

SYMBOLS AND TAGS

SYMBOL	DESCRIPTION
	DOUBLE-LINE AND SINGLE-LINE RECTANGULAR DUCT. FIRST NUMBER INDICATES SIDE IN VIEW IN INCHES. SECOND NUMBER INDICATES SIDE IN DEPTH IN INCHES
	DOUBLE-LINE AND SINGLE-LINE ROUND DUCT, NUMBER INDICATES DIAMETER IN INCHES
	DIRECTION OF AIR FLOW
	TRANSITION / REDUCER
	RADIUS ELBOW WITH TURNING VANES & MITERED ELBOW WITH TURNING VANES
	VANED ELBOW OR RADIUS ELBOW (USE VANED ELBOW WHERE SPACE WILL NOT PERMIT THE USE OF LONG RADIUS ELBOW)
	RECTANGULAR DUCT BRANCH
	RECTANGULAR SUPPLY AIR DUCT (UP AND DOWN)
	RECTANGULAR EXHAUST AIR DUCT (UP AND DOWN)
	ROUND SUPPLY AIR DUCT (UP AND DOWN)
	ROUND EXHAUST AIR DUCT (UP AND DOWN)
	MOTORIZED DAMPER
	BACKDRAFT DAMPER
	SMOKE DAMPER
	COMBINATION FIRE/SMOKE DAMPER
	AIR TERMINAL - SIDEWALL GRILLE/REGISTER (AIRFLOW DIRECTION AND TYPE SHOWN)
	AIR TERMINAL - CEILING SUPPLY (AIRFLOW DIRECTION AND TYPE SHOWN)
	AIR TERMINAL - CEILING EXHAUST (AIRFLOW DIRECTION AND TYPE SHOWN)
	ACCESS DOOR
	AIR FLOW ARROW (SUPPLY)
	AIR FLOW ARROW (RETURN/EXHAUST)
	FAN - CENTRIFUGAL
	FAN - ROOF MOUNTED MUSHROOM
	FILTER - BAG
	LOUVER
	COIL - COOLING
	COIL - HEATING
	UNIT HEATER
	THERMOSTAT

SYMBOLS AND TAGS

SYMBOL	DESCRIPTION
	VRF CEILING-MOUNTED CASSETTE
	VRF OUTDOOR UNIT
	EQUIPMENT TYPE
	EQUIPMENT TAG NUMBER
	LINE BREAK

ABBREVIATIONS

SYMBOL	DESCRIPTION
°F	DEGREE FARENHEIT
Ø	DIAMETER OR PHASE
ACU	AIR CONDITIONING UNIT
ACCU	AIR COOLED CONDENSING UNIT
AD	ACCESS DOOR
ARCH	ARCHITECTURAL
BAS	BUILDING AUTOMATION SYSTEM
BDD	BACKDRAFT DAMPER
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BTU	BRITISH THERMAL UNIT
BTUH	BTU PER HOUR
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
COND	CONDENSATE
DC	DIRECT CURRENT
DEG F	DEGREE FAHRENHEIT
DIA	DIAMETER
DWG	DRAWING
EA	EXHAUST AIR
EAF	EXHAUST AIR FAN
EER	ENERGY EFFICIENCY RATIO
EG	EXHAUST GRILLE
ESP	EXTERNAL STATIC PRESSURE
EUH	ELECTRIC UNIT HEATER
EXT	EXTERIOR
FLA	FULL LOAD AMP
FPM	FEET PER MINUTE
FSD	COMBINATION FIRE/SMOKE DAMPER
FT	FEET
GA	GAUGE
HP	HORSEPOWER
HZ	HERTZ
IN	INCHES
KW	KILOWATT
LB	POUND
MAX	MAXIMUM
MBH	THOUSAND BTUH
MD	MOTORIZED DAMPER
MIN	MINIMUM
MV	MEDIUM VOLTAGE
(N)	NORMAL OPERATION
NO	NUMBER
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
(P)	PURGE MODE
PH	PHASE
QTY	QUANTITY
RA	RETURN AIR
RHG	REFRIGERANT HOT GAS
RL	REFRIGERANT LIQUID LINE
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION LINE
RTU	ROOFTOP UNIT
SA	SUPPLY AIR
SAF	SUPPLY AIR FAN
SD	SMOKE DAMPER
SF	SUPPLY FAN
SG	SUPPLY GRILLE
SP	STATIC PRESSURE
SQ FT	SQUARE FEET
T	TEMPERATURE
TYP	TYPICAL
VRF	VARIABLE REFRIGERANT FLOW
WG	WATER GAUGE OR WALL GRILLE
WMS	WIRE MESH SCREEN

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<p>DESIGNED BY: AP</p> <p>CHECKED BY: DK</p> <p>DESIGN LEAD: DEEPAK KANDRA, PE</p> <p>SECTION MANAGER:</p>	<p>DRAWN BY: AP</p> <p>ARUP</p>	<p>ACCOUNTABLE MANAGER JUSTIN RIVELLINO</p> <p>PORTFOLIO MANAGER LAUREN D'ATTILE, PE</p> <p>DEPUTY DIRECTOR, IN HOUSE DESIGN MICHAEL LOEHR, PE</p>	<p>"WARNING-IT IS A VIOLATION, OF THE NEW YORK STATE EDUCATION LAW, SECTION, 7209.2, FOR ANY PERSON, UNLESS (S)HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK EDUCATION, LAW, SECTION, 7209.2."</p>	<p>NEW YORK CITY ENVIRONMENTAL PROTECTION BUREAU OF ENGINEERING DESIGN & CONSTRUCTION 96-05 HORACE HARDING EXPRESSWAY 5th FLOOR CORONA, NEW YORK 11368 www.nyc.gov/dep</p>	<p>CONTRACT KENS-EAST-2 KENSICO SITE PREPARATION</p> <p>HVAC ELECTRICAL BUILDING SYMBOLS AND ABBREVIATIONS</p>	<p>DATE: APRIL 2023</p> <p>SCALE: AS NOTED</p> <p>SHEET NO: Page 429 of 536</p> <p>DRAWING NO. KSEB-H-001.00</p>
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GENERAL NOTES

1. EXACT LOCATIONS OF ALL CEILING DIFFUSERS, REGISTERS AND GRILLES DETAILED ON THE ARCHITECTURAL REFLECTIVE CEILING PLAN, AND ARCHITECTURAL ROOM ELEVATIONS.
2. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. PROVIDE ALL FITTINGS, TRANSITIONS, DAMPERS, VALVES, AND OTHER DEVICES REQUIRED FOR A COMPLETE WORKABLE INSTALLATION.
3. ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED, AND TESTED IN ACCORDANCE WITH THE MOST RESTRICTIVE OF LOCAL REGULATIONS, PROCEDURES DETAILED IN THE ASHRAE HANDBOOK OF FUNDAMENTALS, OR THE APPLICABLE STANDARDS ADOPTED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION.
4. DUCTWORK SHALL BE INSULATED OR LINED PER SPECIFICATIONS OR AS NOTED ON DRAWINGS. ALL DUCT JOINTS AND SEAMS SHALL BE SEALED PER SPECIFICATIONS.
5. DUCT AND PLENUM SIZES INDICATED ON THE DRAWINGS ARE INSIDE CLEAR DIMENSIONS. WHERE DUCTWORK AND PLENUMS ARE INTERNALLY LINED, THEIR SIZES SHALL BE ADJUSTED TO PROVIDE THE INSIDE CLEAR DIMENSIONS INDICATED ON THE DRAWINGS.
6. MANUAL DAMPERS SHALL BE PROVIDED IN ALL DUCT BRANCHES AND IN ALL BRANCHES TO INDIVIDUAL DIFFUSERS, GRILLES AND REGISTERS.
7. ALL EQUIPMENT, DUCTS, PIPING, AND OTHER DEVICES AND MATERIALS INSTALLED OUTSIDE OF THE BUILDING OR OTHERWISE EXPOSED TO THE WEATHER SHALL BE COMPLETELY WEATHERPROOFED.
8. PROVIDE AN INSULATED SHEETMETAL DRAIN PAN BELOW ALL CEILING HUNG FAN COIL UNITS. DRAIN PAN SHALL BE 4" DEEP AND SHALL EXTEND 6" BEYOND THE EDGE OF THE FAN COIL. PROVIDE TRAP AND DRAIN PIPING.
9. THIS CONTRACTOR SHALL INSTALL DUCT MOUNTED SMOKE DETECTORS FURNISHED BY THE ELECTRICAL CONTRACTOR.
10. PROVIDE METAL COVER PLATES FOR ALL PIPES LOCATED AT FLOOR LEVEL TO PREVENT PIPE DAMAGE. PLATES SHALL NOT BE DAMAGED BY NORMAL MAINTENANCE TRAFFIC.
11. CONTRACTOR SHALL COORDINATE INSTALLATION OF EQUIPMENT WITH ALL SERVICES AND TRADES.
12. CONTRACTOR SHALL VERIFY CLEARANCE ABOVE THE CEILING AND NOTIFY THE ENGINEER AND ARCHITECT ABOUT POSSIBLE CONFLICTS.
13. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WORK WITH ALL TRADES. THE SHOP DRAWINGS PREPARED BY THE CONTRACTOR SHALL INDICATE SPACE ALLOWANCES FOR ALL WORK OF ALL OTHER TRADES AND SHALL BE SIGNED OFF BY OTHER CONTRACTORS.
14. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE BUILDING CODE REQUIREMENTS AND PROVIDE ALL REQUIRED CONTROLLED INSPECTIONS FOR HIS WORK.
15. PROVIDE ESCUTCHEONS AND SEALING OF ALL PENETRATIONS OF FIRE SEPARATIONS IN ACCORDANCE WITH DETAIL DRAWINGS.
16. FOR PIPING REQUIREMENTS NOT INDICATED ON PLANS, SEE RELATED CONNECTION DETAILS AND DIAGRAMS.
17. PROVIDE REDUCER FITTINGS FOR CHANGE IN PIPE SIZE AND FOR FINAL CONNECTION AT EQUIPMENT AND AS REQUIRED TO PERMIT DRAINAGE AND VENTING.
18. PROVIDE MANUAL AIR VENTS, DRAINS AND RELIEF VALVES. AS REQUIRED AT THE HIGH AND LOW POINTS IN THE SYSTEM.
19. PROVIDE VALVED AND CAPPED CONNECTIONS FOR DRAINAGE AT ALL LOW POINTS OF PIPING SYSTEM.
20. MINIMUM PITCH SHALL BE SUFFICIENT TO INSURE ADEQUATE VENTING OR DRAINAGE.
21. COORDINATE INSTALLATION OF NEW PIPES IN THE CEILING WITH NEW AND EXISTING SERVICES.
22. CONNECTION OF NEW WORK SHALL BE COORDINATED WITH THE BUILDING ENGINEER SO AS TO NOT DISRUPT BUILDING OPERATIONS AND SERVICES. IF TEMPORARY SHUTDOWNS ARE REQUIRED THEY SHALL BE COORDINATED WITH BUILDING ENGINEER AND SCHEDULED AS REQUIRED. ALL SHUTDOWNS MUST BE ACCOMPLISHED AFTER NORMAL WORKING HOURS. ALL REQUIRED OVERTIME LABOR SHALL BE INCLUDED IN THE BASE BID.
23. IT IS THE RESPONSIBILITY OF THIS CONTRACTOR TO COORDINATE ALL WORK WITH ALL NEW AND EXISTING WORK OF ALL OTHER TRADES. THE SHOP DRAWINGS PREPARED BY THIS CONTRACTOR SHALL INDICATE SPACE ALLOWANCES FOR ALL WORK OF ALL OTHER TRADES.

NEW YORK STATE ENERGY CODE COMPLIANCE

1. TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE.
2. EXHAUST OPENINGS INTEGRAL TO THE BUILDING ENVELOPE SHALL BE EQUIPPED WITH NOT LESS THAN A CLASS I MOTORIZED, LEAKAGE-RATED DAMPER WITH A MAXIMUM LEAKAGE RATE OF 4 CFM PER SQUARE FOOT AT 1.0 INCH WATER GAUGE WHEN TESTED IN ACCORDANCE WITH AMCA 500D.
3. ALL SUPPLY AND RETURN AIR DUCTS AND PLENUMS SHALL BE INSULATED WITH A MINIMUM OF R-5 INSULATION WHEN LOCATED IN UNCONDITIONED SPACES AND WITH A MINIMUM OF R-8 INSULATION WHEN LOCATED OUTSIDE OF A BUILDING (EXCEPT WHEN LOCATED WITHIN EQUIPMENT OR WHEN THE DESIGN TEMPERATURE DIFFERENCE BETWEEN INTERIOR AND EXTERIOR OF THE DUCT OR PLENUM DOES NOT EXCEED 15°F). REFER TO SPECIFICATIONS FOR ADDITIONAL INSULATION REQUIREMENTS.
4. ALL DUCTS, AIR HANDLERS AND FILTER BOXES SHALL BE SEALED. JOINTS AND SEAMS SHALL COMPLY WITH SECTION 603.9 OF THE MECHANICAL CODE OF NEW YORK STATE OR, IN NEW YORK CITY, THE NEW YORK CITY CONSTRUCTION CODES. REFER TO SPECIFICATIONS FOR ADDITIONAL SEALING REQUIREMENTS.
5. ALL LONGITUDINAL AND TRANSVERSE JOINTS, SEAMS AND CONNECTIONS OF SUPPLY AND RETURN DUCTS OPERATING AT A STATIC PRESSURE LESS THAN OR EQUAL TO 2 INCHES W.G. SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC-PLUS-EMBEDDED-FABRIC SYSTEMS OR TAPES IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND SPECIFICATIONS.
6. ALL PIPING (EXCEPT FOR RUNOUT PIPING NOT EXCEEDING 4 FEET IN LENGTH AND 1 INCH IN DIAMETER BETWEEN THE CONTROL VALVE AND HVAC COIL) SHALL BE THERMALLY INSULATED AS FOLLOWS:
 - A. HEATING WOT WATER < 1.5 INCHES DIAMETER: 1.5 INCHES MINIMUM THICKNESS
 - B. HEATING HOT WATER > 1.5 INCHES DIAMETER: 2.0 INCHES MINIMUM THICKNESS
 - C. CHILLED WATER: 1.5 INCHES MINIMUM THICKNESS
 - D. BASED ON INSULATION HAVING A THERMAL CONDUCTIVITY (k) NOT EXCEEDING 0.27 BTU PER INCH/H-SF-°F. REFER TO SPECIFICATIONS FOR ADDITIONAL INSULATION REQUIREMENTS.
7. AN OPERATING AND MAINTENANCE MANUAL SHALL BE PROVIDED TO THE BUILDING OWNER BY THE MECHANICAL CONTRACTOR. THE MANUAL SHALL INCLUDE, AT LEAST, THE FOLLOWING:
 - A. EQUIPMENT CAPACITY (INPUT AND OUTPUT) AND REQUIRED MAINTENANCE ACTIONS.
 - B. EQUIPMENT OPERATION AND MAINTENANCE MANUALS.
 - C. HVAC SYSTEM CONTROL MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS, AND CONTROL SEQUENCE DESCRIPTIONS. DESIRED OR FIELD-DETERMINED SET POINTS SHALL BE PERMANENTLY RECORDED ON CONTROL DRAWINGS, AT CONTROL DEVICES, OR IN PROGRAMMING COMMENTS.
 - D. A COMPLETE WRITTEN NARRATIVE OF HOW EACH SYSTEM IS INTENDED TO OPERATE.

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NO.	DATE	REVISIONS/DESCRIPTION	APPR'D.

DESIGNED BY:
AP

CHECKED BY:
DK

DESIGN LEAD:
DEEPAK KANDRA, PE

SECTION MANAGER:



ACCOUNTABLE MANAGER
JUSTIN RIVELLINO

PORTFOLIO MANAGER
LAUREN D'ATTILE, PE

DEPUTY DIRECTOR, IN HOUSE DESIGN
MICHAEL LOEHR, PE

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96-05 HORACE HARDING EXPRESSWAY 5th FLOOR
CORONA, NEW YORK 11368
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Page 430 of 536
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KSEB-H-002.00

CONTRACT KENS-EAST-2
KENSICO SITE PREPARATION

HVAC
ELECTRICAL BUILDING
GENERAL NOTES

VRF HEAT PUMP OUTDOOR UNIT SCHEDULE

Table with columns: TAG, MANUFACTURER, MODEL, SYSTEM SERVED, LOCATION, TOTAL COOLING CAPACITY (BTU/H), TOTAL HEATING CAPACITY (BTU/H), EER, PIPING CONNECTION (REFRIGERANT TYPE, REFRIGERANT CHARGE (LB), LIQUID (RL) OD, VAPOR (RHG) OD), COMPRESSOR TYPE, TYPE, DRIVE, QTY, AIRFLOW (CFM), LENGTH, WIDTH, HEIGHT, ELECTRICAL DATA (V, PH, HZ, FLA), OPERATING WEIGHT (LB), NOTES.

NOTES:

- 1. MOUNTED ON BASE RAILS SUPPORTED BY STRUCTURAL CHANNELS. SEE STRUCTURAL DRAWINGS FOR DETAIL
2. UNIT SHALL PROVIDE MINIMUM HEATING CAPACITY OF 21 MBH AT 9 DEG F AMBIENT DESIGN CONDITION
3. UNIT SHALL PROVIDE MINIMUM HEATING CAPACITY OF 11 MBH AT 9 DEG F AMBIENT DESIGN CONDITION

VRF HEAT PUMP INDOOR UNIT SCHEDULE

Table with columns: TAG, MANUFACTURER, MODEL NO., AREA SERVED, LOCATION, TOTAL COOLING CAPACITY (BTU/H), TOTAL HEATING CAPACITY (BTU/H), FAN DATA (DRIVE, QTY, MAX SUPPLY AIRFLOW (CFM)), REFRIGERANT TYPE, PIPING CONNECTIONS (LIQUID (RL) OD, VAPOR (RS) OD, COND ID), DIMENSIONS (LENGTH, WIDTH, HEIGHT), ELECTRICAL DATA (V, PH, HZ, RATED AMP), OPERATING WEIGHT (LB), NOTES.

NOTES:

- 1. UNIT TO BE CEILING MOUNTED, SUSPENDED FROM HANGERS SUPPORTED BY SLAB ABOVE
2. INCLUDE FACTORY MOUNTED CONDENSATE PUMP

ROOFTOP UNIT SCHEDULE

Table with columns: TAG, MANUFACTURER, MODEL, AREA SERVED, PERFORMANCE (TOTAL COOLING CAPACITY (BTU/H), SENSIBLE COOLING CAPACITY (BTU/H), HEATING CAPACITY (BTU/H), AHRI EER), SUPPLY FAN (SUPPLY AIRFLOW (CFM), MINIMUM OUTSIDE AIRFLOW (CFM), EXT S.P. (IN. W.G.), QTY, KW), FILTER (QTY, EFFICIENCY), COMPRESSOR (QTY, KW), REFRIG (REFRIG TYPE, QTY, FAN HP), CONDENSER FAN (V, PH, HZ, FLA), ELECTRICAL (OPERATION), MAXIMUM DIMENSIONS (HEIGHT (IN), WIDTH (IN), LENGTH (IN)), OPERATING WEIGHT (LB), NOTES.

NOTES:

- 1. MOUNTED ON STEEL DUNNAGE WITH GRATING PLATFORM SURROUNDING UNIT FOR ACCESS. SEE STRUCTURAL DRAWINGS FOR DUNNAGE COORDINATION.
2. HEATING CAPACITY AT 9 DEG F AMBIENT DESIGN CONDITION IS 15 MBH. EUH-1 PROVIDES SUPPLEMENTAL HEATING TO MAINTAIN HEATING SETPOINT IN BATTERY ROOM.

ELECTRIC UNIT HEATER SCHEDULE

Table with columns: TAG, MANUFACTURER, MODEL NO., AREA SERVED, LOCATION, TYPE, FAN (AIRFLOW (CFM), HP), ELECTRICAL DATA (CAPACITY (KW), FLA, V, PH, HZ), OPERATING WEIGHT (LB), NOTES.

NOTES:

- 1. UNIT MOUNTED WITH WALL MOUNTING BRACKET.
2. HEATING CAPACITY SIZED FOR 9 DEG F AMBIENT DESIGN CONDITION.
3. UNIT LOCATED IN BATTERY ROOM SHALL BE EXPLOSION PROOF CONSTRUCTION.

DIFFUSER & GRILLE SCHEDULE

Table with columns: TAG, MANUFACTURER, MODEL, TYPE, INLET SIZE (DIAMETER (IN), WIDTH (IN), HEIGHT (IN)), NOMINAL DIMENSIONS (LENGTH (IN), WIDTH (IN), HEIGHT (IN)), MAX S.P. (IN. W.G.), MAX N.C., MAX FLOW (CFM), NOTES.

NOTES:

- 1. GRILLES LOCATED IN BATTERY ROOM SHALL BE STAINLESS STEEL CONSTRUCTION.

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FAN SCHEDULE																		
TAG	MANUFACTURER & MODEL NO.	SERVICE	AREA SERVED	TYPE	CFM	E.S.P. (IN. W.G.)	FAN RPM	BHP	MOTOR DATA					OPERATION	VIBRATION ISOLATION		OPERATING WEIGHT (LB)	NOTES
									HP	V	PH	HZ	DRIVE		TYPE	MINIMUM STATIC DEFLECTION (IN)		
EAF-1	GREENHECK-USF-30-5-A1-0	EXHAUST	UNIT SUBSTATION ROOM	CENTRIFUGAL BLOWER	13,100	1.2	988	5	10	460	3	60	DIRECT	DUTY	OPEN SPRING	0.75	735	3, 7
EAF-2	GREENHECK-USF-30-5-A1-0	EXHAUST	UNIT SUBSTATION ROOM	CENTRIFUGAL BLOWER	13,100	1.2	988	5	10	460	3	60	DIRECT	STANDBY	OPEN SPRING	0.75	735	3, 7
EAF-3	GREENHECK-USF-30-5-A1-0	EXHAUST	MV SWITCHGEAR ROOM	CENTRIFUGAL BLOWER	14,100	1.3	1053	6	10	460	3	60	BELT	DUTY	OPEN SPRING	0.75	735	3, 7
EAF-4	GREENHECK-USF-30-5-A1-0	EXHAUST	MV SWITCHGEAR ROOM	CENTRIFUGAL BLOWER	14,100	1.3	1053	6	10	460	3	60	DIRECT	STANDBY	OPEN SPRING	0.75	735	3, 7
EAF-5	GREENHECK-G-097-VG	EXHAUST	SECURITY ROOM	CENTRIFUGAL DOWNBLAST	270	0.5	1629	0.11	0.25	115	1	60	DIRECT	DUTY	-	0.00	38	4
EAF-6	GREENHECK-G-097-VG	EXHAUST	COMMUNICATIONS ROOM	CENTRIFUGAL DOWNBLAST	130	0.3	1090	0.03	0.25	115	1	60	DIRECT	DUTY	-	0.00	38	8
EAF-7	GREENHECK-USF-10-5-B1	EXHAUST	BATTERY ROOM	CENTRIFUGAL BLOWER	600	0.5	1411	0.12	0.25	115	1	60	BELT	DUTY	-	0.00	180	2, 3, 5, 9
EAF-8	GREENHECK-USF-10-5-B1	EXHAUST	BATTERY ROOM	CENTRIFUGAL BLOWER	600	0.5	1411	0.12	0.25	115	1	60	BELT	STANDBY	-	0.00	180	2, 3, 5, 9
EAF-9	GREENHECK-G-060-VG	EXHAUST	FIRE SUPPRESSION ROOM	CENTRIFUGAL DOWNBLAST	100	0.2	1355	0.01	0.07	115	1	60	DIRECT	DUTY	-	0.00	19	4
SAF-1	GREENHECK-USF-30-5-A1-0	SUPPLY	UNIT SUBSTATION ROOM	CENTRIFUGAL BLOWER	14,600	2.3	1184	8.9	10	460	3	60	DIRECT	DUTY	OPEN SPRING	0.75	735	1, 3, 6
SAF-2	GREENHECK-USF-30-5-A1-0	SUPPLY	UNIT SUBSTATION ROOM	CENTRIFUGAL BLOWER	14,600	2.3	1184	8.9	10	460	3	60	DIRECT	STANDBY	OPEN SPRING	0.75	735	1, 3, 6
SAF-3	GREENHECK-USF-30-5-A1-0	SUPPLY	MV SWITCHGEAR ROOM	CENTRIFUGAL BLOWER	15,600	2.1	1216	9.4	10	460	3	60	DIRECT	DUTY	OPEN SPRING	0.75	735	1, 3, 6
SAF-4	GREENHECK-USF-30-5-A1-0	SUPPLY	MV SWITCHGEAR ROOM	CENTRIFUGAL BLOWER	15,600	2.1	1216	9.4	10	460	3	60	DIRECT	STANDBY	OPEN SPRING	0.75	735	1, 3, 6

NOTES:

- PROVIDE INLET GUARD.
- PROVIDE OUTLET GUARD.
- FAN MOUNTED ON BASE RAILS WITH SPRING ISOLATORS. BASE RAILS SUPPORTED BY STRUCTURAL CHANNELS. SEE STRUCTURAL DRAWINGS FOR DETAIL.
- FAN MOUNTED ON ROOF CURB. SEE STRUCTURAL DRAWINGS FOR DETAIL.
- TOP HORIZONTAL CONFIGURATION.
- BOTTOM HORIZONTAL CONFIGURATION.
- TOP ANGULAR UP CONFIGURATION.
- FAN MOUNTED 3 FEET ABOVE ROOF LEVEL ON STEEL FRAME TO ALLOW DUCT CONNECTION FROM BELOW WITH 18" CLEARANCE FROM ROOF.
- FANS SHALL HAVE MINIMUM OF 2 HOURS OF STANDBY POWER AND SUPERVISION AT DEP SELECTED CENTRAL MONITORING STATION PER SECTION 1206.13.1, 2020 NYS FIRE CODE IN ACCORDANCE WITH NFPA 72

MOTORIZED DAMPER SCHEDULE

TAG	MANUFACTURER	MODEL NO.	DAMPER DIMENSIONS		DAMPER ACTUATORS		
			HEIGHT (IN)	WIDTH (IN)	V	PH	HZ
MD-01	EWC	ND	24	24	24	1	60
MD-02	EWC	ND	36	42	24	1	60
MD-03	EWC	ND	36	42	24	1	60
MD-04A	EWC	ND	32	24	24	1	60
MD-04B	EWC	ND	32	24	24	1	60
MD-05	EWC	ND	36	42	24	1	60
MD-06A	EWC	ND	32	24	24	1	60
MD-06B	EWC	ND	32	24	24	1	60
MD-07	EWC	ND	36	42	24	1	60
MD-08A	EWC	ND	32	24	24	1	60
MD-08B	EWC	ND	32	24	24	1	60
MD-09	EWC	ND	36	42	24	1	60
MD-10A	EWC	ND	32	24	24	1	60
MD-10B	EWC	ND	32	24	24	1	60
MD-11	EWC	ND	16	16	24	1	60
MD-12	EWC	ND	12	12	24	1	60
MD-13	EWC	ND	8	8	24	1	60
MD-14	EWC	ND	12	12	24	1	60
MD-15	EWC	ND	16	16	24	1	60
MD-16	EWC	ND	16	16	24	1	60
MD-17	EWC	ND	16	16	24	1	60
MD-18	EWC	ND	16	16	24	1	60
MD-19	EWC	ND	12	12	24	1	60
MD-20	EWC	ND	12	12	24	1	60
MD-21	EWC	ND	8	8	24	1	60
MD-22	EWC	ND	12	12	24	1	60

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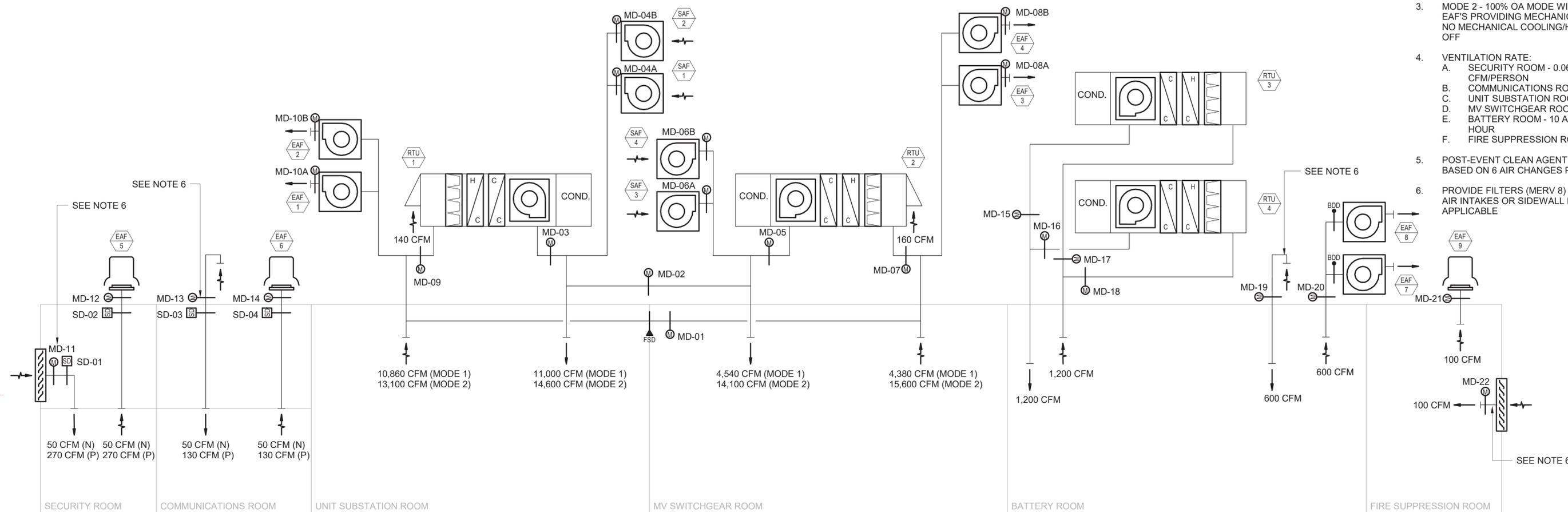
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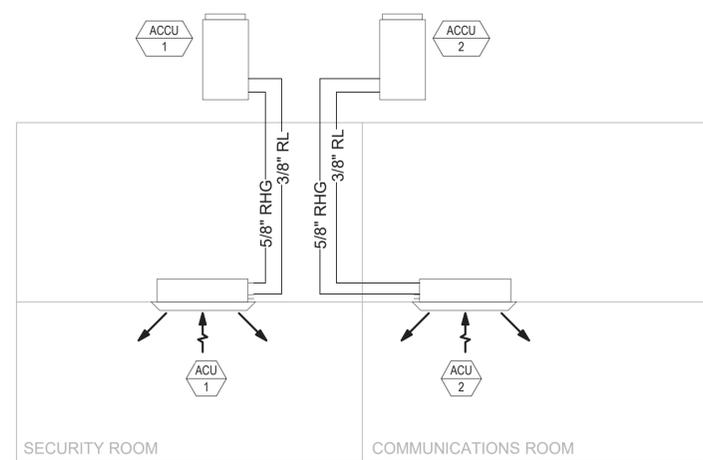
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NOTES:

- (N) - NORMAL OPERATION; (P) - PURGE MODE OPERATION (POST CLEAN AGENT RELEASE EVENT)
- MODE 1 - MECHANICAL COOLING WITH MINIMUM OA REQUIREMENT PROVIDED BY RTU'S; SAF'S AND EAF'S OFF
- MODE 2 - 100% OA MODE WITH SAF'S AND EAF'S PROVIDING MECHANICAL VENTILATION; NO MECHANICAL COOLING/HEATING; RTU'S OFF
- VENTILATION RATE:
 - SECURITY ROOM - 0.06 CFM/SF & 5 CFM/PERSON
 - COMMUNICATIONS ROOM - 0.06 CFM/SF
 - UNIT SUBSTATION ROOM - 0.06 CFM/SF
 - MV SWITCHGEAR ROOM - 0.06 CFM/SF
 - BATTERY ROOM - 10 AIR CHANGES PER HOUR
 - FIRE SUPPRESSION ROOM - 0.06 CFM/SF
- POST-EVENT CLEAN AGENT PURGE RATE BASED ON 6 AIR CHANGES PER HOUR
- PROVIDE FILTERS (MERV 8) ON ALL MAKE-UP AIR INTAKES OR SIDEWALL LOUVERS AS APPLICABLE



AIRSIDE SINGLE LINE DIAGRAM
SCALE: N.T.S.



REFRIGERANT PIPING DIAGRAM
SCALE: N.T.S.

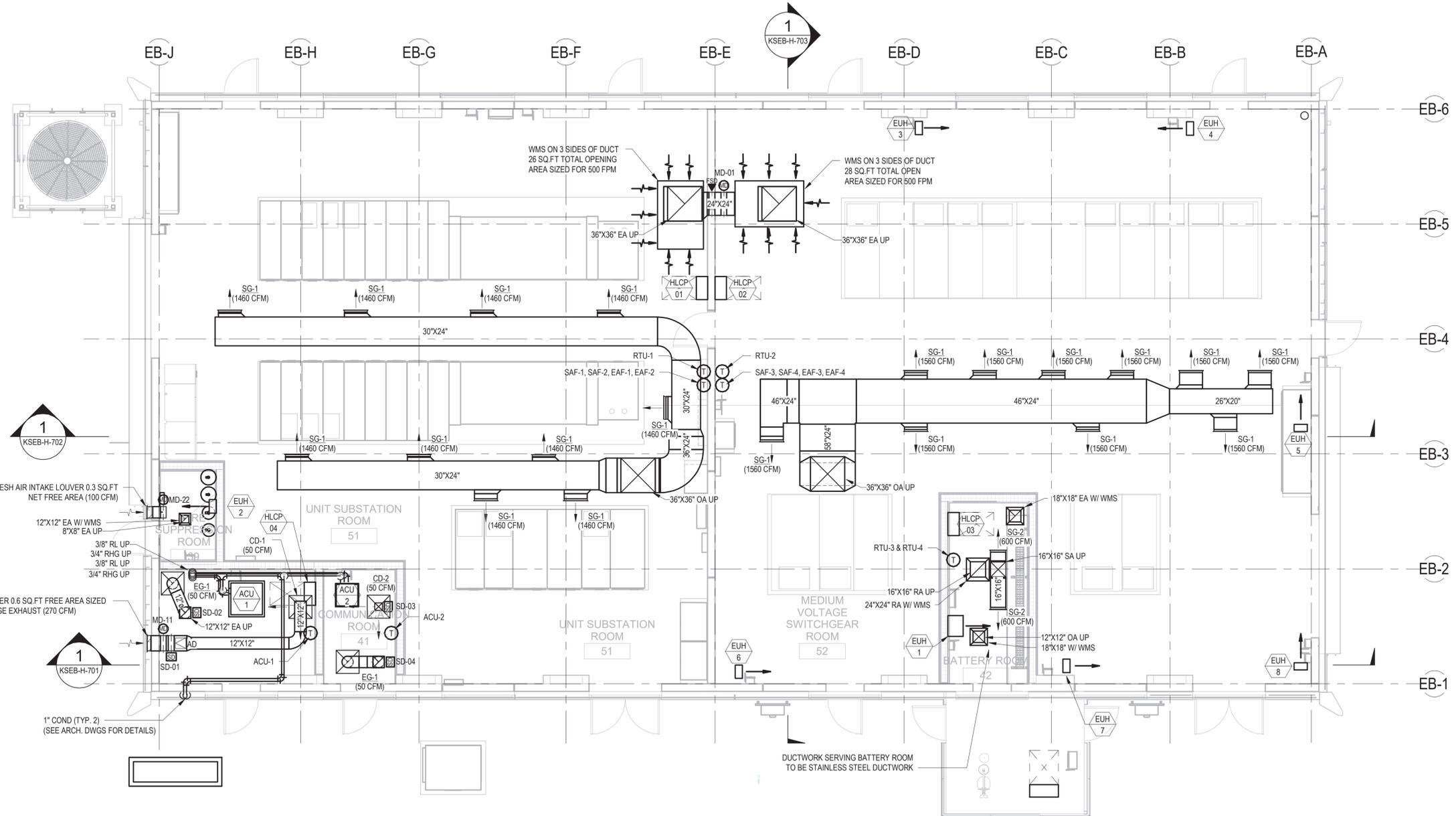
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	CHECKED BY: DK	DESIGN LEAD: DEEPAK KANDRA, PE			DEPUTY DIRECTOR, IN HOUSE DESIGN MICHAEL LOEHR, PE				SCALE: AS NOTED
			SECTION MANAGER:						SHEET NO: Page 433 of 536
									DRAWING NO. KSEB-H-301.00

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1 OVERALL PLAN OF ELECTRICAL BUILDING
SCALE: 3/16" = 1'-0"

3/16"=1'-0" 0 5 10 FT.

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JUSTIN RIVELLINO
PORTFOLIO MANAGER
LAUREN D'ATTILE, PE
DEPUTY DIRECTOR, IN HOUSE DESIGN
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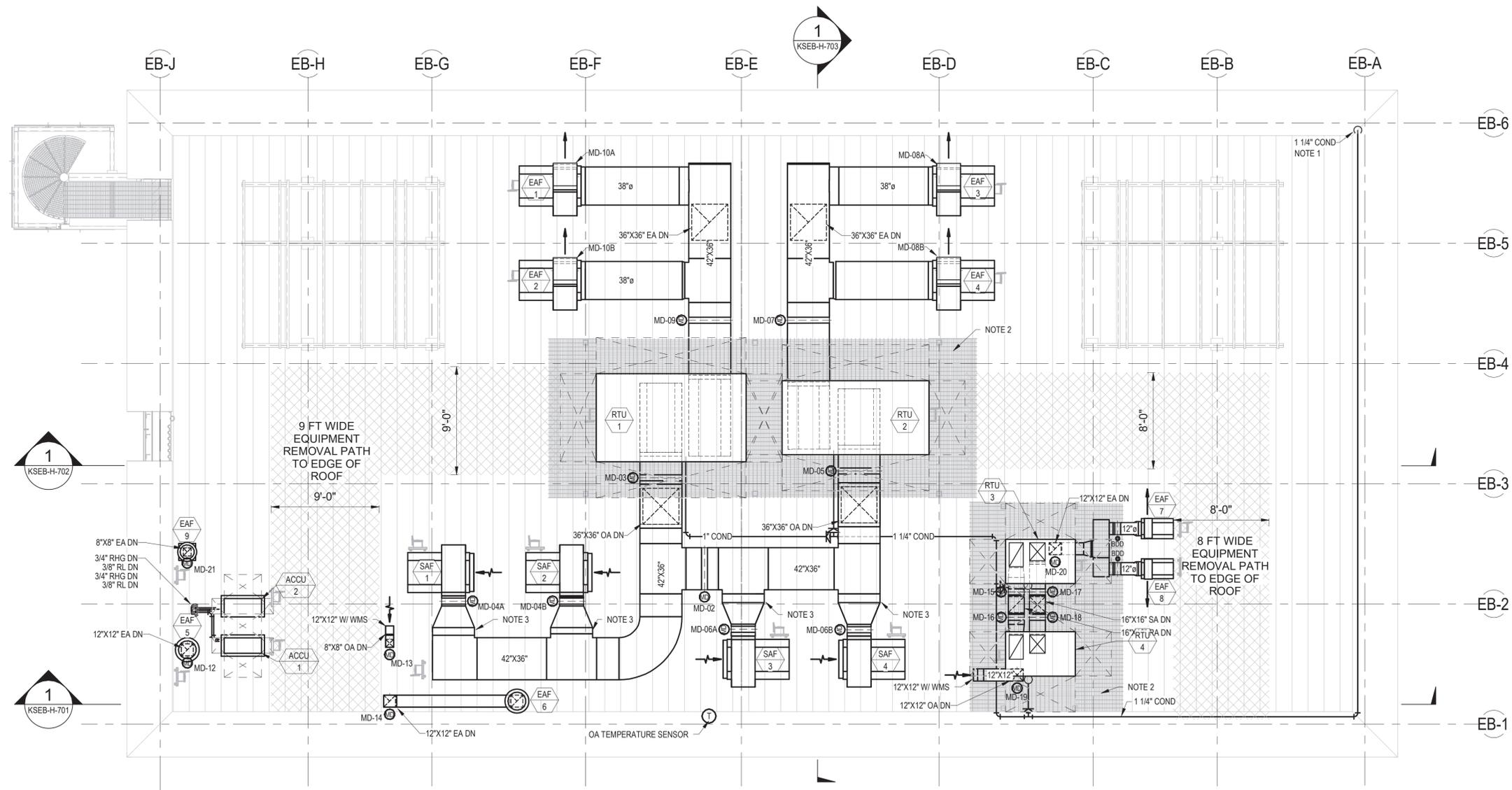
CONTRACT KENS-EAST-2
KENSICO SITE PREPARATION
HVAC
ELECTRICAL BUILDING
OVERALL FLOOR PLAN

DATE: APRIL 2023
SCALE: AS NOTED
SHEET NO:
Page 434 of 536
DRAWING NO.
KSEB-H-401.00

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NOTES:

- CONDENSATE DRAIN TO LOW POINT ON ROOF.
- STEEL GRATING ACCESS PLATFORM FOR RTU'S LOCATED ON DUNNAGE. REFER TO STRUCTURAL DRAWINGS FOR DUNNAGE DETAILS.
- PROVIDE AIR FILTER (MERV 8) AT SUPPLY AIR FAN
- PROVIDE FILTERS (MERV 8) ON ALL MAKE-UP AIR INTAKES OR SIDEWALL LOUVERS AS APPLICABLE



1 OVERALL ROOF PLAN OF ELECTRICAL BUILDING
SCALE: 3/16" = 1'-0"

3/16"=1'-0" 0 5 10 FT.

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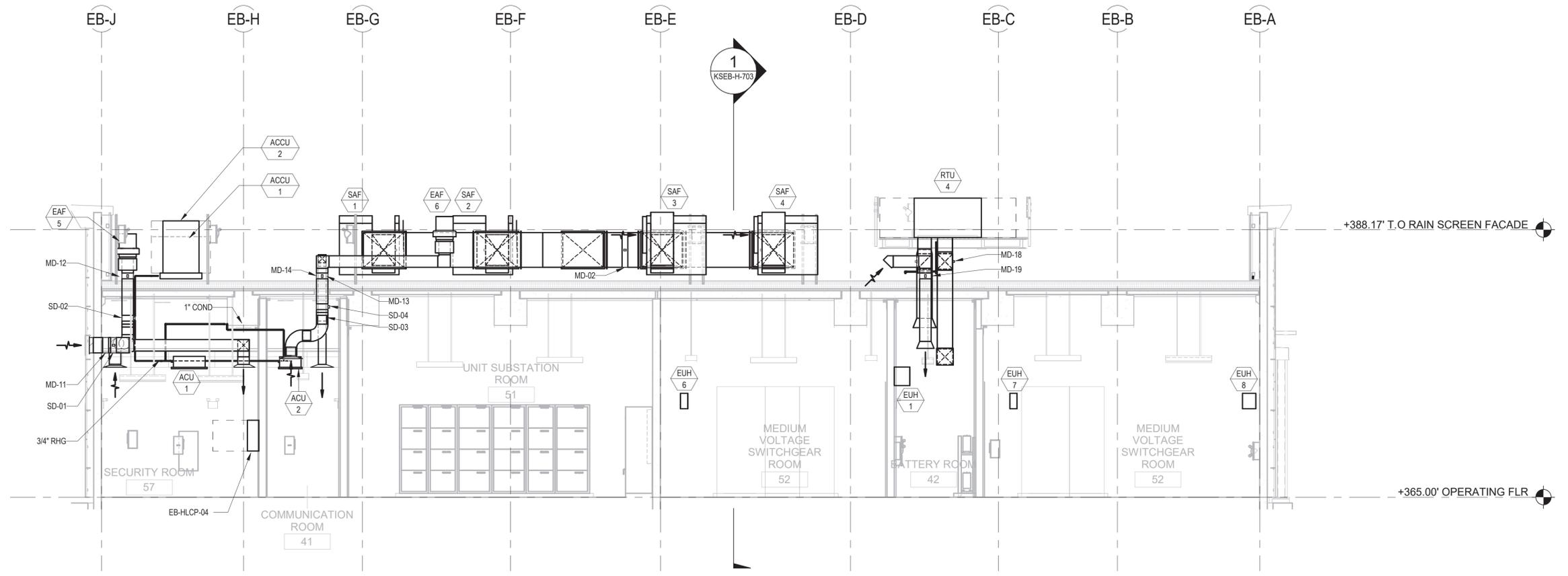
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CONTRACT KENS-EAST-2
KENSICO SITE PREPARATION

HVAC
ELECTRICAL BUILDING
OVERALL ROOF PLAN

DATE: APRIL 2023
SCALE: AS NOTED
SHEET NO:
Page 435 of 536
DRAWING NO.
KSEB-H-402.00

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1 SECTION 1
 KSEB-H-401 SCALE: 3/16" = 1'-0"

3/16"=1'-0" 0 5 10 FT.

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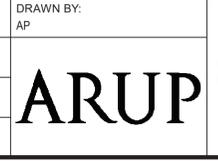
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DESIGN LEAD:
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SECTION MANAGER:



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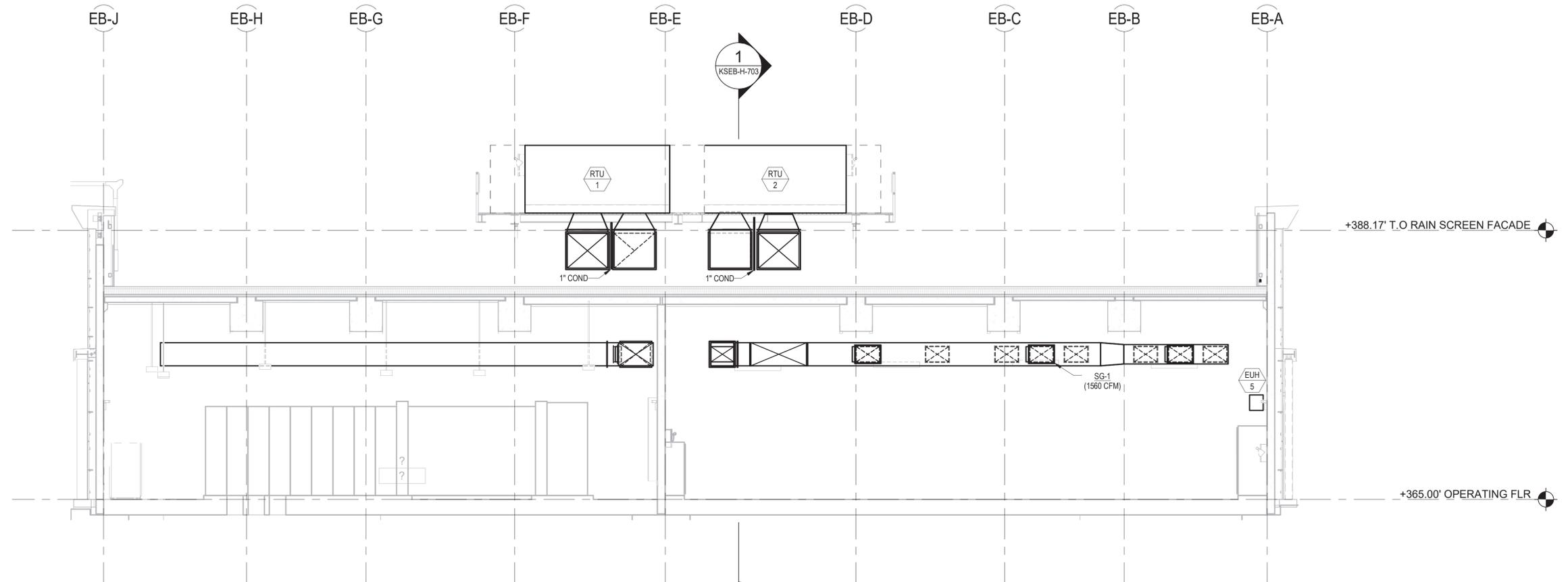
CONTRACT KENS-EAST-2
KENSICO SITE PREPARATION

HVAC
 ELECTRICAL BUILDING
 SECTIONS 1

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1 2 3 4 5 6 7 8 9 10

A
B
C
D
E
F



1 SECTION 2
KSEB-H-401 SCALE: 3/16" = 1'-0"

3/16"=1'-0" 0 5 10 FT.

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DATE ISSUED: 04/2023

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KENSICO SITE PREPARATION

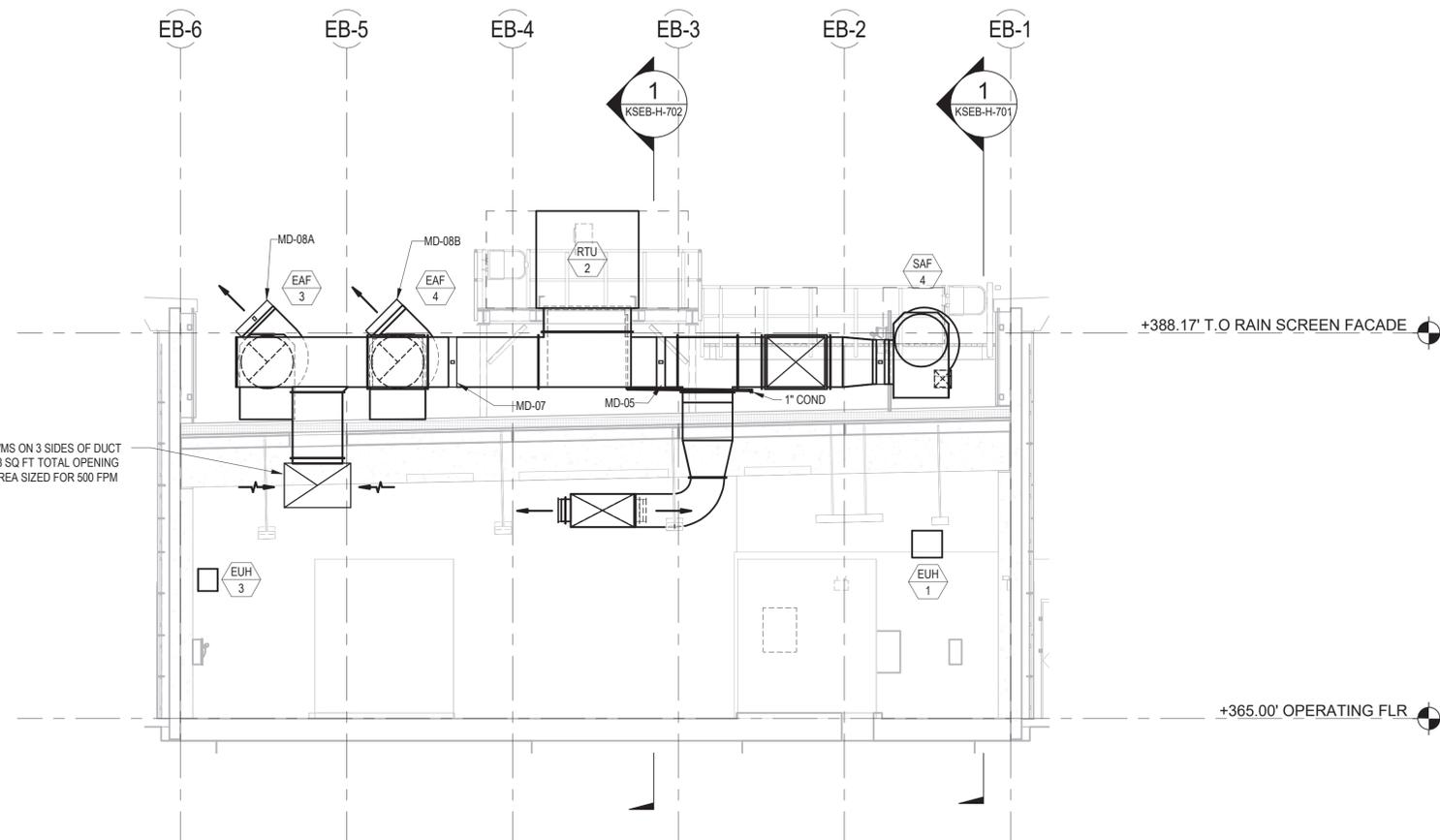
HVAC
ELECTRICAL BUILDING
SECTIONS 2

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DRAWING NO.
KSEB-H-702.00

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SECTION 3
KSEB-H-401 SCALE: 3/16" = 1'-0"



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DESIGN LEAD:
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SECTION MANAGER:



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PORTFOLIO MANAGER
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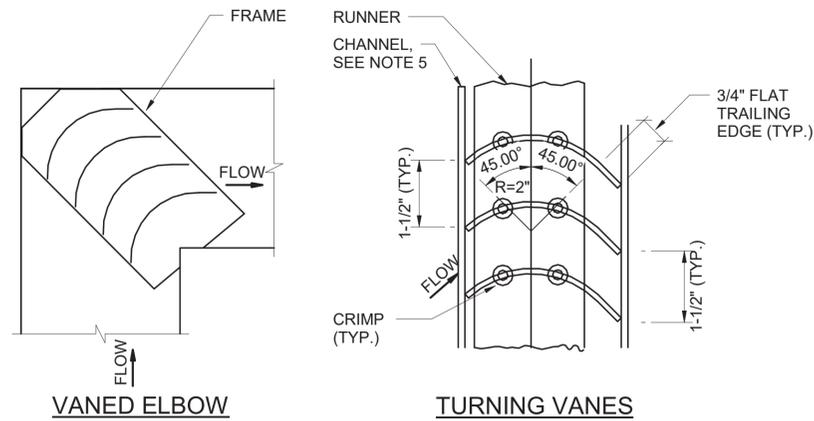
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KENSICO SITE PREPARATION

HVAC
ELECTRICAL BUILDING
SECTIONS 3

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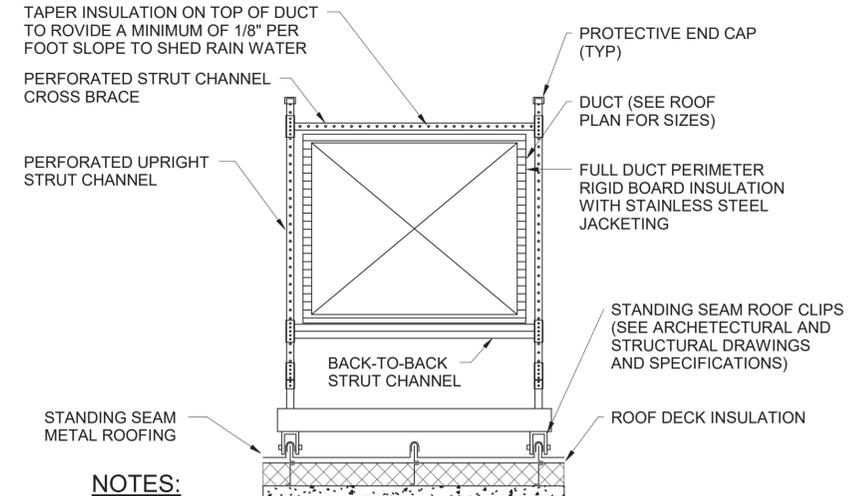
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NOTES:

1. MAXIMUM UNSUPPORTED VANE LENGTH 36"
2. VANES AND FRAMES 24 GAUGE
3. DUCT INLET AND OUTLET DIMENSIONS TO BE EQUAL
4. FRAMES AND CHANNELS - BOLTED OR TACK WELDED TO ELBOW
5. FOR HIGH VELOCITY APPLICATIONS PROVIDE 18 GAUGE CHANNEL AND TACK WELD VANE EDGES TO CHANNEL, TYPICAL BOTH ENDS

1 DUCT ELBOW - SQUARE THROAT DETAIL
SCALE: N.T.S.



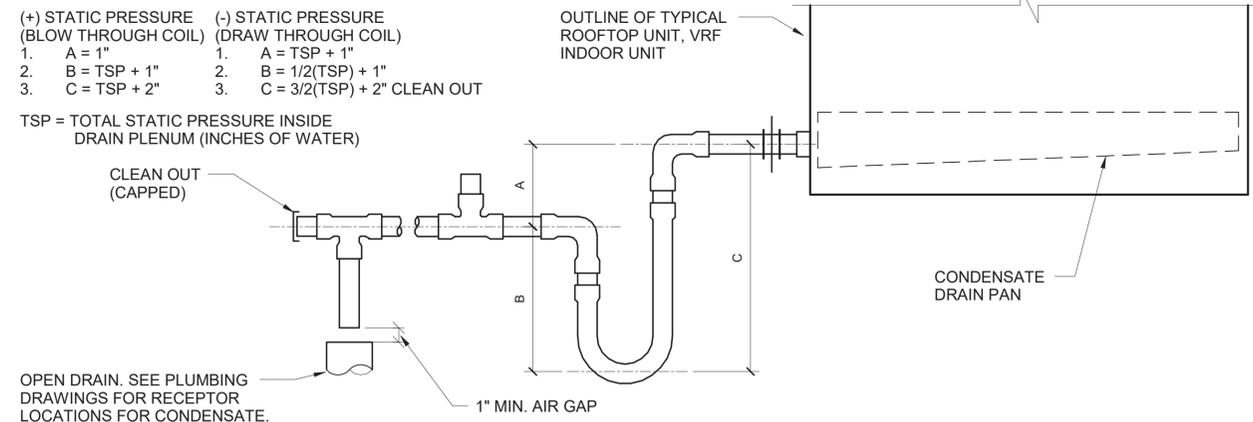
NOTES:

1. ALL DUCTWORK SUPPORT SYSTEM METAL SHALL BE 316 STAINLESS STEEL
2. COORDINATE WIDTH AND HEIGHT OF SUPPORTS WITH DUCTWORK SIZE. ACCOUNT FOR DUCT INSULATION AND METAL JACKETING.
3. MECHANICALLY FASTEN DUCT SUPPORT SYSTEM TO ROOF PER SPECIFICATIONS.
4. DUCTWORK SHALL BE SUPPORTED A MINIMUM OF 24-INCHES ABOVE FINISHED ROOF.
5. REFER TO SPECIFICATIONS FOR MINIMUM SPACING OF SUPPORTS.
6. REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION

2 ROOFTOP DUCT SUPPORT DETAIL
SCALE: N.T.S.

- | | |
|---|---|
| (+) STATIC PRESSURE (BLOW THROUGH COIL) | (-) STATIC PRESSURE (DRAW THROUGH COIL) |
| 1. A = 1" | 1. A = TSP + 1" |
| 2. B = TSP + 1" | 2. B = 1/2(TSP) + 1" |
| 3. C = TSP + 2" | 3. C = 3/2(TSP) + 2" CLEAN OUT |

TSP = TOTAL STATIC PRESSURE INSIDE DRAIN PLENUM (INCHES OF WATER)



3 CONDENSATE TRAP DETAIL
SCALE: N.T.S.

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SECTION MANAGER: **ARUP**

DRAWN BY: AP

ACCOUNTABLE MANAGER
JUSTIN RIVELLINO
PORTFOLIO MANAGER
LAUREN D'ATTILE, PE
DEPUTY DIRECTOR, IN HOUSE DESIGN
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CONTRACT KENS-EAST-2 KENSICO SITE PREPARATION
HVAC ELECTRICAL BUILDING HVAC DETAILS 2

DATE: APRIL 2023
SCALE: AS NOTED
SHEET NO: Page 440 of 536
DRAWING NO. KSEB-H-802.00

SYMBOLS AND TAGS

SYMBOL	DESCRIPTION
	FAN - CENTRIFUGAL
	ACTUATOR - MOTOR
	MOTOR STARTER
	PANEL (SEE ABBREVIATIONS)
	DAMPER
	DAMPER - FIRE / SMOKE
	<u>EQUIPMENT TAG</u> XX - DEVICE TYPE YY - DEVICE NUMBER
	<u>BAS DEVICE</u> XX - DEVICE TYPE YY - DEVICE NUMBER
	<u>NON-BAS DEVICE</u> XX - DEVICE TYPE YY - DEVICE NUMBER
	LOCAL HARD WIRED CONNECTION

ABBREVIATIONS

SYMBOL	DESCRIPTION
AC	ALARM CONTACT
ACU	AIR CONDITIONING UNIT
ACCU	AIR COOLED CONDENSING UNIT
AFS	AIR FLOW SWITCH
BDD	BACKDRAFT DAMPER
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BTU	BRITISH THERMAL UNIT
BTUH	BTU PER HOUR
CDP	CONDENSATE PUMP
DES	DAMPER END SWITCH
EA	EXHAUST AIR
EAF	EXHAUST AIR FAN
EUH	ELECTRIC UNIT HEATER
FSD	COMBINATION FIRE/SMOKE DAMPER
LS	LEAK SENSOR
MD	MOTORIZED DAMPER
NO	NUMBER
NTS	NOT TO SCALE
OA	OUTSIDE AIR
RA	RETURN AIR
RTU	ROOFTOP UNIT
SA	SUPPLY AIR
SAF	SUPPLY AIR FAN
SD	SMOKE DAMPER
TT	TEMPERATURE TRANSMITTER
TYP	TYPICAL

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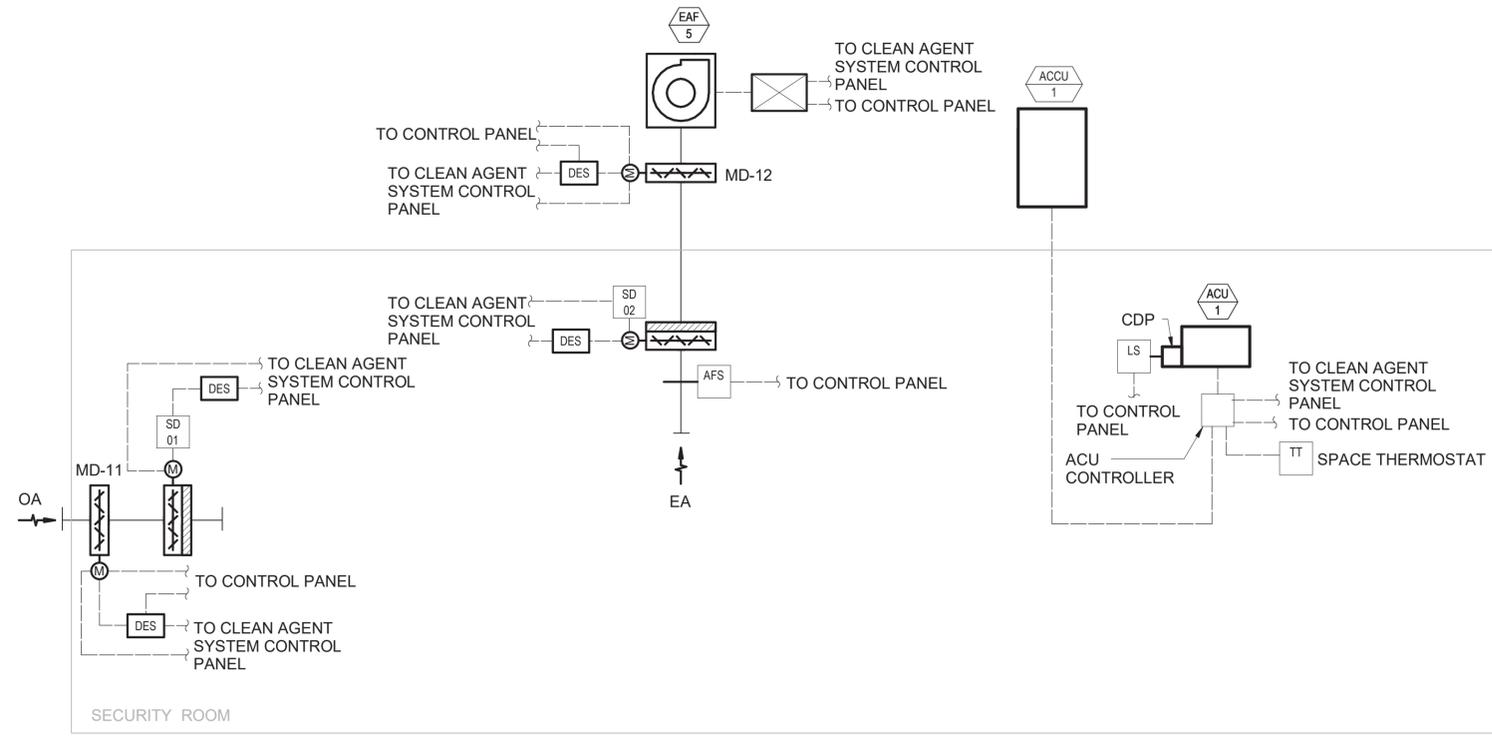
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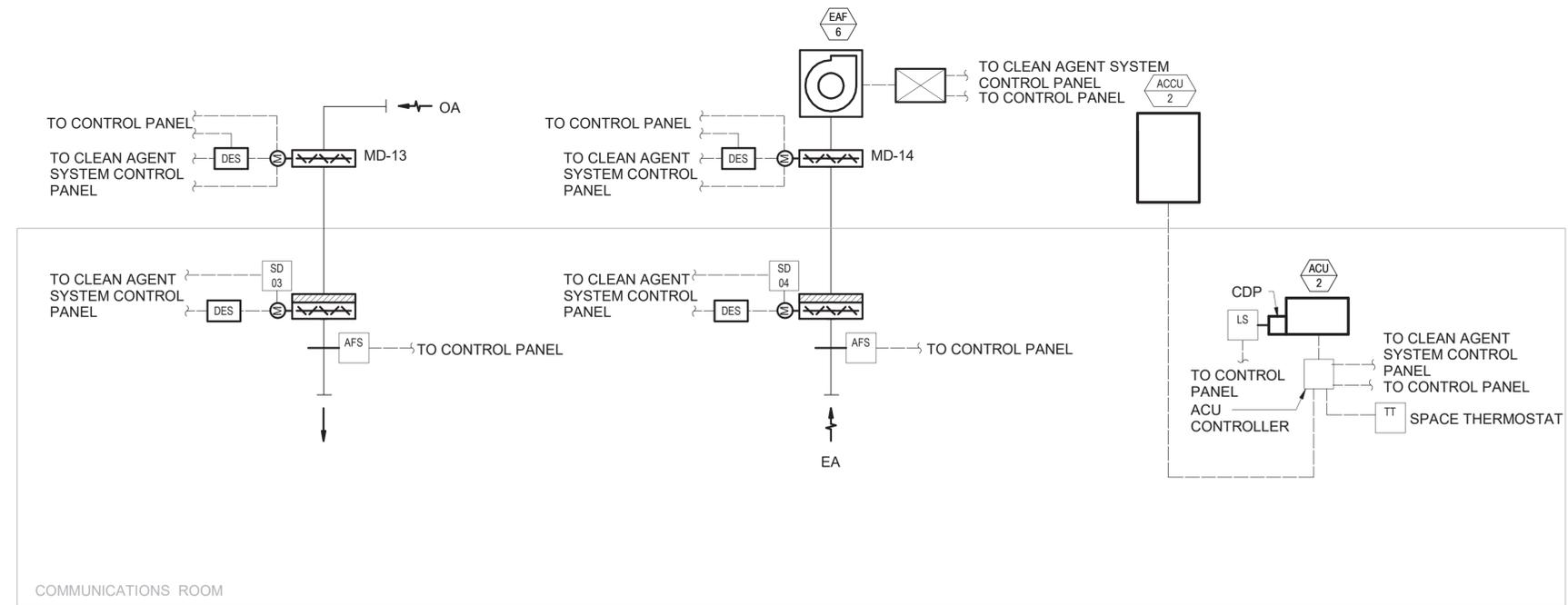
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SHEET NO: Page 441 of 536
DRAWING NO. KSEB-H-901.00



SECURITY ROOM HVAC SYSTEM CONTROL DIAGRAM
SCALE: N.T.S.



COMMUNICATIONS ROOM HVAC SYSTEM CONTROL DIAGRAM
SCALE: N.T.S.

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SECTION MANAGER:



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CONTRACT KENS-EAST-2
KENSICO SITE PREPARATION

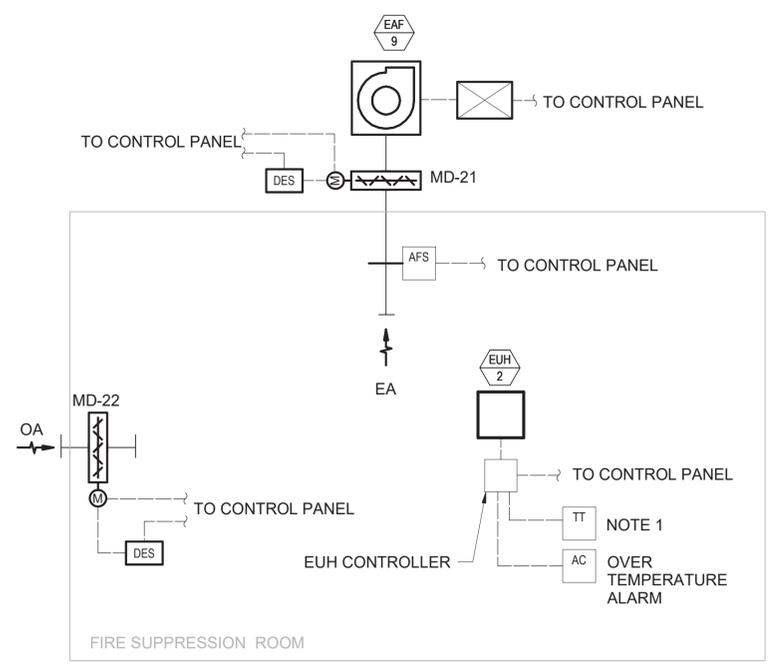
HVAC
ELECTRICAL BUILDING
CONTROLS DIAGRAMS 1

DATE: APRIL 2023
SCALE: AS NOTED
SHEET NO: Page 442 of 536
DRAWING NO. KSEB-H-902.00

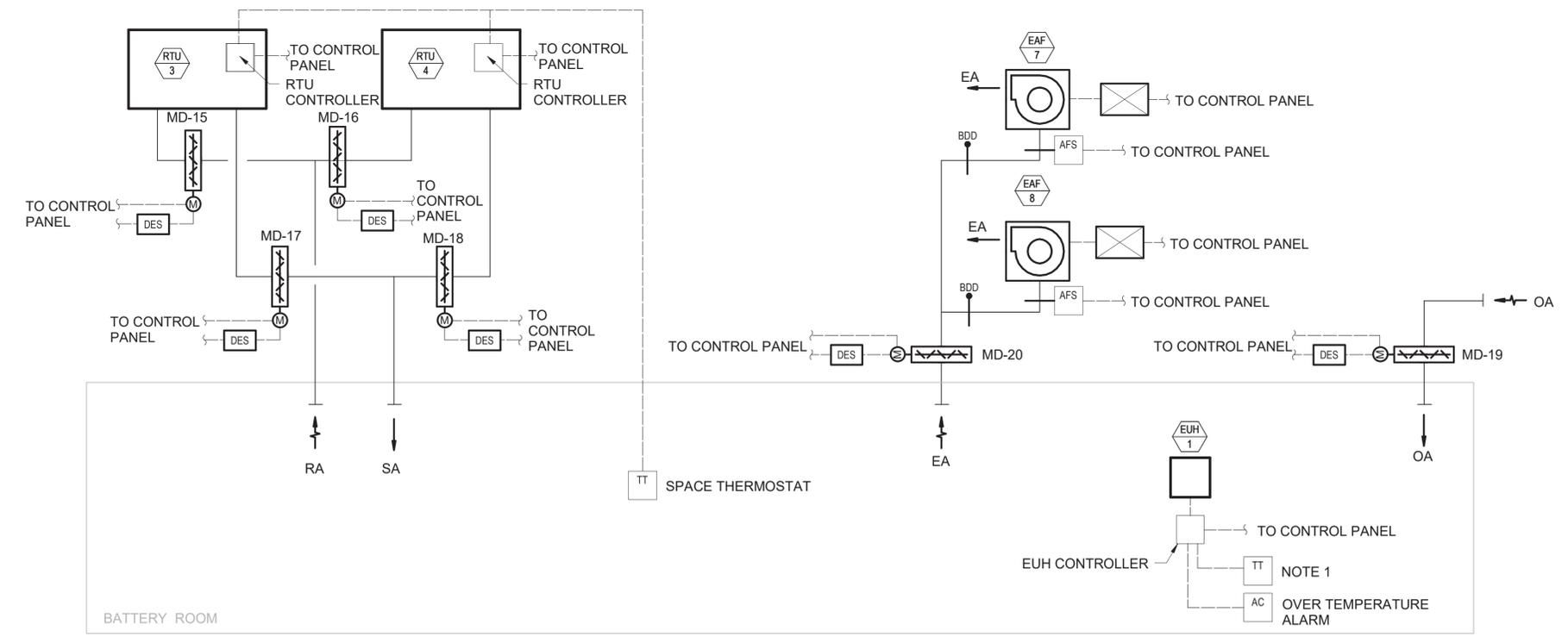
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NOTES:

1. THERMOSTAT INTEGRAL TO UNIT HEATER PROVIDED BY MANUFACTURER



FIRE SUPPRESSION ROOM HVAC SYSTEM CONTROL DIAGRAM
SCALE: N.T.S.



BATTERY ROOM HVAC SYSTEM CONTROL DIAGRAM
SCALE: N.T.S.

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 CHECKED BY:
DK
 DESIGN LEAD:
DEEPAK KANDRA, PE
 SECTION MANAGER:

DRAWN BY:
AP
ARUP



ACCOUNTABLE MANAGER
JUSTIN RIVELLINO
 PORTFOLIO MANAGER
LAUREN D'ATTILE, PE
 DEPUTY DIRECTOR, IN HOUSE DESIGN
MICHAEL LOEHR, PE

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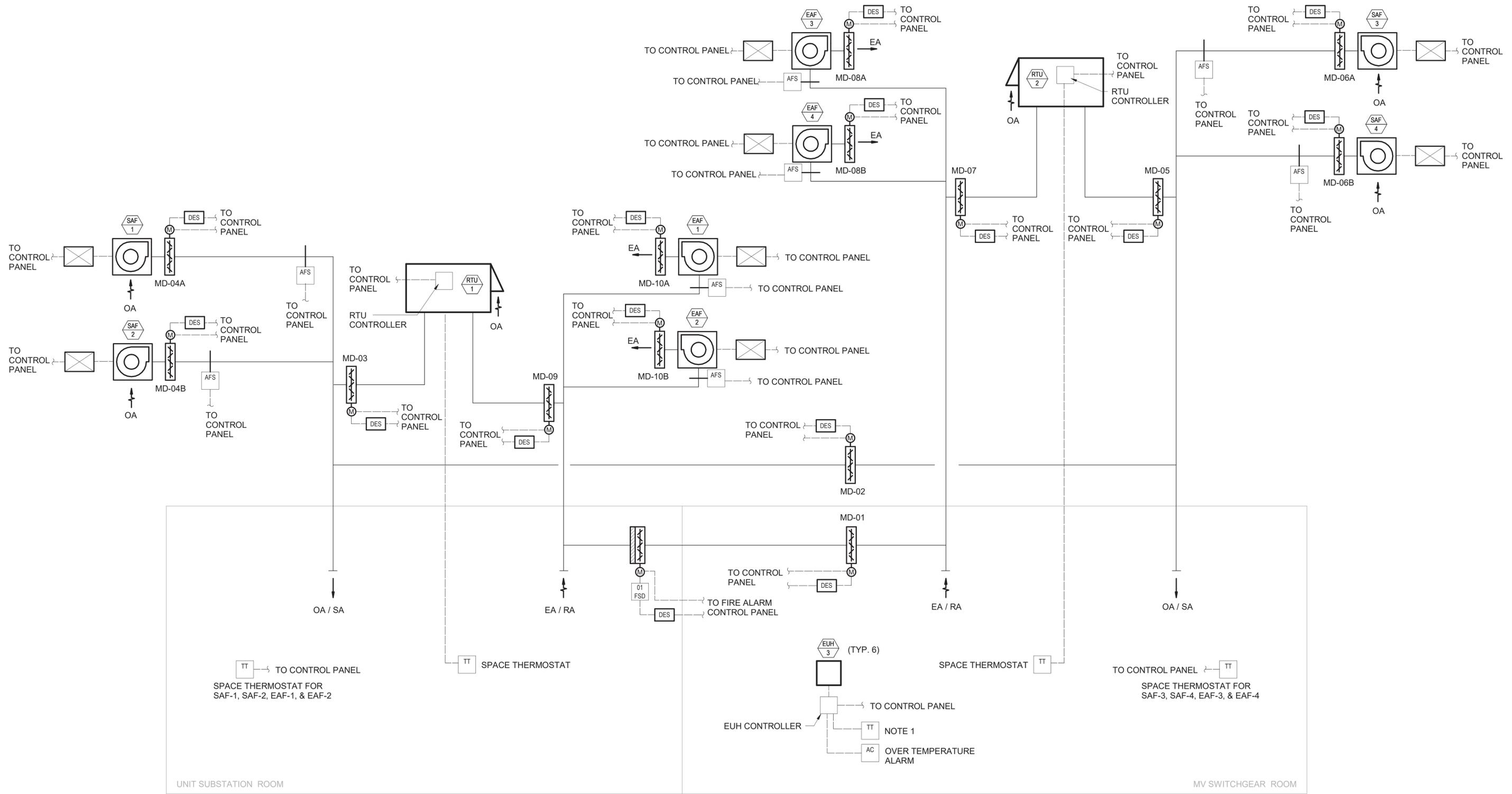
CONTRACT KENS-EAST-2
KENSICO SITE PREPARATION
 HVAC
 ELECTRICAL BUILDING
 CONTROLS DIAGRAMS 2

DATE: APRIL 2023
 SCALE: AS NOTED
 SHEET NO:
 Page 443 of 536
 DRAWING NO.
 KSEB-H-903.00

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NOTES:

1. THERMOSTAT INTEGRAL TO UNIT HEATER PROVIDED BY MANUFACTURER



UNIT SUBSTATION ROOM & MV SWITCHGEAR ROOM HVAC SYSTEMS CONTROL DIAGRAM
SCALE: N.T.S.

NYC Environmental Protection
BID SET
DATE ISSUED: 04/2023

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SECTION MANAGER:

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LAUREN D'ATILE, PE
DEPUTY DIRECTOR, IN HOUSE DESIGN
MICHAEL LOEHR, PE

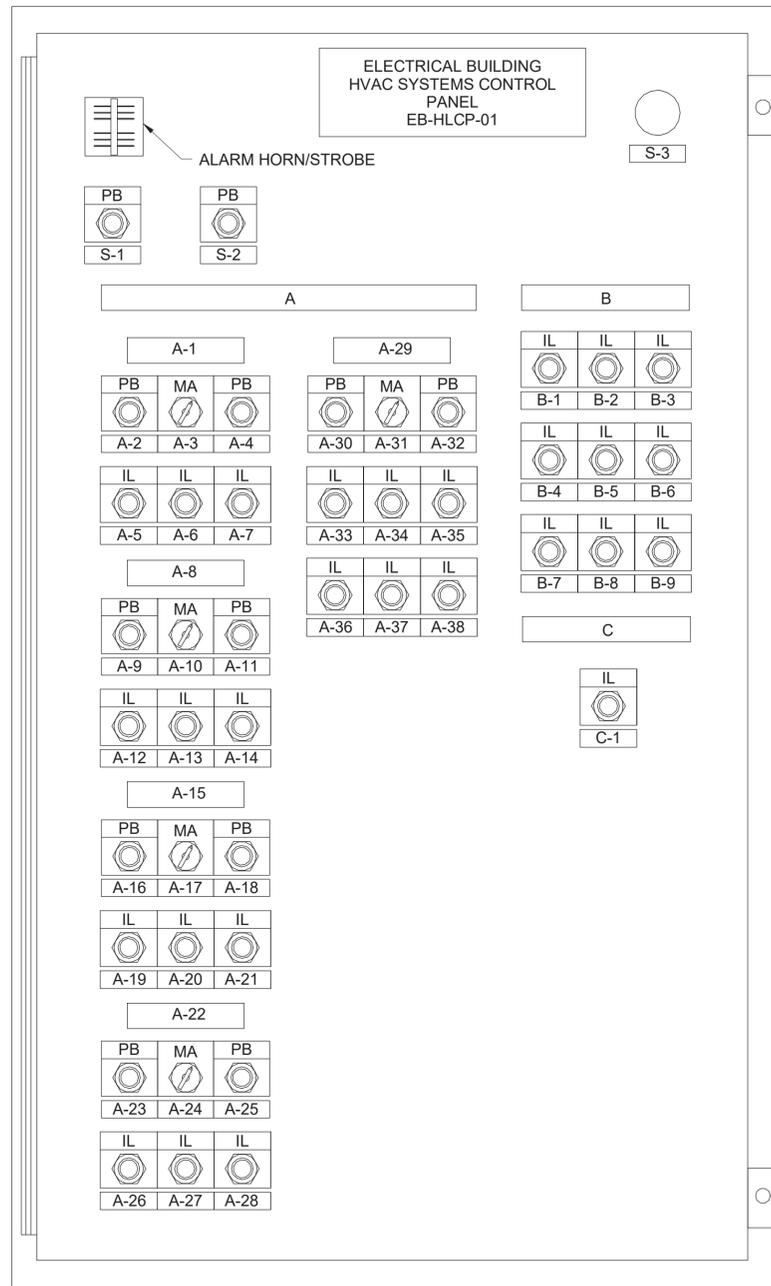
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CONTRACT KENS-EAST-2
KENSICO SITE PREPARATION
HVAC
ELECTRICAL BUILDING
CONTROLS DIAGRAMS 3

DATE: APRIL 2023
SCALE: AS NOTED
SHEET NO:
Page 444 of 536
DRAWING NO.
KSEB-H-904.00

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→ EXHAUST FAN, SUPPLY FAN STATUS, ALARM, AND CONTROL TO FIELD DEVICES
 → TO MOTOR STARTERS (THERMAL OVERLOAD FAULT, MOTOR RUNNING, START-STOP SIGNAL) FOR FANS (BY DIVISION 26)
 → 120V POWER
 → RTU-1 FAULT SIGNAL FROM RTU-1 CONTROLLER

1 CONTROL PANEL EB-HLCP-01 DETAIL
 SCALE: N.T.S.

NAMEPLATE AND PILOT DEVICE SCHEDULE		
NAMEPLATE ID	ENGRAVING	DEVICE TYPE
S-1	ALARM SILENCE	PUSHBUTTON
S-2	SYSTEM RESET	PUSHBUTTON
S-3	E-STOP	MUSHROOM PUSHBUTTON

NAMEPLATE AND PILOT DEVICE SCHEDULE		
NAMEPLATE ID	ENGRAVING	DEVICE TYPE
A	UNIT SUBSTATION ROOM HVAC SYSTEM	NAMEPLATE
A-1	EAF-1	NAMEPLATE
A-2	START	PUSHBUTTON
A-3	MANUAL/AUTO	SELECTOR SWITCH
A-4	STOP	PUSHBUTTON
A-5	READY (GREEN)	INDICATION LIGHTS
A-6	RUNNING (RED)	INDICATION LIGHTS
A-7	DAMPER OPEN (RED)	INDICATION LIGHTS
A-8	EAF-2	NAMEPLATE
A-9	START	PUSHBUTTON
A-10	MANUAL/AUTO	SELECTOR SWITCH
A-11	STOP	PUSHBUTTON
A-12	READY (GREEN)	INDICATION LIGHTS
A-13	RUNNING (RED)	INDICATION LIGHTS
A-14	DAMPER OPEN (RED)	INDICATION LIGHTS
A-15	SAF-1	NAMEPLATE
A-16	START	PUSHBUTTON
A-17	MANUAL/AUTO	SELECTOR SWITCH
A-18	STOP	PUSHBUTTON
A-19	READY (GREEN)	INDICATION LIGHTS
A-20	RUNNING (RED)	INDICATION LIGHTS
A-21	DAMPER OPEN (RED)	INDICATION LIGHTS
A-22	SAF-2	NAMEPLATE
A-23	START	PUSHBUTTON
A-24	MANUAL/AUTO	SELECTOR SWITCH
A-25	STOP	PUSHBUTTON
A-26	READY (GREEN)	INDICATION LIGHTS
A-27	RUNNING (RED)	INDICATION LIGHTS
A-28	DAMPER OPEN (RED)	INDICATION LIGHTS
A-29	RTU-1	NAMEPLATE
A-30	START	PUSHBUTTON
A-31	MANUAL/AUTO	SELECTOR SWITCH
A-32	STOP	PUSHBUTTON
A-33	READY (GREEN)	INDICATION LIGHTS
A-34	RUNNING (RED)	INDICATION LIGHTS
A-35	SUPPLY DAMPER OPEN (RED)	INDICATION LIGHTS
A-36	RETURN DAMPER OPEN (RED)	INDICATION LIGHTS
A-37	MD-01 DAMPER OPEN (RED)	INDICATION LIGHTS
A-38	MD-02 DAMPER OPEN (RED)	INDICATION LIGHTS

NOTES:

- PROVIDE NAMEPLATE FOR EVERY PANEL WITH MULTIPLE SOURCES OF POWER. THE NAMEPLATE SHALL BE RED BACKGROUND, WHITE LETTERS AND IT SHALL READ: "WARNING- THIS DEVICE IS CONNECTED TO MULTIPLE SOURCES OF POWER". TYPICAL FOR ALL PANELS WITH MULTIPLE POWER SOURCES.
- ALL START/STOP OR OPEN/CLOSE PUSHBUTTONS SHALL BE ILLUMINATED LED FLUSH-GUARDED SERIES. ALL INDICATOR LIGHTS SHALL BE LED, PUSH-TO-TEST.
- PILOT DEVICES COLOR CODE:
 - START PUSHBUTTON AND RUN INDICATOR LIGHT - RED
 - STOP PUSHBUTTON AND OFF INDICATOR LIGHT - GREEN
 - VALVE/DAMPER OPEN PUSHBUTTON AND INDICATOR LIGHT - RED
 - VALVE/DAMPER CLOSE PUSHBUTTON AND INDICATOR LIGHT - RED
 - ALARM OR FAULT - AMBER
 - TEST OR SILENCE PUSHBUTTON - BLACK
 - EMERGENCY STOP MOMENTARY
 - MUSHROOM PUSHBUTTON - YELLOW
- REFER TO ELECTRICAL BUILDING HVAC SYSTEM CONTROL DIAGRAMS
- PANEL LOCATED INSIDE ELECTRICAL BUILDING SHALL BE NEMA 1 RATED
- PROVIDE EQUIPMENT NUMBER AND TAG UNDER EACH OPERATING CONTROL AS PER SPECIFICATION 23 05 53 - IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT.
- 120VAC POWER TO CONTROL PANEL SHALL BE PROVIDED BY DIVISION 26. ALL OTHER CONTROL AND POWER WIRING AND CONDUIT FROM CONTROL PANEL TO ALL REMOTE DEVICES, SUCH AS THERMOSTATS, DAMPER ACTUATORS, SENSORS, SWITCHES, ETC., SHALL BE PROVIDED UNDER DIVISION 23. GENERAL NOTES.
- INTEGRATION OF CONTROL PANEL I/O POINTS TO SCADA, IF APPLICABLE, TO BE COORDINATED AT 100% DESIGN.

NAMEPLATE AND PILOT DEVICE SCHEDULE		
NAMEPLATE ID	ENGRAVING	DEVICE TYPE
B	UNIT SUBSTATION ROOM HVAC SYSTEM ALARMS	NAMEPLATE
B-1	EAF-1 FAULT (AMBER)	INDICATION LIGHTS
B-2	EAF-1 AIRFLOW LOSS (AMBER)	INDICATION LIGHTS
B-3	EAF-2 FAULT (AMBER)	INDICATION LIGHTS
B-4	EAF-2 AIRFLOW LOSS (AMBER)	INDICATION LIGHTS
B-5	SAF-1 FAULT (AMBER)	INDICATION LIGHTS
B-6	SAF-1 AIRFLOW LOSS (AMBER)	INDICATION LIGHTS
B-7	SAF-2 FAULT (AMBER)	INDICATION LIGHTS
B-8	SAF-2 AIRFLOW LOSS (AMBER)	INDICATION LIGHTS
B-9	RTU-1 FAULT (AMBER)	INDICATION LIGHTS

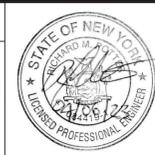
NAMEPLATE AND PILOT DEVICE SCHEDULE		
NAMEPLATE ID	ENGRAVING	DEVICE TYPE
C	SMOKE ALARMS	NAMEPLATE
C-1	SMOKE DETECTOR ALARM (AMBER)	INDICATION LIGHTS

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 SECTION MANAGER:



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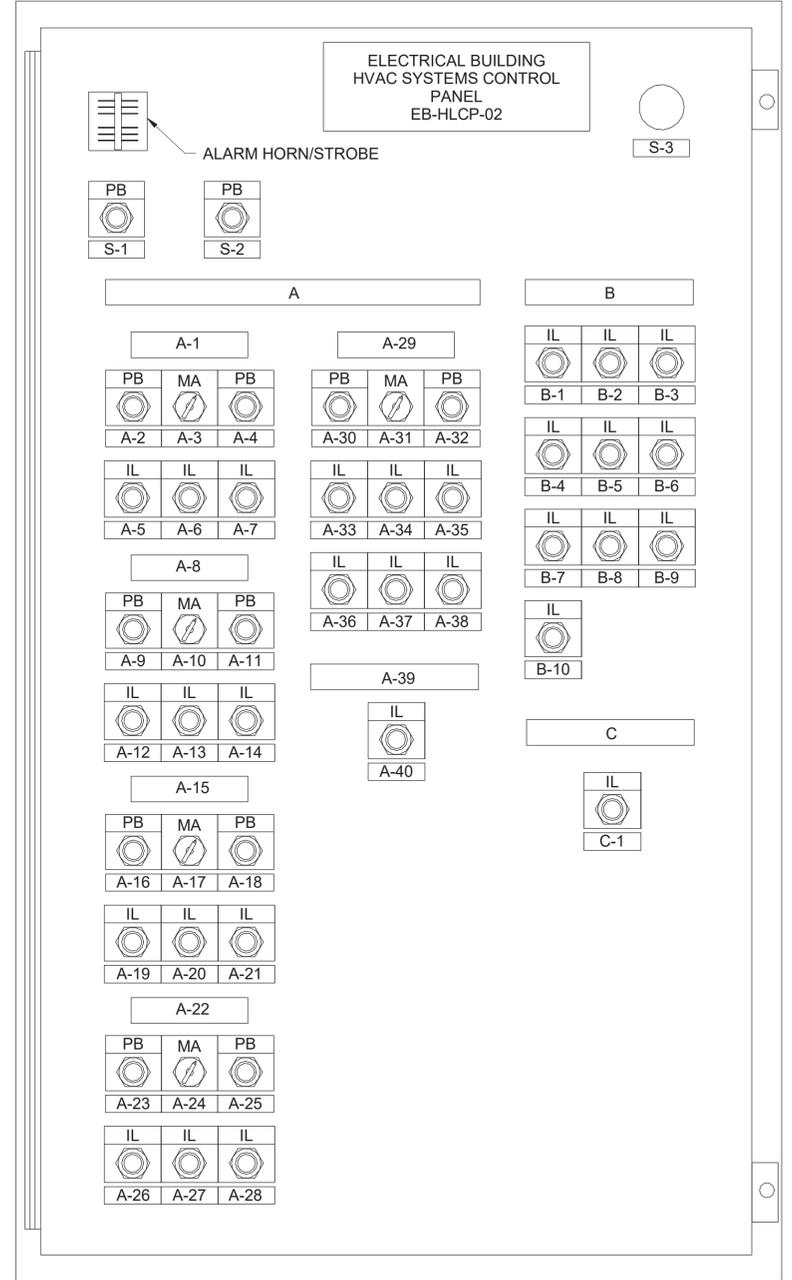
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CONTRACT KENS-EAST-2 KENSICO SITE PREPARATION
 HVAC ELECTRICAL BUILDING CONTROLS DETAILS 1
 DATE: APRIL 2023
 SCALE: AS NOTED
 SHEET NO: Page 445 of 536
 DRAWING NO. KSEB-H-905.00

NOTES:

- PROVIDE NAMEPLATE FOR EVERY PANEL WITH MULTIPLE SOURCES OF POWER. THE NAMEPLATE SHALL BE RED BACKGROUND, WHITE LETTERS AND IT SHALL READ: "WARNING- THIS DEVICE IS CONNECTED TO MULTIPLE SOURCES OF POWER". TYPICAL FOR ALL PANELS WITH MULTIPLE POWER SOURCES.
- ALL START/STOP OR OPEN/CLOSE PUSHBUTTONS SHALL BE ILLUMINATED LED FLUSH-GUARDED SERIES. ALL INDICATOR LIGHTS SHALL BE LED, PUSH-TO-TEST.
- PILOT DEVICES COLOR CODE:
 - START PUSHBUTTON AND RUN INDICATOR LIGHT - RED
 - STOP PUSHBUTTON AND OFF INDICATOR LIGHT - GREEN
 - VALVE/DAMPER OPEN PUSHBUTTON AND INDICATOR LIGHT - RED
 - VALVE/DAMPER CLOSE PUSHBUTTON AND INDICATOR LIGHT - RED
 - ALARM OR FAULT - AMBER
 - TEST OR SILENCE PUSHBUTTON - BLACK
 - EMERGENCY STOP MOMENTARY
 - MUSHROOM PUSHBUTTON - YELLOW
- REFER TO ELECTRICAL BUILDING HVAC SYSTEM CONTROL DIAGRAMS
- PANEL LOCATED INSIDE ELECTRICAL BUILDING SHALL BE NEMA 1 RATED
- PROVIDE EQUIPMENT NUMBER AND TAG UNDER EACH OPERATING CONTROL AS PER SPECIFICATION 23 05 53 - IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT.
- 120VAC POWER TO CONTROL PANEL SHALL BE PROVIDED BY DIVISION 26. ALL OTHER CONTROL AND POWER WIRING AND CONDUIT FROM CONTROL PANEL TO ALL REMOTE DEVICES, SUCH AS THERMOSTATS, DAMPER ACTUATORS, SENSORS, SWITCHES, ETC., SHALL BE PROVIDED UNDER DIVISION 23. GENERAL NOTES.
- INTEGRATION OF CONTROL PANEL I/O POINTS TO SCADA, IF APPLICABLE, TO BE COORDINATED AT 100% DESIGN.



- EXHAUST FAN, SUPPLY FAN STATUS, ALARM, AND CONTROL TO FIELD DEVICES
- TO MOTOR STARTERS (THERMAL OVERLOAD FAULT, MOTOR RUNNING, START-STOP SIGNAL) FOR FANS (BY DIVISION 26)
- 120V POWER
- RTU-2 FAULT SIGNAL FROM RTU-2 CONTROLLER
- FAULT SIGNALS FROM EUH CONTROLLERS

1 CONTROL PANEL EB-HLCP-02 DETAIL
SCALE: N.T.S.

NAMEPLATE AND PILOT DEVICE SCHEDULE		
NAMEPLATE ID	ENGRAVING	DEVICE TYPE
S-1	ALARM SILENCE	PUSHBUTTON
S-2	SYSTEM RESET	PUSHBUTTON
S-3	E-STOP	MUSHROOM PUSHBUTTON

NAMEPLATE AND PILOT DEVICE SCHEDULE		
NAMEPLATE ID	ENGRAVING	DEVICE TYPE
A	MV SWITCHGEAR ROOM HVAC SYSTEM	NAMEPLATE
A-1	EAF-3	NAMEPLATE
A-2	START	PUSHBUTTON
A-3	MANUAL/AUTO	SELECTOR SWITCH
A-4	STOP	PUSHBUTTON
A-5	READY (GREEN)	INDICATION LIGHTS
A-6	RUNNING (RED)	INDICATION LIGHTS
A-7	DAMPER OPEN (RED)	INDICATION LIGHTS
A-8	EAF-4	NAMEPLATE
A-9	START	PUSHBUTTON
A-10	MANUAL/AUTO	SELECTOR SWITCH
A-11	STOP	PUSHBUTTON
A-12	READY (GREEN)	INDICATION LIGHTS
A-13	RUNNING (RED)	INDICATION LIGHTS
A-14	DAMPER OPEN (RED)	INDICATION LIGHTS
A-15	SAF-3	NAMEPLATE
A-16	START	PUSHBUTTON
A-17	MANUAL/AUTO	SELECTOR SWITCH
A-18	STOP	PUSHBUTTON
A-19	READY (GREEN)	INDICATION LIGHTS
A-20	RUNNING (RED)	INDICATION LIGHTS
A-21	DAMPER OPEN (RED)	INDICATION LIGHTS
A-22	SAF-4	NAMEPLATE
A-23	START	PUSHBUTTON
A-24	MANUAL/AUTO	SELECTOR SWITCH
A-25	STOP	PUSHBUTTON
A-26	READY (GREEN)	INDICATION LIGHTS
A-27	RUNNING (RED)	INDICATION LIGHTS
A-28	DAMPER OPEN (RED)	INDICATION LIGHTS
A-29	RTU-2	NAMEPLATE
A-30	START	PUSHBUTTON
A-31	MANUAL/AUTO	SELECTOR SWITCH
A-32	STOP	PUSHBUTTON
A-33	READY (GREEN)	INDICATION LIGHTS
A-34	RUNNING (RED)	INDICATION LIGHTS
A-35	SUPPLY DAMPER OPEN (RED)	INDICATION LIGHTS
A-36	RETURN DAMPER OPEN (RED)	INDICATION LIGHTS
A-37	MD-01 DAMPER OPEN (RED)	INDICATION LIGHTS
A-38	MD-02 DAMPER OPEN (RED)	INDICATION LIGHTS
A-39	HEATING	NAMEPLATE
A-40	EUH HEATING ON (RED)	INDICATION LIGHTS

NAMEPLATE AND PILOT DEVICE SCHEDULE		
NAMEPLATE ID	ENGRAVING	DEVICE TYPE
B	MV SWITCHGEAR ROOM HVAC SYSTEM ALARMS	NAMEPLATE
B-1	EAF-3 FAULT (AMBER)	INDICATION LIGHTS
B-2	EAF-3 AIRFLOW LOSS (AMBER)	INDICATION LIGHTS
B-3	EAF-4 FAULT (AMBER)	INDICATION LIGHTS
B-4	EAF-4 AIRFLOW LOSS (AMBER)	INDICATION LIGHTS
B-5	SAF-3 FAULT (AMBER)	INDICATION LIGHTS
B-6	SAF-3 AIRFLOW LOSS (AMBER)	INDICATION LIGHTS
B-7	SAF-4 FAULT (AMBER)	INDICATION LIGHTS
B-8	SAF-4 AIRFLOW LOSS (AMBER)	INDICATION LIGHTS
B-9	RTU-2 FAULT (AMBER)	INDICATION LIGHTS
B-10	EUH OVER TEMPERATURE (AMBER)	INDICATION LIGHTS

NAMEPLATE AND PILOT DEVICE SCHEDULE		
NAMEPLATE ID	ENGRAVING	DEVICE TYPE
C	SMOKE ALARMS	NAMEPLATE
C-1	SMOKE DETECTOR ALARM (AMBER)	INDICATION LIGHTS

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PORTFOLIO MANAGER LAUREN D'ATTILE, PE	
DEPUTY DIRECTOR, IN HOUSE DESIGN MICHAEL LOEHR, PE	

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CONTRACT KENS-EAST-2
KENSICO SITE PREPARATION

HVAC
ELECTRICAL BUILDING
CONTROLS DETAILS 2

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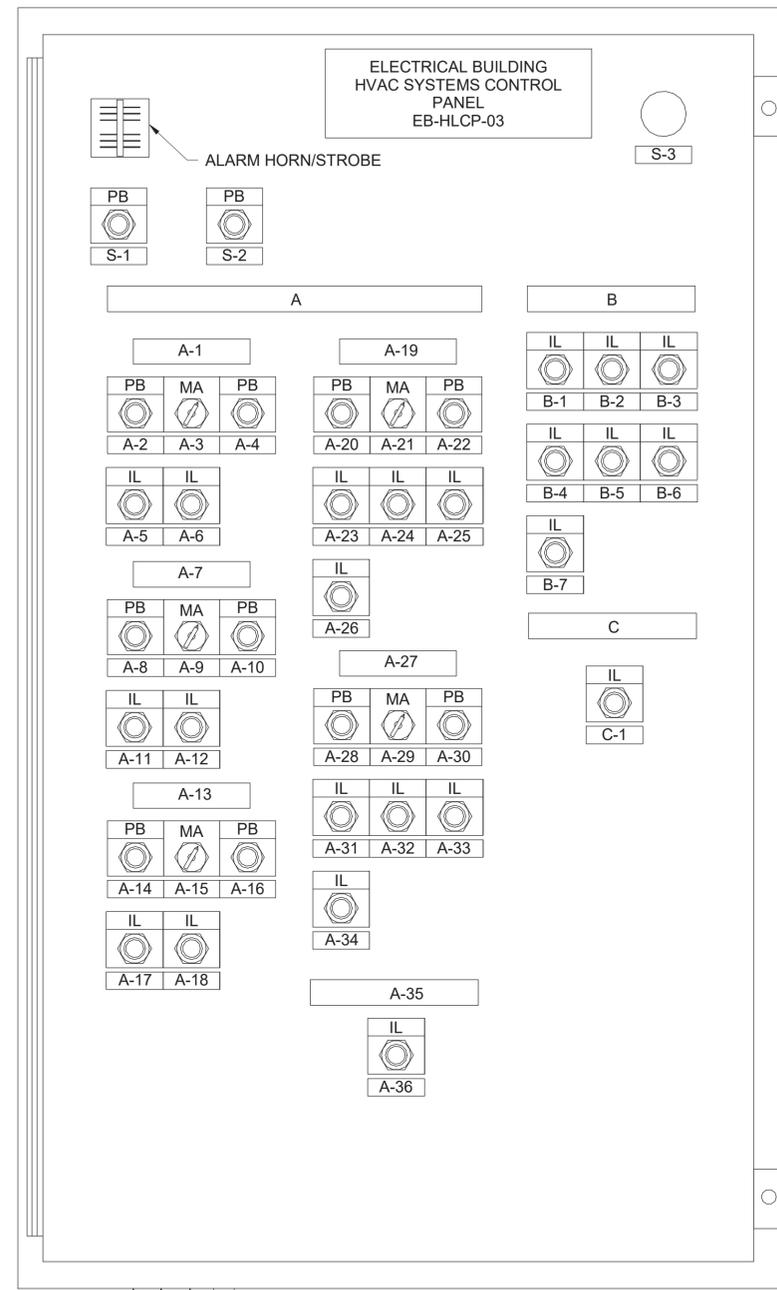
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SHEET NO: Page 446 of 536
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NOTES:

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 - VALVE/DAMPER OPEN PUSHBUTTON AND INDICATOR LIGHT - RED
 - VALVE/DAMPER CLOSE PUSHBUTTON AND INDICATOR LIGHT - RED
 - ALARM OR FAULT - AMBER
 - TEST OR SILENCE PUSHBUTTON - BLACK
 - EMERGENCY STOP MOMENTARY
 - MUSHROOM PUSHBUTTON - YELLOW
- REFER TO ELECTRICAL BUILDING HVAC SYSTEM CONTROL DIAGRAMS
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- ▶ EXHAUST FAN STATUS, ALARM, AND CONTROL TO FIELD DEVICES
- ▶ TO MOTOR STARTERS (THERMAL OVERLOAD FAULT, MOTOR RUNNING, START-STOP SIGNAL) FOR FANS (BY DIVISION 26)
- ▶ 120V POWER
- ▶ RTU FAULT SIGNALS FROM RTU CONTROLLERS
- ▶ FAULT SIGNALS FROM EUH CONTROLLERS

1 CONTROL PANEL EB-HLCP-03 DETAIL
SCALE: N.T.S.

NAMEPLATE AND PILOT DEVICE SCHEDULE		
NAMEPLATE ID	ENGRAVING	DEVICE TYPE
S-1	ALARM SILENCE	PUSHBUTTON
S-2	SYSTEM RESET	PUSHBUTTON
S-3	E-STOP	MUSHROOM PUSHBUTTON

NAMEPLATE AND PILOT DEVICE SCHEDULE		
NAMEPLATE ID	ENGRAVING	DEVICE TYPE
A	BATTERY ROOM HVAC SYSTEM	NAMEPLATE
A-1	EAF-7	NAMEPLATE
A-2	START	PUSHBUTTON
A-3	MANUAL/AUTO	SELECTOR SWITCH
A-4	STOP	PUSHBUTTON
A-5	READY (GREEN)	INDICATION LIGHTS
A-6	RUNNING (RED)	INDICATION LIGHTS
A-7	EAF-8	NAMEPLATE
A-8	START	PUSHBUTTON
A-9	MANUAL/AUTO	SELECTOR SWITCH
A-10	STOP	PUSHBUTTON
A-11	READY (GREEN)	INDICATION LIGHTS
A-12	RUNNING (RED)	INDICATION LIGHTS
A-13	DAMPERS	NAMEPLATE
A-14	MD-19 INTAKE DAMPER OPEN	PUSHBUTTON
A-15	MD-19 INTAKE DAMPER MANUAL/AUTO	SELECTOR SWITCH
A-16	MD-19 INTAKE DAMPER CLOSE	PUSHBUTTON
A-17	MD-19 INTAKE DAMPER OPEN (RED)	INDICATION LIGHTS
A-18	MD-20 EXHAUST DAMPER OPEN (RED)	INDICATION LIGHTS
A-19	RTU-3	NAMEPLATE
A-20	START	PUSHBUTTON
A-21	MANUAL/AUTO	SELECTOR SWITCH
A-22	STOP	PUSHBUTTON
A-23	READY (GREEN)	INDICATION LIGHTS
A-24	RUNNING (RED)	INDICATION LIGHTS
A-25	SUPPLY DAMPER OPEN (RED)	INDICATION LIGHTS
A-26	RETURN DAMPER OPEN (RED)	INDICATION LIGHTS
A-27	RTU-4	NAMEPLATE
A-28	START	PUSHBUTTON
A-29	MANUAL/AUTO	SELECTOR SWITCH
A-30	STOP	PUSHBUTTON
A-31	READY (GREEN)	INDICATION LIGHTS
A-32	RUNNING (RED)	INDICATION LIGHTS
A-33	SUPPLY DAMPER OPEN (RED)	INDICATION LIGHTS
A-34	RETURN DAMPER OPEN (RED)	INDICATION LIGHTS
A-35	HEATING	NAMEPLATE
A-36	EUH HEATING ON (RED)	INDICATION LIGHTS

NAMEPLATE AND PILOT DEVICE SCHEDULE		
NAMEPLATE ID	ENGRAVING	DEVICE TYPE
B	BATTERY ROOM HVAC SYSTEM ALARMS	NAMEPLATE
B-1	EAF-7 FAULT (AMBER)	INDICATION LIGHTS
B-2	EAF-7 AIRFLOW LOSS (AMBER)	INDICATION LIGHTS
B-3	EAF-8 FAULT (AMBER)	INDICATION LIGHTS
B-4	EAF-8 AIRFLOW LOSS (AMBER)	INDICATION LIGHTS
B-5	RTU-3 FAULT (AMBER)	INDICATION LIGHTS
B-6	RTU-4 FAULT (AMBER)	INDICATION LIGHTS
B-7	EUH OVER TEMPERATURE (AMBER)	INDICATION LIGHTS

NAMEPLATE AND PILOT DEVICE SCHEDULE		
NAMEPLATE ID	ENGRAVING	DEVICE TYPE
C	SMOKE ALARMS	NAMEPLATE
C-1	SMOKE DETECTOR ALARM (AMBER)	INDICATION LIGHTS

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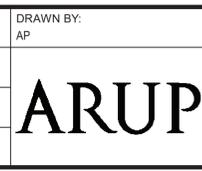
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CHECKED BY: DK
DESIGN LEAD: DEEPAK KANDRA, PE
SECTION MANAGER:



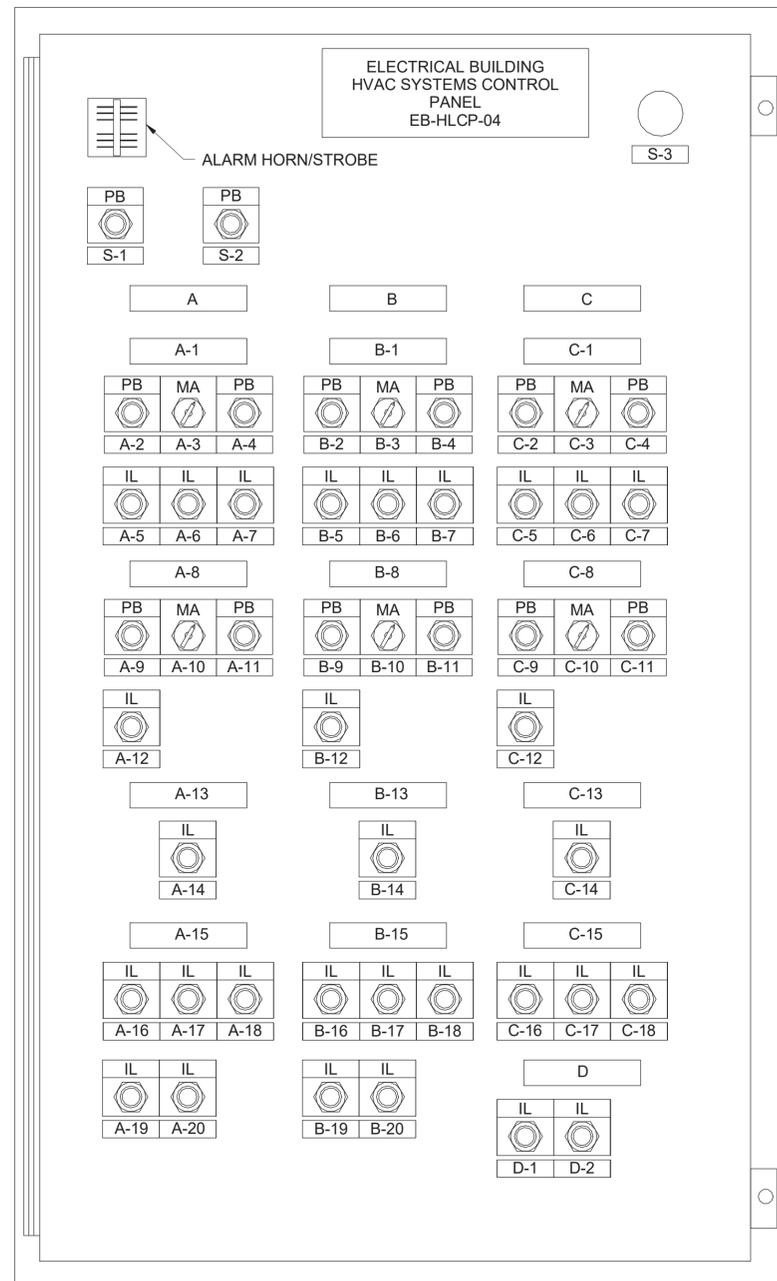
ACCOUNTABLE MANAGER
JUSTIN RIVELLINO
PORTFOLIO MANAGER
LAUREN D'ATTILE, PE
DEPUTY DIRECTOR, IN HOUSE DESIGN
MICHAEL LOEHR, PE

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CONTRACT KENS-EAST-2 KENSICO SITE PREPARATION
HVAC ELECTRICAL BUILDING CONTROLS DETAILS 3

DATE: APRIL 2023
SCALE: AS NOTED
SHEET NO: Page 447 of 536
DRAWING NO. KSEB-H-907.00



▲ EXHAUST FAN STATUS, ALARM, AND CONTROL TO FIELD DEVICES
 ▲ TO MOTOR STARTERS (THERMAL OVERLOAD FAULT, MOTOR RUNNING, START-STOP SIGNAL) FOR FANS (BY DIVISION 26)
 — 120V POWER
 — ACU, ACCU FAULT SIGNALS FROM ACU CONTROLLERS
 — FAULT SIGNALS FROM EUH CONTROLLERS

1 CONTROL PANEL EB-HLCP-04 DETAIL
 SCALE: N.T.S.

NOTES:

- PROVIDE NAMEPLATE FOR EVERY PANEL WITH MULTIPLE SOURCES OF POWER. THE NAMEPLATE SHALL BE RED BACKGROUND, WHITE LETTERS AND IT SHALL READ: "WARNING- THIS DEVICE IS CONNECTED TO MULTIPLE SOURCES OF POWER". TYPICAL FOR ALL PANELS WITH MULTIPLE POWER SOURCES.
- ALL START/STOP OR OPEN/CLOSE PUSHBUTTONS SHALL BE ILLUMINATED LED FLUSH-GUARDED SERIES. ALL INDICATOR LIGHTS SHALL BE LED, PUSH-TO-TEST.
- PILOT DEVICES COLOR CODE:
 - A. START PUSHBUTTON AND RUN INDICATOR LIGHT - RED
 - B. STOP PUSHBUTTON AND OFF INDICATOR LIGHT - GREEN
 - C. VALVE/DAMPER OPEN PUSHBUTTON AND INDICATOR LIGHT - RED
 - D. VALVE/DAMPER CLOSE PUSHBUTTON AND INDICATOR LIGHT - RED
 - E. ALARM OR FAULT - AMBER
 - F. TEST OR SILENCE PUSHBUTTON - BLACK
 - G. EMERGENCY STOP MOMENTARY
 - H. MUSHROOM PUSHBUTTON - YELLOW
- REFER TO ELECTRICAL BUILDING HVAC SYSTEM CONTROL DIAGRAMS
- PANEL LOCATED INSIDE ELECTRICAL BUILDING SHALL BE NEMA 1 RATED
- PROVIDE EQUIPMENT NUMBER AND TAG UNDER EACH OPERATING CONTROL AS PER SPECIFICATION 23 05 53 - IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT.
- 120VAC POWER TO CONTROL PANEL SHALL BE PROVIDED BY DIVISION 26. ALL OTHER CONTROL AND POWER WIRING AND CONDUIT FROM CONTROL PANEL TO ALL REMOTE DEVICES, SUCH AS THERMOSTATS, DAMPER ACTUATORS, SENSORS, SWITCHES, ETC., SHALL BE PROVIDED UNDER DIVISION 23. GENERAL NOTES.
- INTEGRATION OF CONTROL PANEL I/O POINTS TO SCADA, IF APPLICABLE, TO BE COORDINATED AT 100% DESIGN.

NAMEPLATE AND PILOT DEVICE SCHEDULE		
NAMEPLATE ID	ENGRAVING	DEVICE TYPE
S-1	ALARM SILENCE	PUSHBUTTON
S-2	SYSTEM RESET	PUSHBUTTON
S-3	E-STOP	MUSHROOM PUSHBUTTON

NAMEPLATE AND PILOT DEVICE SCHEDULE		
NAMEPLATE ID	ENGRAVING	DEVICE TYPE
A	COMMUNICATIONS ROOM HVAC SYSTEM	NAMEPLATE
A-1	EAF-6	NAMEPLATE
A-2	START	PUSHBUTTON
A-3	MANUAL/AUTO	SELECTOR SWITCH
A-4	STOP	PUSHBUTTON
A-5	READY (GREEN)	INDICATION LIGHTS
A-6	RUNNING (RED)	INDICATION LIGHTS
A-7	DAMPER OPEN (RED)	INDICATION LIGHTS
A-8	INTAKE	NAMEPLATE
A-9	MD-13 INTAKE DAMPER OPEN	PUSHBUTTON
A-10	MD-13 INTAKE DAMPER MANUAL/AUTO	SELECTOR SWITCH
A-11	MD-13 INTAKE DAMPER CLOSE	PUSHBUTTON
A-12	MD-13 INTAKE DAMPER OPEN (RED)	INDICATION LIGHTS
A-13	COOLING	NAMEPLATE
A-14	ACU-2 COOLING ON (RED)	INDICATION LIGHTS
A-15	ALARMS	NAMEPLATE
A-16	EAF-6 FAULT (AMBER)	INDICATION LIGHTS
A-17	EAF-6 AIRFLOW LOSS (AMBER)	INDICATION LIGHTS
A-18	ACU-2 FAULT (AMBER)	INDICATION LIGHTS
A-19	ACU-2 LEAK DETECTION (AMBER)	INDICATION LIGHTS
A-20	ACCU-2 FAULT (AMBER)	INDICATION LIGHTS

NAMEPLATE AND PILOT DEVICE SCHEDULE		
NAMEPLATE ID	ENGRAVING	DEVICE TYPE
B	SECURITY ROOM HVAC SYSTEM	NAMEPLATE
B-1	EAF-5	NAMEPLATE
B-2	START	PUSHBUTTON
B-3	MANUAL/AUTO	SELECTOR SWITCH
B-4	STOP	PUSHBUTTON
B-5	READY (GREEN)	INDICATION LIGHTS
B-6	RUNNING (RED)	INDICATION LIGHTS
B-7	DAMPER OPEN (RED)	INDICATION LIGHTS
B-8	INTAKE	NAMEPLATE
B-9	MD-11 INTAKE DAMPER OPEN	PUSHBUTTON
B-10	MD-11 INTAKE DAMPER MANUAL/AUTO	SELECTOR SWITCH
B-11	MD-11 INTAKE DAMPER CLOSE	PUSHBUTTON
B-12	MD-11 INTAKE DAMPER OPEN (RED)	INDICATION LIGHTS
B-13	COOLING	NAMEPLATE
B-14	ACU-1 COOLING ON (RED)	INDICATION LIGHTS
B-15	ALARMS	NAMEPLATE
B-16	EAF-5 FAULT (AMBER)	INDICATION LIGHTS
B-17	EAF-5 AIRFLOW LOSS (AMBER)	INDICATION LIGHTS
B-18	ACU-1 FAULT (AMBER)	INDICATION LIGHTS
B-19	ACU-1 LEAK DETECTION (AMBER)	INDICATION LIGHTS
B-20	ACCU-1 FAULT (AMBER)	INDICATION LIGHTS

NAMEPLATE AND PILOT DEVICE SCHEDULE		
NAMEPLATE ID	ENGRAVING	DEVICE TYPE
C	FIRE SUPPRESSION ROOM HV SYSTEM	NAMEPLATE
C-1	EAF-9	NAMEPLATE
C-2	START	PUSHBUTTON
C-3	MANUAL/AUTO	SELECTOR SWITCH
C-4	STOP	PUSHBUTTON
C-5	READY (GREEN)	INDICATION LIGHTS
C-6	RUNNING (RED)	INDICATION LIGHTS
C-7	DAMPER OPEN (RED)	INDICATION LIGHTS
C-8	INTAKE	NAMEPLATE
C-9	MD-22 INTAKE DAMPER OPEN	PUSHBUTTON
C-10	MD-22 INTAKE DAMPER MANUAL/AUTO	SELECTOR SWITCH
C-11	MD-22 INTAKE DAMPER CLOSE	PUSHBUTTON
C-12	MD-22 INTAKE DAMPER OPEN (RED)	INDICATION LIGHTS
C-13	HEATING	NAMEPLATE
C-14	EUH-2 HEATING ON (RED)	INDICATION LIGHTS
C-15	ALARMS	NAMEPLATE
C-16	EAF-9 FAULT (AMBER)	INDICATION LIGHTS
C-17	EAF-9 AIRFLOW LOSS (AMBER)	INDICATION LIGHTS
C-18	EUH OVER TEMPERATURE (AMBER)	INDICATION LIGHTS

NAMEPLATE AND PILOT DEVICE SCHEDULE		
NAMEPLATE ID	ENGRAVING	DEVICE TYPE
D	SMOKE ALARMS	NAMEPLATE
D-1	COMMUNICATIONS ROOM SMOKE DETECTOR ALARM (AMBER)	INDICATION LIGHTS
D-2	SECURITY ROOM SMOKE DETECTOR ALARM (AMBER)	INDICATION LIGHTS

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