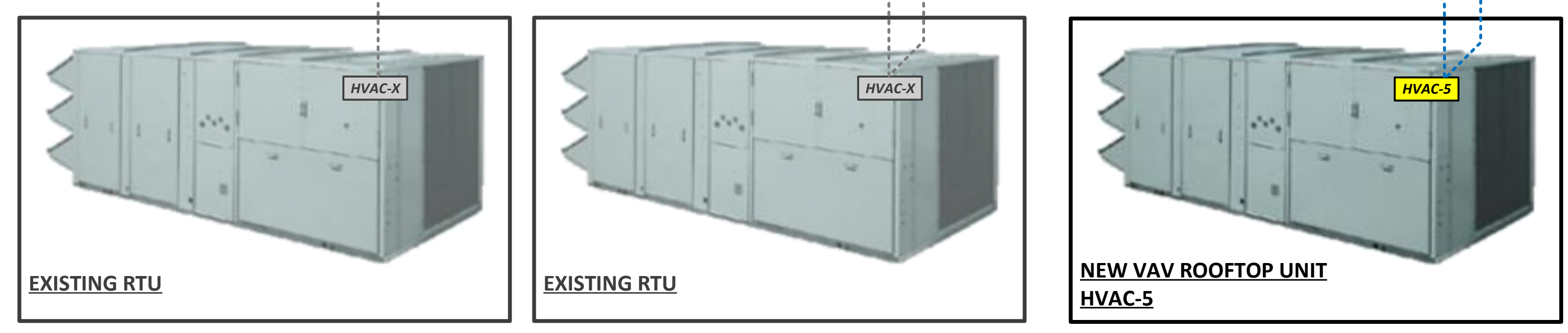


JACE 8000 AND RS-485 CARD ARE SUPPLIED BY THE OWNER. ALL OTHER MATERIALS FOR SYSTEM DESIGN AND INSTALLATION ARE TO BE PROVIDED BY THE CONTRACTOR, AS NEEDED, INCLUDING: CABLE, WIRE, ENCLOSURES, MOUNTING ACCESSORIES, CONTROLLERS, POWER TRANSFORMERS, ETC.

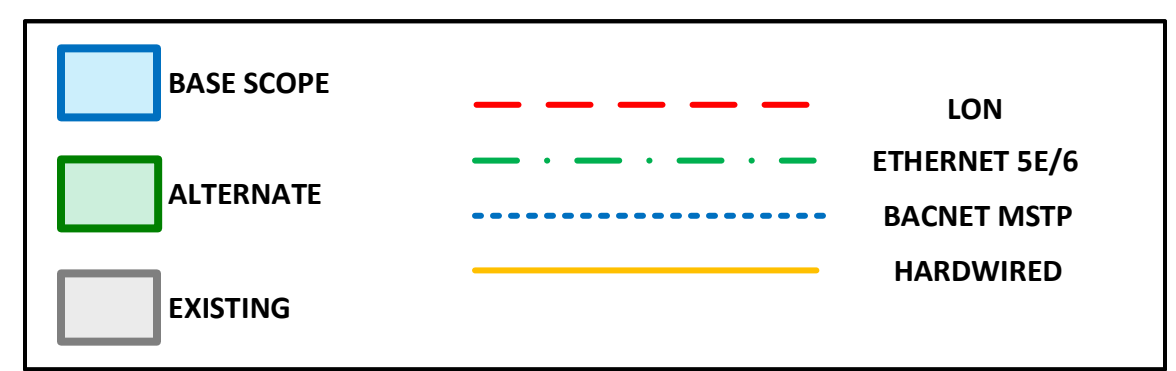
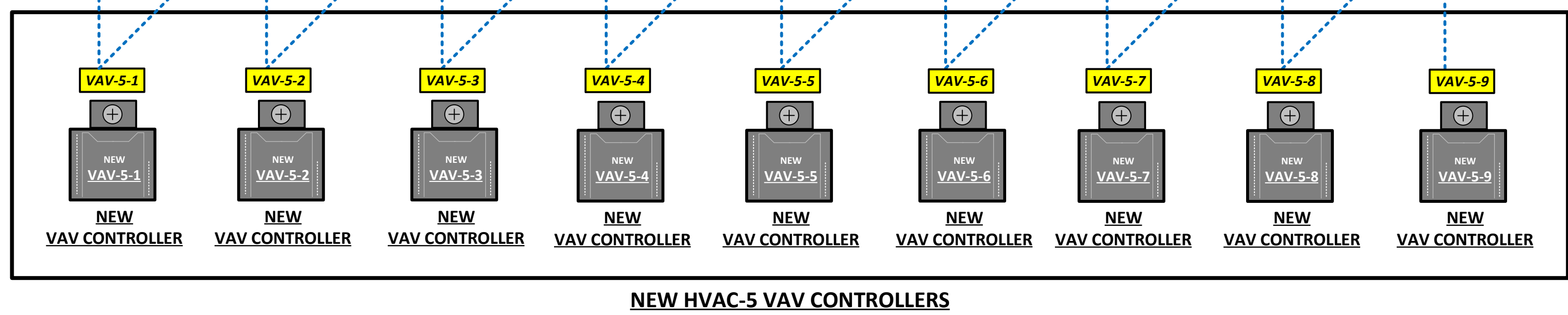
CONTRACTOR TO DETERMINE ROUTING OF SERIAL COMM NETWORK CABLE BASED ON CONTROLLER LOCATIONS IN-FIELD. ROUTING SHOWN IS SCHEMATIC IN NATURE AND BASED ON EXISTING INFRASTRUCTURE. ALTERATIONS FROM DEPICTED CONFIGURATION ARE TO BE NOTED FOR AS-BUILTS.

FOR BACNET MSTP CABLE USE BELDEN B6501FE OR EQUAL.

CENTRAL EQUIPMENT AND LOCAL CONTROLLERS



TERMINAL EQUIPMENT AND SPACE DEVICES



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PROJECT NUMBER:	80857	DATE DRAWN:	02/18/20	BY:	RWP	REVISION #	1	DATE	6/23/20	SCALE:	AS NOTED
						FOR PROPOSAL	2				
							3				

PROJECT TITLE:

CLEVELAND METROPOLITAN SCHOOL DISTRICT:

LUIS MUÑOZ MARÍN ELEMNETARY SCHOOL

AC-5 RTU REPLACEMENT 2020

1701 Castle Ave.
Cleveland, OH 44113

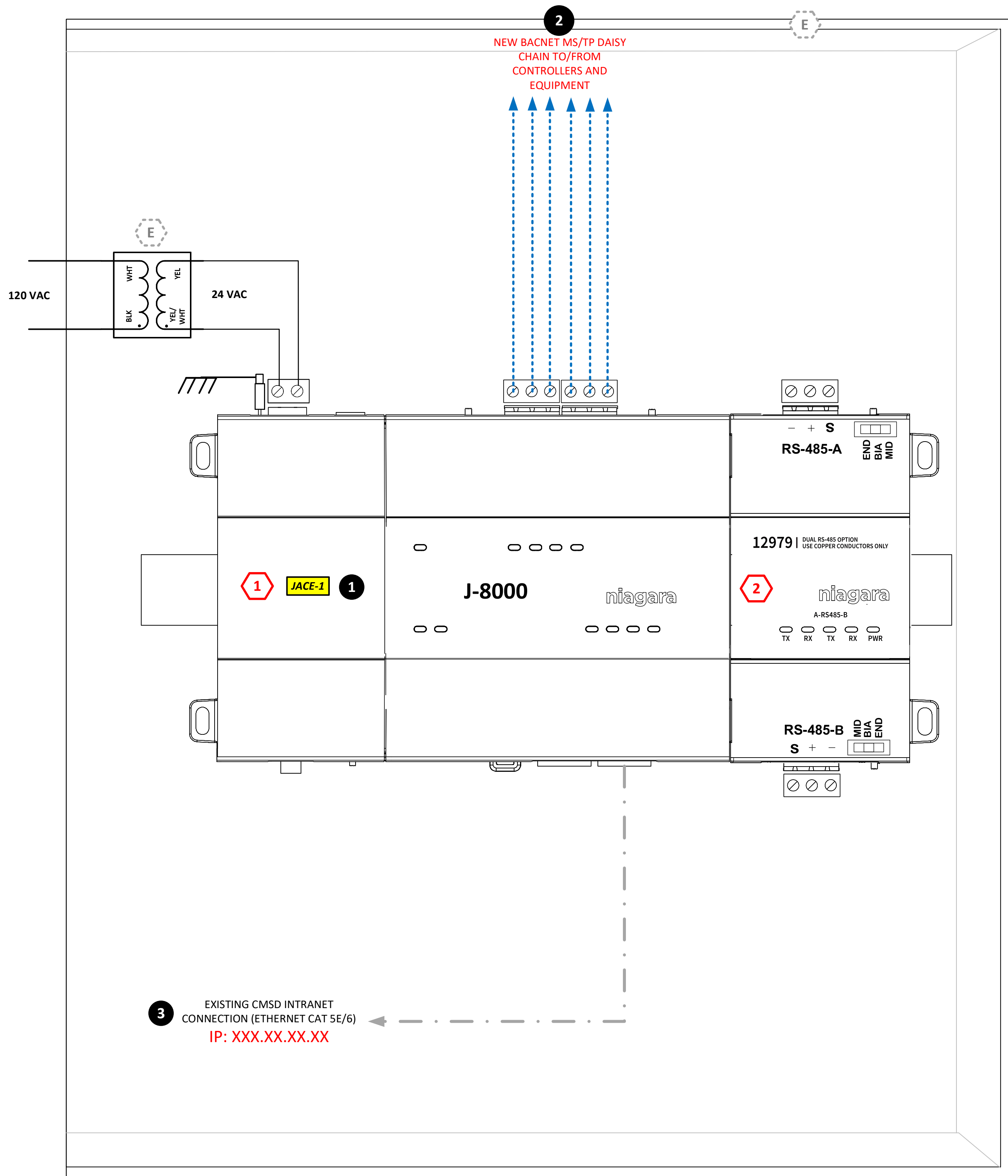
DRAWING TITLE:

SYSTEM ARCHITECTURE

DRAWING NUMBER:

SI.01

PAGE: 7 of 9



BILL OF MATERIAL				
ITEM #	QTY	DESCRIPTION	MFG	CATALOG #
1	1	TRIDIUM NIAGARA JACE 8000 WITH NC-8100	TRIDIUM	J-8000
2	1	TRIDIUM NIAGARA RS-485 CARD	TRIDIUM	RS-485
3 (E)	1	ENCLOSURE W/ 24VAC XF AND MOUNTING ACCESSORIES	--	---
4	--	---	--	---
5	--	---	--	---
6	--	---	--	---
7	--	---	--	---
8	--	---	--	---
9	--	---	--	---

ALL BILL OF MATERIAL ITEMS ARE SUPPLIED BY CONTRACTOR EXCEPT THOSE DENOTED WITH ASTERISK * ITEMS WITH ASTERISK ARE SUPPLIED BY THE OWNER BUT INSTALLED BY THE CONTRACTOR.

- # NEW MATERIAL ITEM NUMBER
- E EXISTING-TO-REMAIN
- # ASSEMBLY & INSTALLATION NOTE

ASSEMBLY AND INSTALLATION INSTRUCTIONS:

- 1 DISCONNECT POWER TO EXISTING JACE 6 AND REMOVE. INSTALL NEW JACE N4/8. INSTALL NEW CONDUIT, POWER WIRING AND ACCESSORIES AS REQUIRED.
- 2 RUN COMMUNICATION CABLES TO THEIR DESTINATIONS AS NOTED ON THE DRAWINGS, FIELD VERIFYING BEST PATHS AND APPROPRIATE ROUTING TO OTHER DEVICES OR EQUIPMENT. COORDINATE ALL TERMINATIONS AND SETTINGS WITH THE SYSTEMS INTEGRATOR. CONTRACTOR TO PROVIDE ALL NECESSARY WIRE, SUPPORTS AND CONNECTORS. CONTRACTOR TO VERIFY THAT THE BACNET MSTP NETWORK(S) ARE INTACT AND THEIR INTEGRITY IS COMPLETE.
- 3 VERIFY EXISTING ETHERNET CABLE FROM JACE PANEL TO CMSD DESIGNATED I/T NETWORK/DATA CLOSET.

GENERAL INSTALLATION NOTES:

- EQUIPMENT LOCATIONS SHOWN ARE SCHEMATIC IN NATURE. FIELD VERIFY LOCATIONS BASED ON PIPE ROUTING, OBSTRUCTIONS AND FLOW PATHS.
- ALL DEVICES ARE TO BE INSTALLED ACCORDING TO MANUFACTURER'S WRITTEN RECOMMENDATIONS.
- PROVIDE TAMPER PROOF LOCKING COVERS FOR DEVICES IN PUBLIC SPACES.
- PENETRATIONS THROUGH SUBSTRATE (WALLS, CEILINGS, FLOORS) SHOULD BE DONE TO MINIMIZE DISTURBANCE AND REPAIR, SEAL OR PAINT/PATCH AS REQUIRED TO MAINTAIN ENVIRONMENT AESTHETICS.
- ALL WIRING SHALL BE IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS, NATIONAL ELECTRIC CODE AND ANY APPLICABLE STATE OR LOCAL CODES. WHERE PLENUM RATED CABLE IS PERMITTED, IT SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES TO THE STRUCTURE, BE PROPERLY SUPPORTED OR ANCHORED AND IN A NEAT, WORKMAN-LIKE MANNER.
- THE CONTRACTOR SHALL SUPPLY ALL MATERIAL REQUIRED FOR THE CONTROLS AND INTEGRATION INSTALLATIONS, EXCEPT THAT WHICH IS SPECIFICALLY NOTED AS 'BY THE OWNER'.
- REMOVE EXISTING CONTROLLER, TRANSFORMERS AND ENCLOSURE AFTER TAGGING ALL WIRES. INSTALL ALL NEW MATERIALS INCLUDING ENCLOSURE, CONTROLLERS, TRANSFORMERS, SIGNAL WIRES ETC. AND REWIRE EXISTING INFRASTRUCTURE TO-REMAIN. RUN BACNET CABLE SERIAL COMM BETWEEN CONTROLLERS.
- WIRING SIGNALS FOR DEVICES NOT NOTED FOR REPLACEMENT ARE TO REMAIN AS-IS AND BE RECONNECTED TO NEW CONTROLLERS. THE INTENT IS FOR NEW SENSORS AND DEVICES TO HAVE NEW WIRING SIGNALS RUN VIA EXISTING PATHWAYS/ CONDUIT BACK TO CONTROLLERS WHENEVER POSSIBLE. CONTRACTOR WILL TERMINATE ALL WIRING. PROVIDE APPROPRIATE POWER TO ANY DEVICES REQUIRING IT.
- THE BILL OF MATERIAL ON THIS PAGE IS TO BE VERIFIED BY THE PROPOSER/CONTRACTOR TO ENSURE COMPLETE SYSTEM FUNCTIONALITY UPON INSTALLATION.

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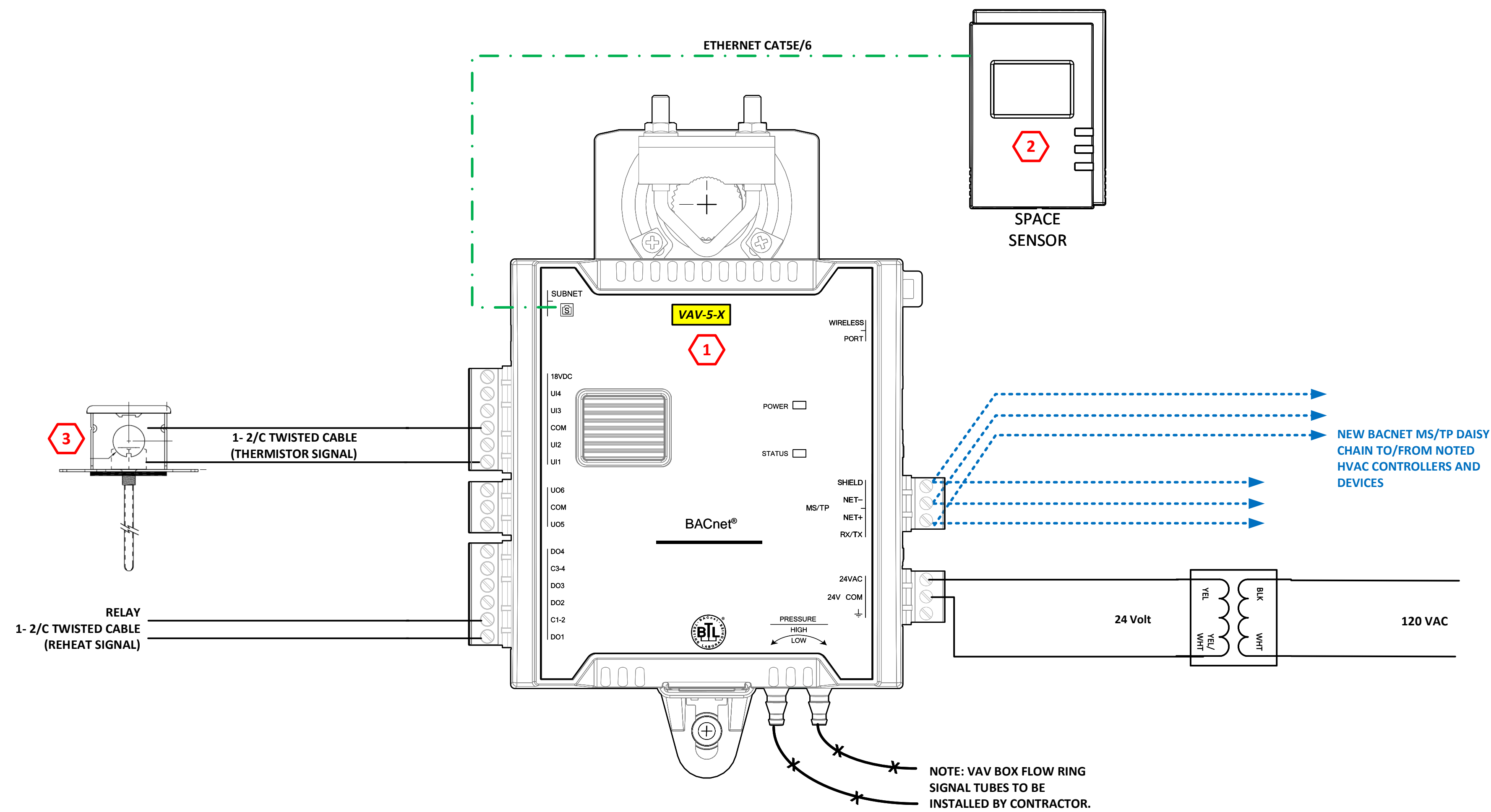
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PROJECT NUMBER: 80753
DATE DRAWN: 10/9/2019
BY: RDM
REVISION # 1 FOR PROPOSAL
DATE 6/23/20
SCALE: AS NOTED

PROJECT TITLE:
CLEVELAND METROPOLITAN SCHOOL DISTRICT:
**LUIS MUÑOZ MARÍN
ELEMENTARY SCHOOL**
AC-5 RTU REPLACEMENT 2020
1701 Castle Ave.
Cleveland, OH 44113

DRAWING TITLE:
**NEW JACE WIRING
DIAGRAM**

DRAWING NUMBER:
SI.02
PAGE: 8 of 9



TYPICAL VAV W/ ELEC REHEAT CONTROLLER WIRING DIAGRAM
NO SCALE

BILL OF MATERIAL (TYPICAL OF 9)				
ITEM #	QTY	DESCRIPTION	MFG	CATALOG #
* 1	1	OPEN ARCHITECTURE DIRECT DIGITAL VAV CONTROLLER W/ INTEGRAL ACTUATOR	DISTECH	ECB-VAV
2	1	SPACE TEMPERATURE SENSOR	--	---
3	1	DISCHARGE AIR TEMPERATURE SENSOR	--	---
4	1	24V POWER SUPPLY AND REHEAT RELAY	--	---

ALL BILL OF MATERIAL ITEMS ARE SUPPLIED BY CONTRACTOR EXCEPT THOSE DENOTED WITH ASTERISK *. ITEMS WITH ASTERISK ARE SUPPLIED BY THE OWNER BUT INSTALLED BY THE CONTRACTOR.

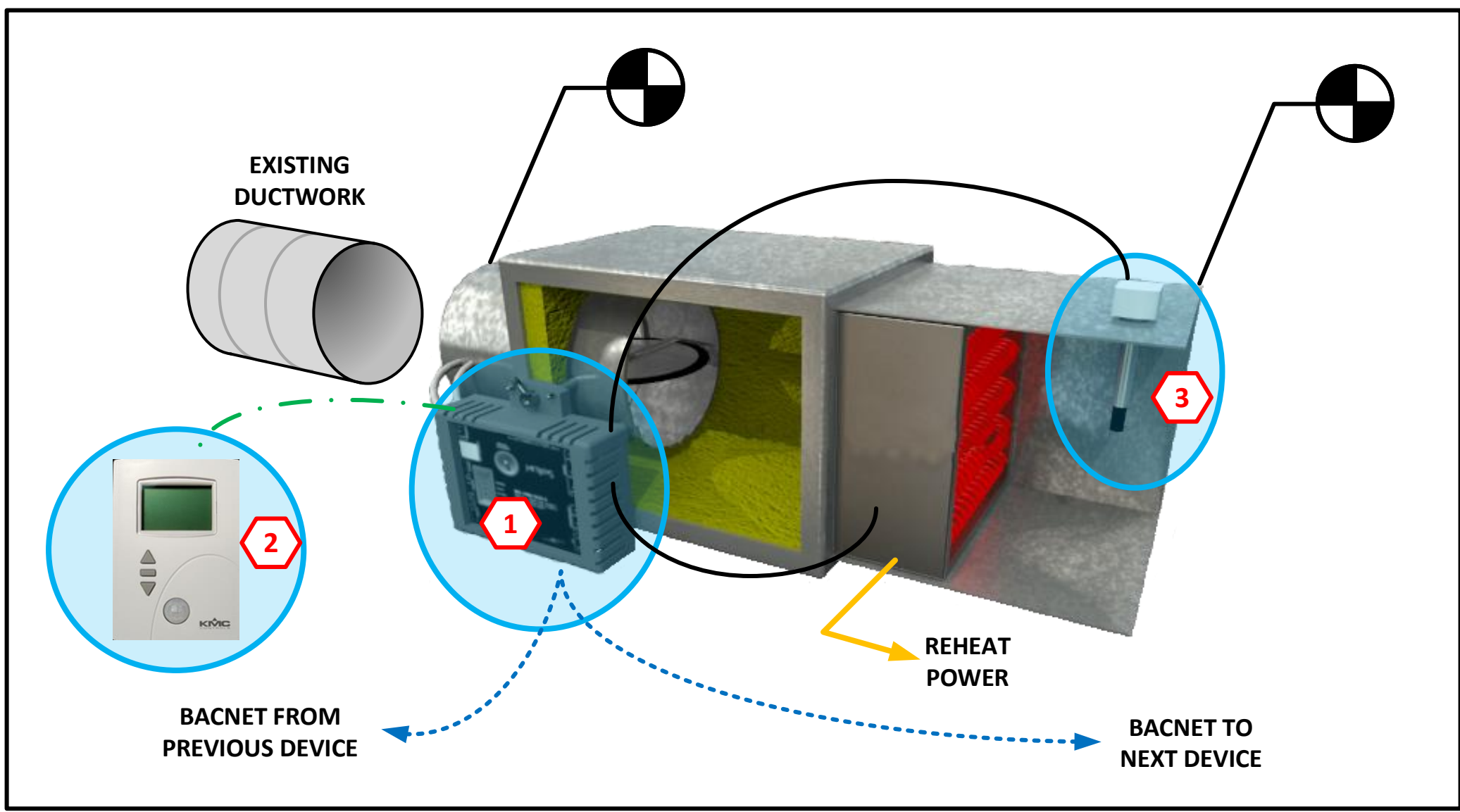
- # NEW MATERIAL ITEM NUMBER
- # EXISTING-TO-REMAIN
- # ASSEMBLY & INSTALLATION NOTE

INSTALLATION NOTES FOR VAV UPGRADE
(TYPICAL FOR ALL 9 VAV BOXES)

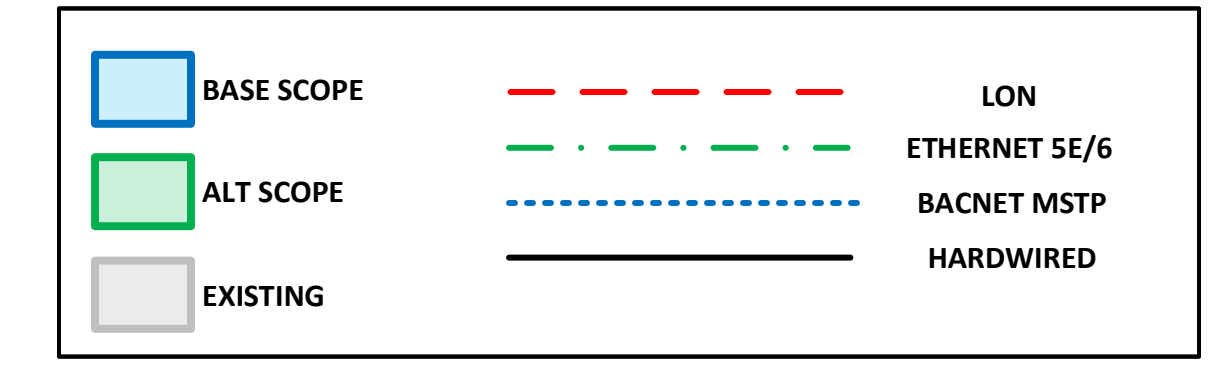
- INSTALL NEW TERMINAL BOX CONTROLLER AS FOLLOWS, DEFERRING TO MANUFACTURER SPECIFIC RECOMMENDATIONS AS APPROPRIATE:
 - MOUNT NEW CONTROLLER WITH INTEGRAL ACTUATOR NOTING DAMPER ROTATION DIRECTION.
 - MOUNT AND WIRE ASSOCIATED DEVICES PER MANUFACTURER RECOMMENDATIONS.
 - CONNECT BACNET MSTP NETWORK WIRING TO THE NEW CONTROLLER AND RUN TO/FROM OTHER DEVICES IN SERIAL FASHION.
 - CONNECT POWER PER THIS DRAWING AND MANUFACTURER INSTALL DIAGRAMS, INCLUDING POWER FOR REHEAT COIL.
 - CONFIRM THAT THE BACNET MSTP NETWORK IS TERMINATED AND INTEGRITY IS INSURED. COORDINATE WITH THE MASTER SYSTEMS INTEGRATOR (MSI) AS REQUIRED.
- CONTRACTOR SHALL ASSIST THE MSI TO FINALIZE INSTALLATION AND TO COMMISSION SYSTEM TO OPERATING CONDITION.
- NOTE THAT TERMINALS ARE SHOWN FOR CLARITY ONLY, TERMINATIONS ARE TO BE ON THE I/O MODULES DIRECTLY.

- GENERAL INSTALLATION NOTES:**
- EQUIPMENT LOCATIONS SHOWN ARE SCHEMATIC IN NATURE. FIELD VERIFY LOCATIONS BASED ON PIPE ROUTING, OBSTRUCTIONS AND FLOW PATHS.
 - ALL DEVICES ARE TO BE INSTALLED ACCORDING TO MANUFACTURER'S WRITTEN RECOMMENDATIONS.
 - PROVIDE TAMPER PROOF LOCKING COVERS FOR DEVICES IN PUBLIC SPACES.
 - PENETRATIONS THROUGH SUBSTRATE (WALLS, CEILINGS, FLOORS) SHOULD BE DONE TO MINIMIZE DISTURBANCE AND REPAIR, SEAL OR PAINT/PATCH AS REQUIRED TO MAINTAIN ENVIRONMENT AESTHETICS.
 - ALL WIRING SHALL BE IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS, NATIONAL ELECTRIC CODE AND ANY APPLICABLE STATE OR LOCAL CODES. WHERE PLENUM RATED CABLE IS PERMITTED, IT SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES TO THE STRUCTURE, BE PROPERLY SUPPORTED OR ANCHORED AND IN A NEAT, WORKMAN-LIKE MANNER.
 - THE CONTRACTOR SHALL SUPPLY ALL MATERIAL REQUIRED FOR THE CONTROLS AND INTEGRATION INSTALLATIONS, EXCEPT THAT WHICH IS SPECIFICALLY NOTED AS 'BY THE OWNER'.
 - REMOVE EXISTING CONTROLLER, TRANSFORMERS AND ENCLOSURE AFTER TAGGING ALL WIRES. INSTALL ALL NEW MATERIALS INCLUDING ENCLOSURE, CONTROLLERS, TRANSFORMERS, SIGNAL WIRES ETC. AND REWIRE EXISTING INFRASTRUCTURE TO-REMAIN. RUN BACNET CABLE SERIAL COMM BETWEEN CONTROLLERS.
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 - THE BILL OF MATERIAL ON THIS PAGE IS TO BE VERIFIED BY THE PROPOSER/CONTRACTOR TO ENSURE COMPLETE SYSTEM FUNCTIONALITY UPON INSTALLATION.

TERMINAL UNIT WITH ELECTRIC REHEAT CONTROL SCHEMATIC



HVAC-5 VAV SCHEDULE		
TAG	CFM	SIZE
VAV-5-01	2050	VERIFY
VAV-5-02	1300	VERIFY
VAV-5-03	3315	VERIFY
VAV-5-04	1655	VERIFY
VAV-5-05	1000	VERIFY
VAV-5-06	800	VERIFY
VAV-5-07	1000	VERIFY
VAV-5-08	1000	VERIFY
VAV-5-09	1380	VERIFY



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PROJECT NUMBER: 80857
DATE DRAWN: 02/18/20
BY: LSH
REVISION: 1
DATE: 6/23/20
FOR PROPOSAL: 1, 2, 3
SCALE: AS NOTED

PROJECT TITLE:
CLEVELAND METROPOLITAN SCHOOL DISTRICT:
**LUIS MUÑOZ MARÍN
ELEMENTARY SCHOOL**
AC-5 RTU REPLACEMENT 2020
1701 Castle Ave.
Cleveland, OH 44113



DRAWING TITLE:
**NEW VAV CONTROL
AND WIRING
DIAGRAM**

DRAWING NUMBER:
SI.03
PAGE: 9 of 9