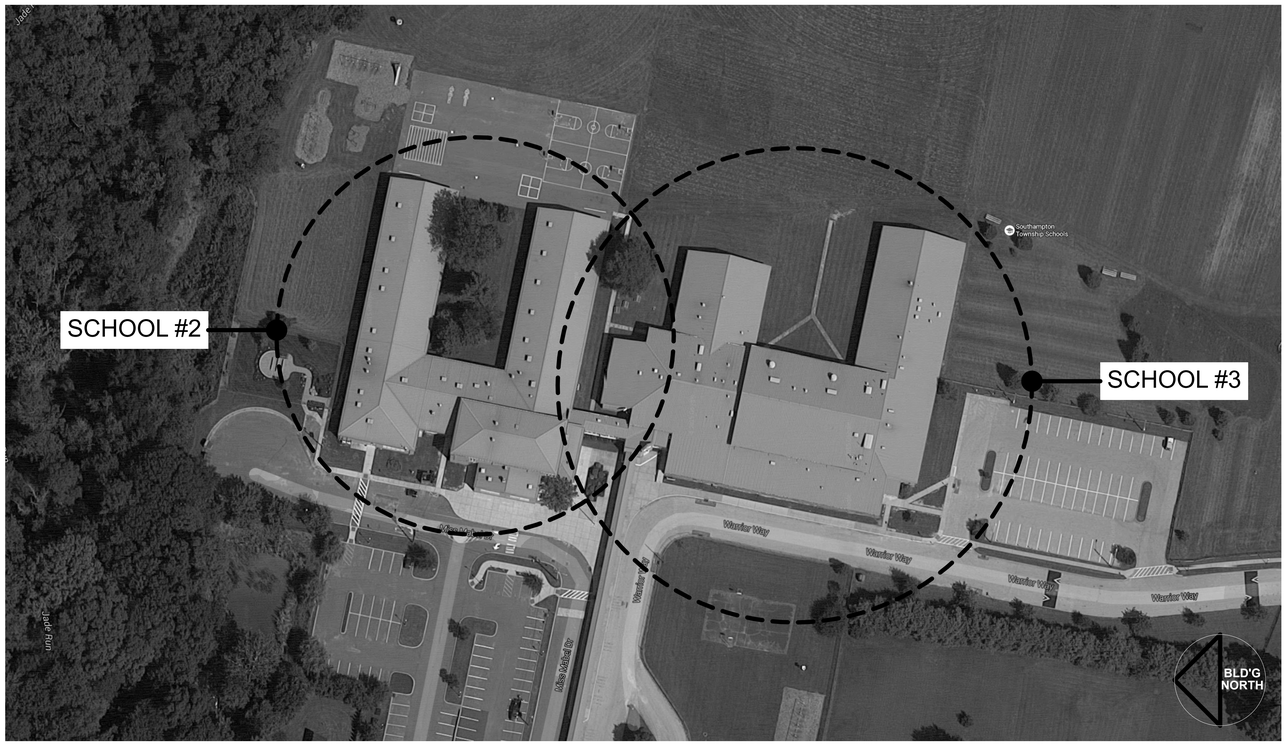
SECURITY OFFICE & EXTERIOR BOLLARDS

SECURITY OFFICE - PROJECT A
SCHOOL #3
NJDOE STATE PROJECT #05-4930-070-19-3000

EXTERIOR BOLLARDS - PROJECT B
SCHOOLS #2 & #3
NJDOE STATE PROJECTS #05-4930-060-19-1000 & #05-4930-070-19-2000

LIST OF DRAWINGS
All Contractors shall examine all drawings indicated herein for required coordination between different trades and/or for work included in other sections of the Project Manual that may pertain to their respective contract.



SOUTHAMPTON SCHOOL #2
100 MISS MABEL DRIVE
SOUTHAMPTON, NEW JERSEY
BLOCK 1005, LOT 15

SOUTHAMPTON SCHOOL #3
100 WARRIOR WAY
SOUTHAMPTON, NEW JERSEY
BLOCK 1005, LOT 15

SUBCODES
THE FOLLOWING SUBCODES AS ADOPTED BY THE NEW JERSEY UNIFORM CONSTRUCTION CODE (NJAC 5:23 et seq.) SHALL APPLY TO THIS PROJECT.

SUBCODE	NATIONAL MODEL CODE	UCC REFERENCE
BUILDING	INTERNATIONAL BUILDING CODE NJ ED/2018	NJAC 5:23-3.14
PLUMBING	NATIONAL PLUMBING CODE /2018	NJAC 5:23-3.15
ELECTRICAL	NATIONAL ELECTRICAL CODE /2017	NJAC 5:23-3.16
ENERGY	ASHRAE 90.1-2016	NJAC 5:23-3.18
MECHANICAL	INTERNATIONAL MECHANICAL CODE /2018	NJAC 5:23-3.20
FUEL GAS	INTERNATIONAL FUEL GAS CODE /2018	NJAC 5:23-3.22
REHABILITATION	REHABILITATION SUBCODE RENOVATION 6.5 AND ALTERATION 6.6	NJAC 5:23-6
BARRIER FREE	ICC/ANSI A117.1-2009	NJAC 5:23-7

NOTES:
1. **CONTRACTOR MAY ELECT TO BID PROJECT A SEPARATELY, PROJECT B SEPARATELY, OR PROJECT C AS AN OVERALL COMBINED BID.**
2. **IF SUBMITTING A BID FOR PROJECT C, BIDDER MUST SUBMIT BIDS FOR BOTH PROJECT A AND PROJECT B.**
3. **IF CONTRACTORS NOTES ANY CONFLICT OR INACCURACIES ON THESE DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IMMEDIATELY IN WRITING.**

ARCHITECT
REGAN YOUNG ENGLAND BUTERA, PC
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609.265.2652 / FAX 609.265.0333

MECHANICAL, PLUMBING & ELECTRIC
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PRINT DATE: 12/10/19

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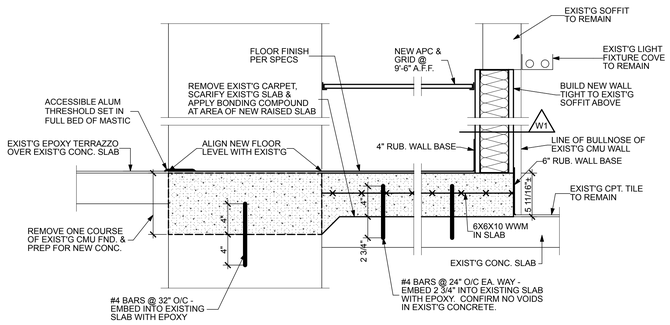
NJDOE SP #05-4930-070-19-3000, #05-4930-060-19-1000 & #05-4930-070-19-2000

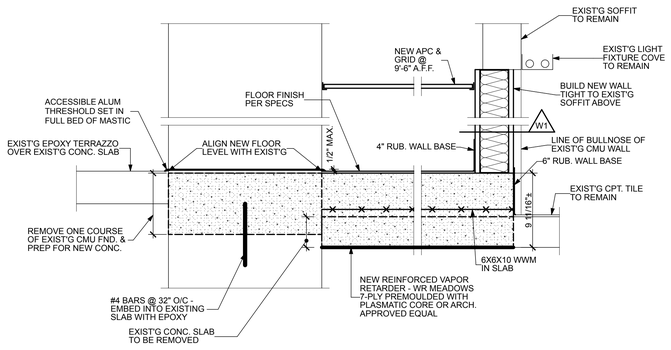
SECURITY OFFICE & EXTERIOR BOLLARDS
SOUTHAMPTON SCHOOLS #2 & #3
SOUTHAMPTON, NEW JERSEY
TITLE: COVER SHEET

DRAWING DATE: 29 NOV 2019
REVISION DATE:
DRAWN BY: PF
COMMISION NO.: 5601A

CS
1 OF 1

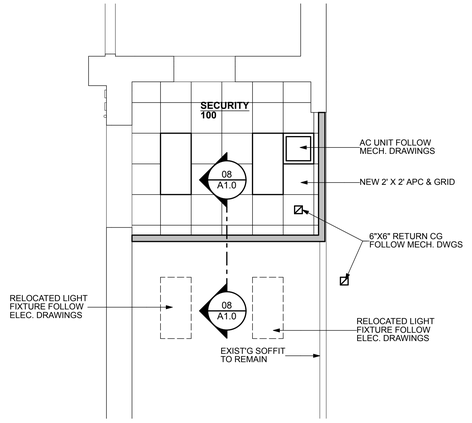


NEW SLAB DTL. SCALE: 3" = 1'-0" | 01

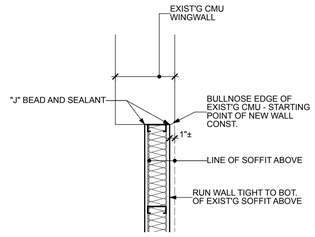


ALT. NEW SLAB DTL. SCALE: 3" = 1'-0" | 02

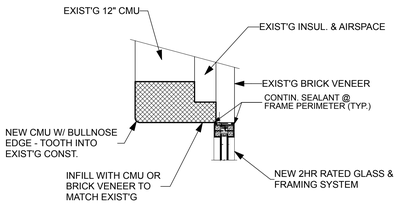
CONTRACTOR OPTION



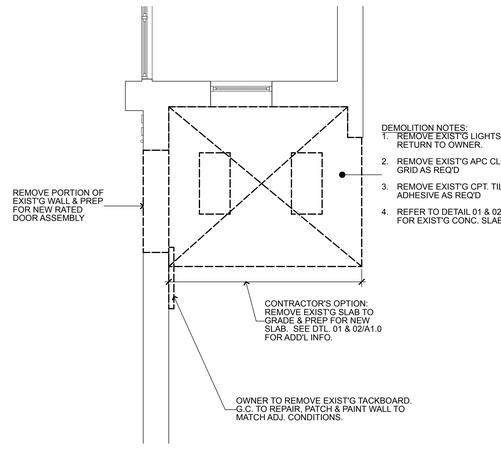
REFLECTED CEILING PLAN SCALE: 1/4" = 1'-0" | 07



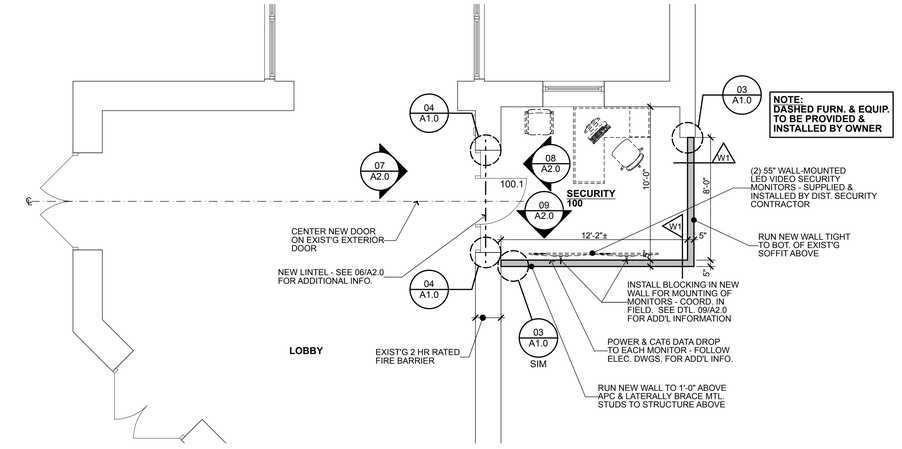
PLAN DTL. SCALE: 1" = 1'-0" | 03



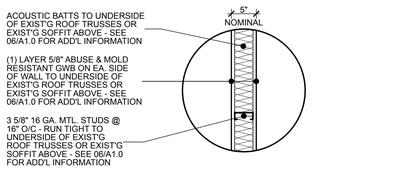
PLAN DTL. SCALE: 1" = 1'-0" | 04



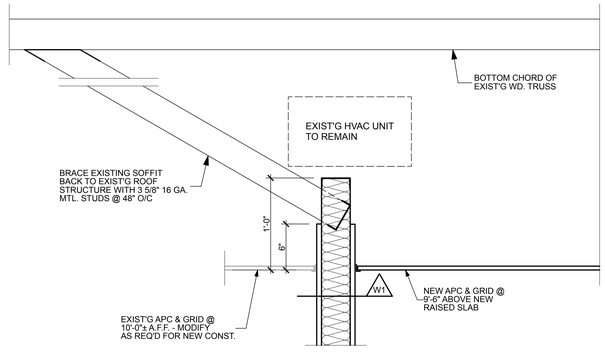
DEMOLITION PLAN SCALE: 1/4" = 1'-0" | 05



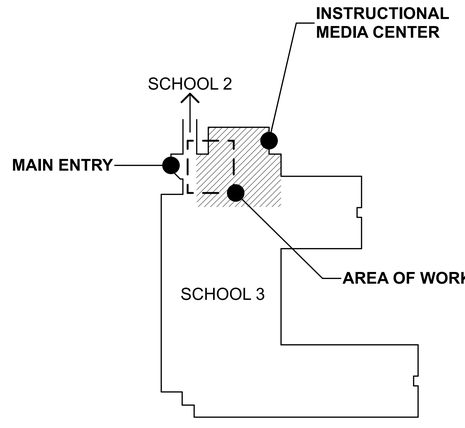
PROPOSED PLAN SCALE: 1/4" = 1'-0" | 06



WALL TYPE W1 SCALE: 1 1/2" = 1'-0"



CEILING DETAIL SCALE: 1 1/2" = 1'-0" | 08



SCHOOL #3 KEY PLAN NOT TO SCALE

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PRINT DATE: 12/10/19

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NJDOE SP #05-4930-070-19-3000

SECURITY UPGRADES - PROJECT A
SOUTHAMPTON SCHOOL #3
100 WARRIOR WAY
SOUTHAMPTON, NEW JERSEY

TITLE: PLANS & DETAILS

DRAWING DATE: 29 NOV 2019
REVISION DATE:

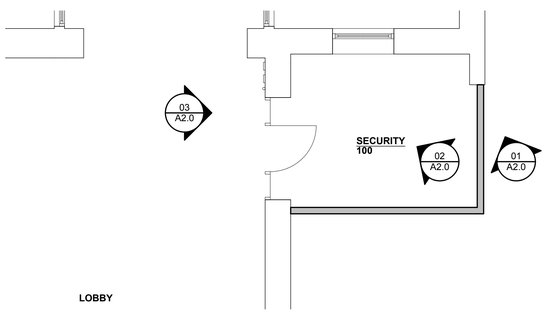
DRAWN BY: PF
COMMISION NO.: 5601A

A1.0
1 OF 2

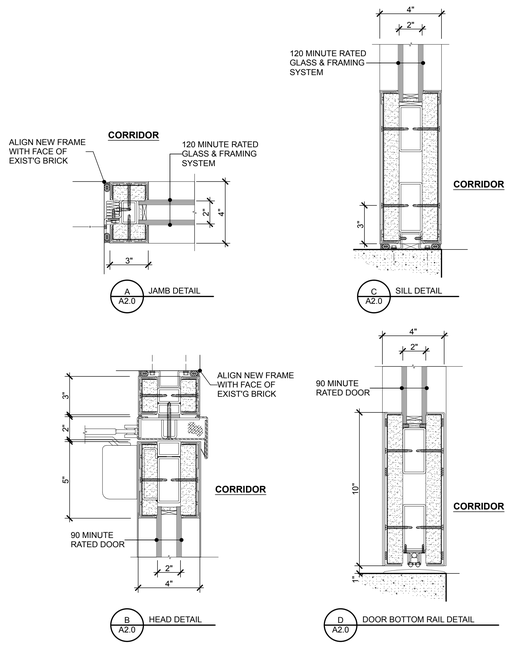
01

02

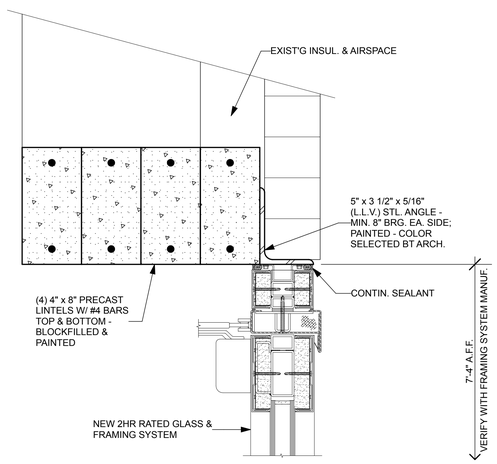
03



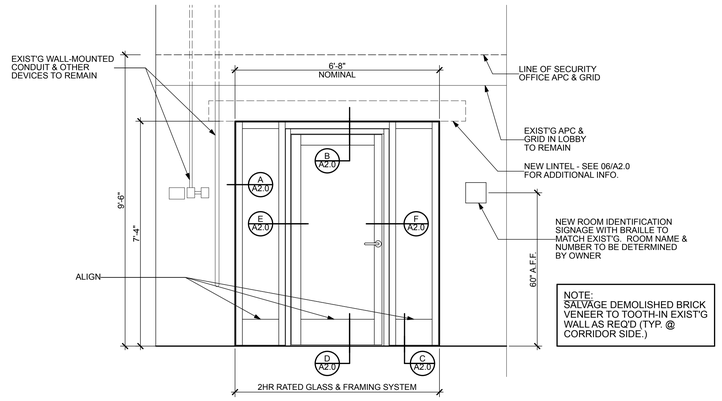
EXIST'G PHOTO INDICATOR PLAN
SCALE: 1/16" = 1'-0" | 04



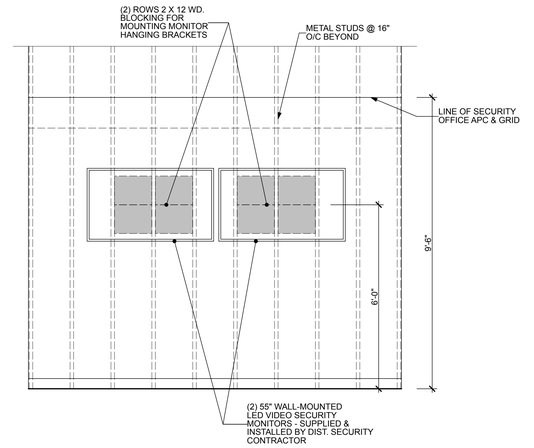
FRAMING SYSTEM DTLS.
SCALE: 1" = 1'-0" | 05



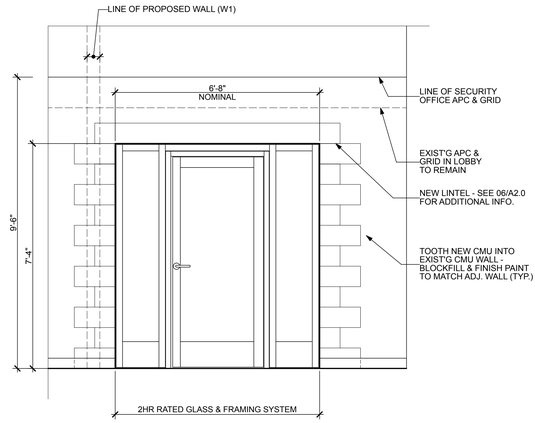
LINTEL DETAIL
SCALE: 3" = 1'-0" | 06



INTERIOR ELEVATION
SCALE: 1/16" = 1'-0" | 07



INTERIOR ELEVATION
SCALE: 1/16" = 1'-0" | 09



INTERIOR ELEVATION
SCALE: 1/16" = 1'-0" | 08

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PRINT DATE: 12/10/19

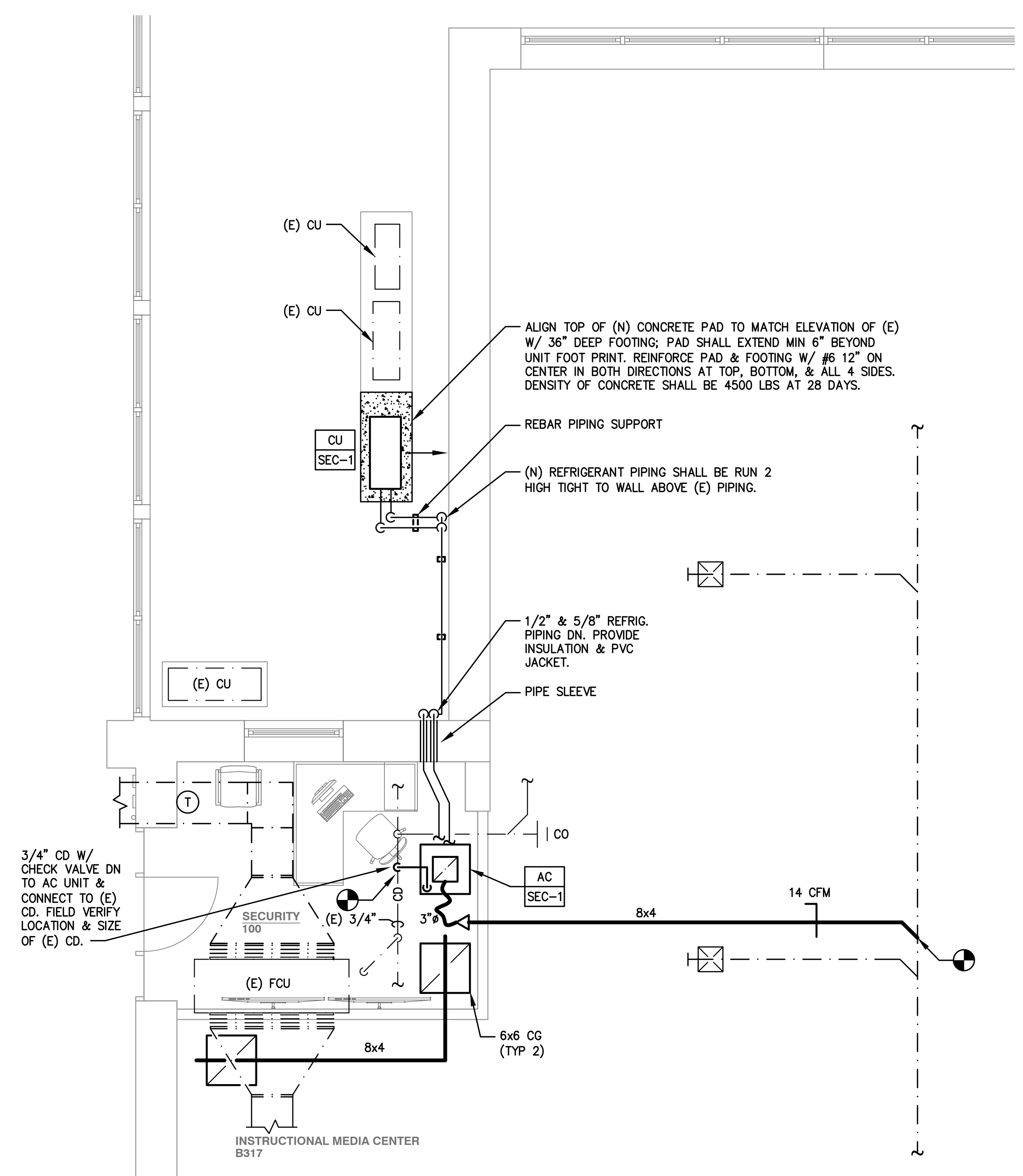
NJDOE SP #05-4930-070-19-3000

SECURITY UPGRADES - PROJECT A
SOUTHAMPTON SCHOOL #3
100 WARRIOR WAY
SOUTHAMPTON, NEW JERSEY

TITLE: DETAILS & EXISTING PHOTOS

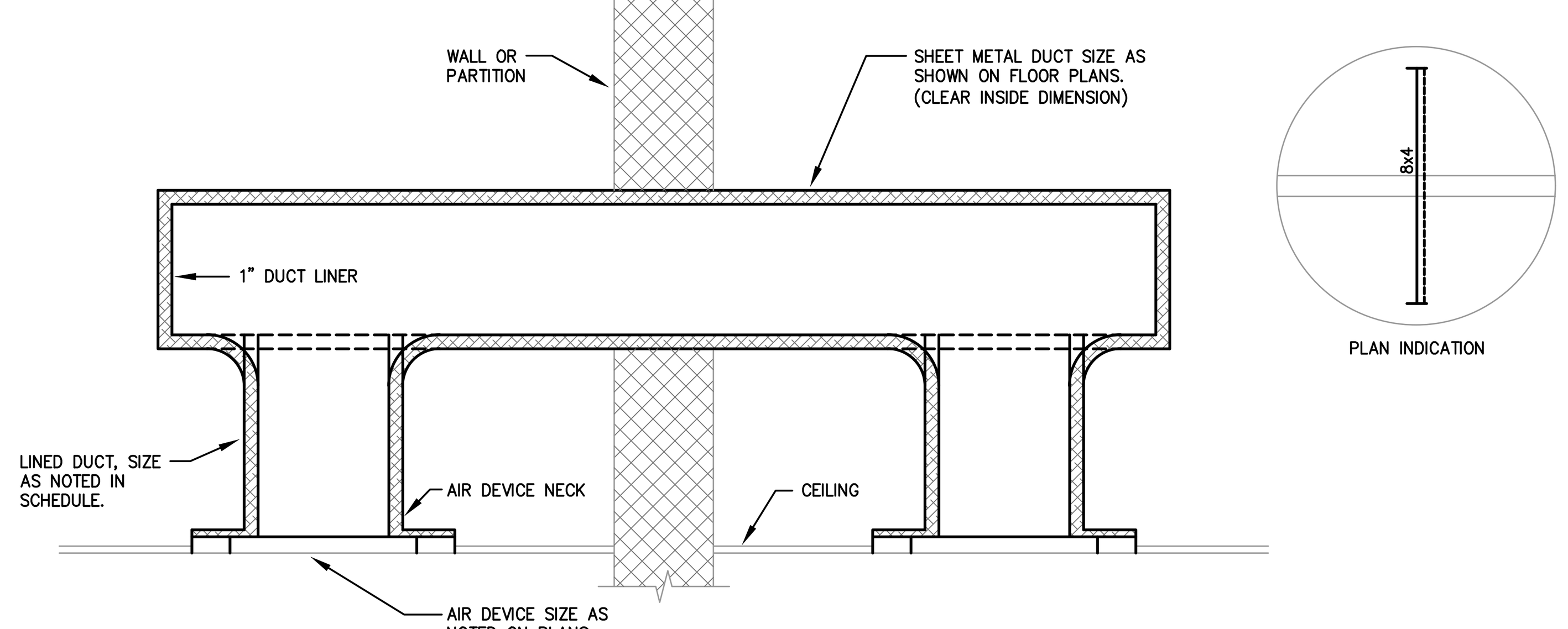
DRAWING DATE: 29 NOV 2019
REVISION DATE:
DRAWN BY: PF
COMMISION NO.: 5601A

A2.0
2 OF 2



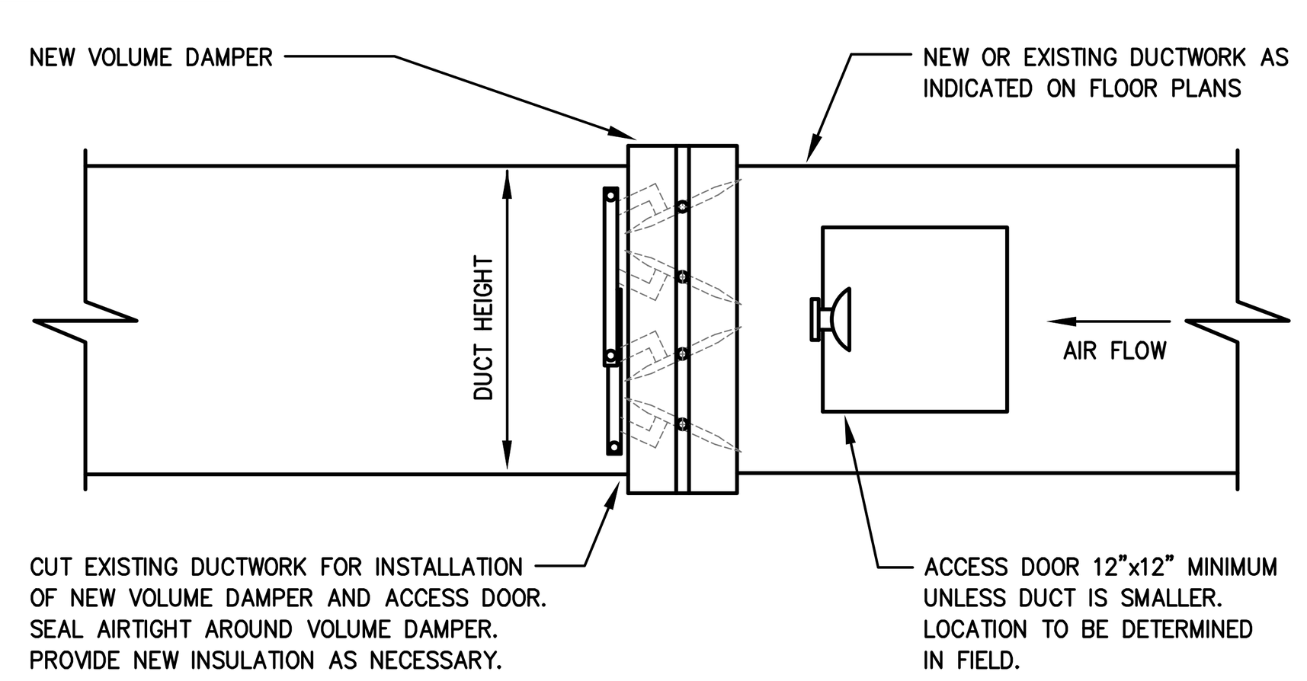
1 / H1.0 PARTIAL FLOOR PLAN – HVAC

SCALE 1/4" = 1'-0"



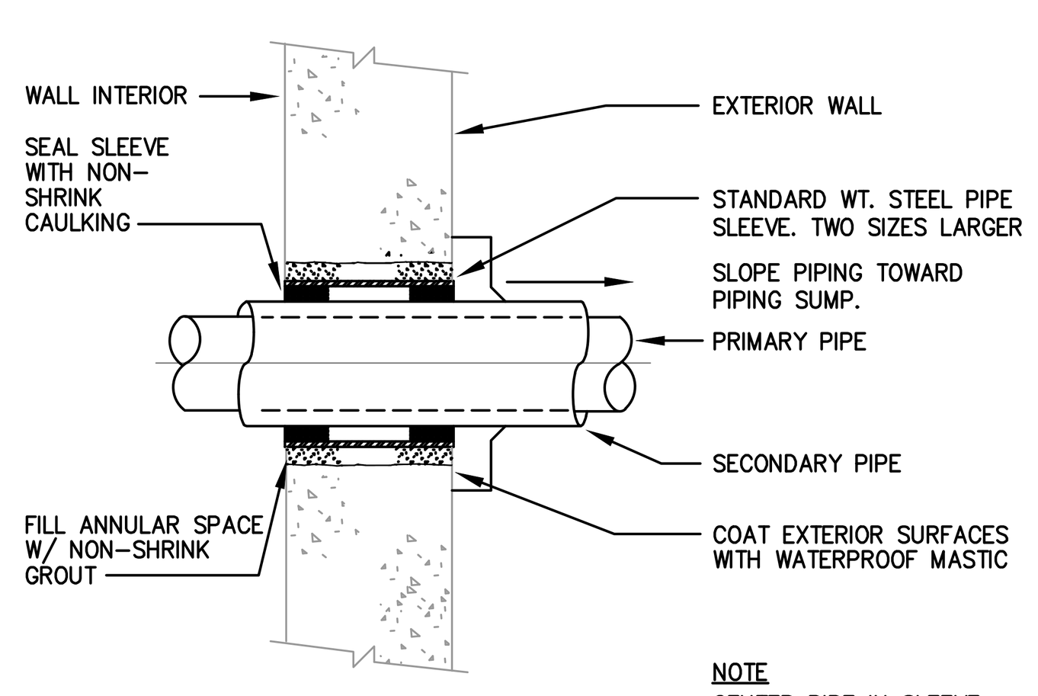
2 / H1.0 TRANSFER DUCT DETAIL

NOT TO SCALE



3 / H1.0 VOLUME DAMPER DETAIL

NOT TO SCALE



4 / H1.0 PIPE SLEEVE DETAIL

NOT TO SCALE

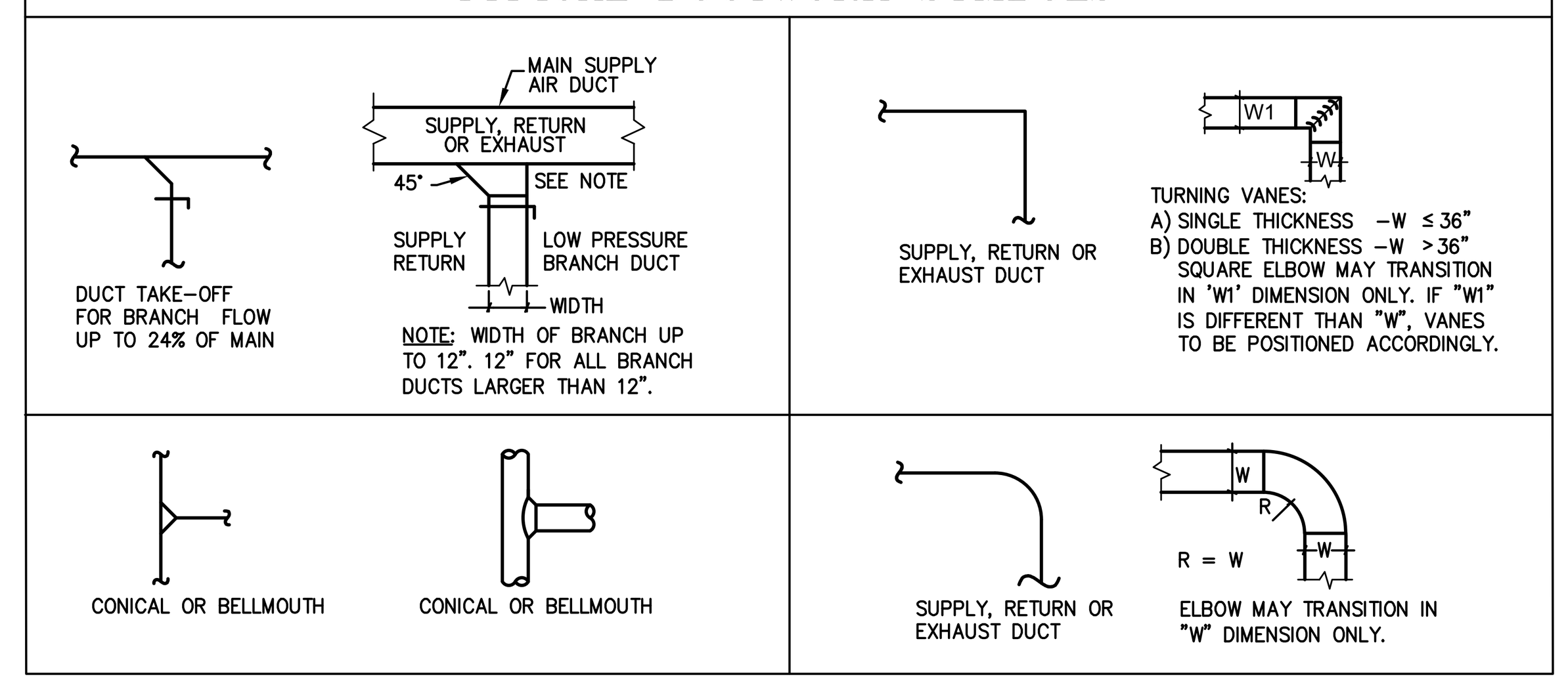
ABBREVIATIONS

AC	AIR CONDITIONING UNIT
AMPS	AMPERES
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
&	AND
CD	CEILING DIFFUSER
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CG	CEILING GRILL
CLG	CEILING
CO	CLEANOUT
CR	CEILING REGISTER
CU	CONDENSING UNIT
D	DEPTH
DB	DRY BULB
DN	DOWN
DWG	DRAWING
(E)	EXISTING
EA	EXHAUST AIR
EF	EXHAUST FAN
ER	EXHAUST REGISTER
°F	FAHRENHEIT
FPM	FEET PER MINUTE
FT	FEET
H	HEIGHT
HR	HOUR
Hz	HERTZ (FREQUENCY)
IN	INCH
LBS	POUNDS
MOCP	MAXIMUM OVER CURRENT PROTECTION
(N)	NEW
No.	NUMBER, #
OA	OUTSIDE AIR
PH	PHASE
REFRIG.	REFRIGERANT
TYP	TYPICAL
V	VOLTS
W	WIDTH
WT.	WEIGHT

SYMBOLS LIST

X	EQUIPMENT DESIGNATION
X	ITEM NUMBER
(T)	THERMOSTAT
	VOLUME DAMPER (MANUAL)
8x6	DUCT SIZE, SECOND FIGURE IS HEIGHT SHOWN
	PIPE TURNED UP
	PIPE TURNED DOWN
CD	CONDENSATE DRAIN PIPING
	CLEAN-OUT
CD-X / X CFM	SUPPLY CEILING DIFFUSER
CR-X / X CFM	SUPPLY CEILING REGISTER
4-WAY, 3-WAY, 2-WAY, 2-WAY, 1-WAY	
CR-X / X CFM	RETURN, EXHAUST CEILING REGISTER
CG-X / X CFM	RETURN, EXHAUST CEILING GRILLE

TYPICAL DUCTWORK SYMBOLS



VENTILATION SCHEDULE

ROOM NAME	ROOM NUMBER	AREA SQ. FT.	No. OF PEOPLE	REQUIRED OA (EA) CFM PER CODE			PROVIDED VENTILATION AIR (CFM) PER DESIGN			
				PER PERSON	PER SQ. FT.	TOTAL	SUPPLY	RETURN	OUTSIDE AIR	EXHAUST
SECURITY	100	130	1	5	0.06	14	320	306	14	14

DIFFUSER & REGISTER SCHEDULE

SELECTION BASED ON TITUS

NO.	MARK	REMARKS
1.	RECTANGULAR CD SHALL BE TITUS MODEL TMS-AA OR APPROVED "EQUAL".	①②

REMARKS:

① PROVIDE STANDARD WHITE FINISH.

② ALUMINUM RETURN/EXHAUST REGISTER WITH BLADES AT 3/4" SPACING AND 35° FIXED DEFLECTION. REFER TO DRAWINGS FOR CORRECT MOUNTING STYLE.

SPLIT AC UNIT SCHEDULE

AC # / CU #

MARK No.		AC-SEC-1
BASE MANUFACTURER		CARRIER
SERVICE		SECURITY
COOLING CAPACITY RANGE	MBH	3500-11000
HEATING CAPACITY RANGE	MBH	4500-11500
REFRIGERANT TYPE		R410A
SEER		20.0
INDOOR UNIT:		
MODEL No.		40MBCQ09-3
V/PH/HZ		208/1/60
SIZE (H x W x D)	IN	2 x 26 x 26
AIRFLOW MEDIUM	CFM	320
OUTDOOR UNIT:		
MARK No.		CU-SEC-1
MODEL No.		38MAQB09R-3
V/PH/HZ		208/1/60
MINIMUM CIRCUIT AMPS	AMPS	9.0
MAX. FUSE SIZE	AMPS	15.0
REFRIG. PIPE LIQUID	IN	1/4
SUCTION	IN	3/8
SIZE (H x W x D)	IN	22 x 35 x 15

APPROVED EQUAL MANUFACTURERS: DAIKIN, MITSUBISHI

NOTES:

1. PROVIDE FUSED DISCONNECT FOR INDOOR UNIT & WEATHERPROOF FUSED DISCONNECT FOR OUTDOOR UNIT.
2. PROVIDE INTEGRAL CONDENSATE PUMP FOR INDOOR UNIT.
3. PROVIDE WIRED WALL MOUNTED CONTROLLER/THERMOSTAT.
4. PROVIDE LOW AMBIENT ACCESSORY KIT FOR OPERATION TO 0°F.
5. INSTALL POWER & CONTROL WIRING IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
6. INSTALL REFRIGERANT PIPING WITH INSULATION, PRESSURE TEST, EVACUATE, VACUUM TEST, & CHARGE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
7. PROVIDE FACTORY PERSONNEL TRAINING FOR START-UP & OWNER.
8. INDOOR AC UNIT SHALL BE POWERED FROM OUTDOOR UNIT.
9. PROVIDE DRAIN PAN LEVEL SENSOR THAT WILL SHUT OFF THE EQUIPMENT SERVED IN THE EVENT THAT THE PRIMARY DRAIN IS BLOCKED AS PER 2018 IMC.

1.0 GENERAL

A. GOVERNING CODES AND STANDARDS

1. NJ UNIFORM CONSTRUCTION CODE
2. 2018 INTERNATIONAL BUILDING CODE
3. 2018 INTERNATIONAL MECHANICAL CODE
4. NFPA STANDARDS 90A
5. ALL APPLICABLE ASHRAE STANDARDS
6. ALL APPLICABLE SMACNA STANDARDS
7. 2017 NATIONAL ELECTRICAL CODE
8. UL (ALL EQUIPMENT MUST BE LABELED)
9. NEBB.

B. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH RECOGNIZED INDUSTRY STANDARDS, GOVERNING CODES, APPROVED SHOP DRAWINGS AND MANUFACTURER'S INSTRUCTIONS.

C. THE CONTRACTOR SHALL UNCONDITIONALLY WARRANT ALL WORK TO BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF TWO YEARS FROM THE DATE OF FINAL ACCEPTANCE BY OWNER AND WILL REPAIR OR REPLACE ANY DEFECTIVE WORK PROMPTLY AND WITHOUT CHARGE AND RESTORE ANY OTHER EXISTING WORK DAMAGED IN THE COURSE OF REPAIRING DEFECTIVE MATERIALS AND WORKMANSHIP.

D. SHOP DRAWINGS ARE REQUIRED FOR ALL MATERIALS, METHODS AND EQUIPMENT. PRIOR TO EXECUTION OF CONTRACT WORK, SUBMIT FOUR (4) COPIES OF SHOP DRAWINGS INCLUDING COMPOSITE THAT SHOW ALL NEW DUCTWORK, LIGHTING, CONDUITS, ETC. SHOW ALL ELEVATIONS OF ALL COMPONENTS TO ENGINEER FOR REVIEW AND OBTAIN APPROVAL.

E. CONTRACTOR SHALL SUBMIT O&M MANUALS & MARKED UP HVAC DRAWINGS TO ENGINEER TO SHOW "AS-BUILT" CONDITIONS AFTER SATISFACTORY COMPLETION OF PROJECT.

F. PROVIDE FOR EACH NEW HVAC EQUIPMENT PERMANENT ATTACHED NAMEPLATE, 3" LONG BY 1-1/2" WIDE, EACH CONTROL VALVE A 1-1/2 DIA. BRASS TAG WITH 1/2" INDENTED NUMERALS, AND IDENTIFY ALL NEW CD, REFRIGERANT AND DUCTWORK WITH SNAP ON TYPE MARKERS IN ACCORDANCE WITH SCHEME FOR IDENTIFICATION OF SYSTEM ANSI A13.1 AND OSHA SAFETY REGULATION.

G. PROVIDE ALL SCAFFOLDING, RIGGING, HOISTING & INSTALLATION SERVICES NECESSARY FOR ERECTION AND DELIVERY INTO THE PREMISES OF ALL EQUIPMENT AND MATERIALS FURNISHED UNDER THIS SECTION OF THE SPECIFICATIONS, AND REMOVE SAME FROM PREMISES WHEN NO LONGER REQUIRED.

H. PROVIDE ALL BASES AND SUPPORTS NOT PART OF THE BUILDING STRUCTURE OF REQUIRED SIZE, TYPE AND STRENGTH, AS APPROVED BY THE ARCHITECT, FOR ALL EQUIPMENT AND MATERIALS FURNISHED UNDER THIS CONTRACT. ALL EQUIPMENT, BASES, AND SUPPORTS SHALL BE ADEQUATELY ANCHORED TO THE BUILDING STRUCTURE TO PREVENT SHIFTING OF POSITION UNDER OPERATING CONDITIONS.

I. PROVIDE AND ASSUME RESPONSIBILITY FOR THE LOCATION AND MAINTENANCE IN PROPER POSITION OF ALL SLEEVES, INSERTS, AND ANCHOR BOLTS REQUIRED FOR THE WORK. IN THE EVENT THAT FAILURE TO DO SO REQUIRES CUTTING AND PATCHING OF FINISHED WORK, IT SHALL BE DONE WITHOUT ADDITIONAL COST TO THE OWNER.

J. ALL PIPES AND CONDUITS PASSING THROUGH MASONRY WALLS OR PARTITIONS SHALL BE PROVIDED WITH SLEEVES HAVING AN INTERNAL DIAMETER LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE OR INSULATION ENCLOSING THE PIPE OR CONDUIT. SLEEVES SHALL BE SCHEDULE 40 BLACK STEEL PIPE.

K. SLEEVES THROUGH CONCRETE FLOORS OR INTERIOR MASONRY WALLS SHALL BE SCHEDULE 40 BLACK STEEL PIPE, SET FLUSH WITH FINISHED WALL SURFACES, BUT EXTENDING 1/2" ABOVE FINISHED FLOORS. THE OPEN SLEEVE SPACE SHALL BE PACKED WITH NON-COMBUSTIBLE MATERIALS.

L. SLEEVES THROUGH NON-MASONRY PARTITIONS SHALL BE 22 GAUGE GALVANIZED SHEET STEEL, SET FLUSH WITH FINISHED SURFACES OF PARTITIONS.

M. THE REQUIRED FIRE RESISTANCE RATING OF FLOOR OR FLOOR/CEILING ASSEMBLIES AND WALLS SHALL BE MAINTAINED WHERE A PENETRATION IS MADE FOR ELECTRICAL, MECHANICAL, PLUMBING PIPES, CONDUITS, DUCTS AND SYSTEMS. FIRE STOPPING SHALL BE PROVIDED AT OPENINGS AROUND VENTS, PIPES, DUCTS, CONDUITS AT FLOOR LEVELS AND WALLS WITH NON-COMBUSTIBLE MATERIALS, SUCH AS ROCKWOOL OR EQUAL.

N. FOR OPENINGS AROUND PIPES AND CONDUITS AND/OR SLEEVES, 3M PRODUCT CAULK CP 25 AND PUTTY 303 IS APPROVED EQUAL.

O. PROVIDE ESCUTCHEONS ON PIPES WHEREVER THEY PASS THROUGH CEILINGS, WALLS, OR PARTITIONS.

P. ESCUTCHEONS ON PIPES PASSING THROUGH OUTSIDE WALLS SHALL BE RITTER PATTERN AND CASTING CO., NO. 1, SOLID, CAST BRASS, FLAT TYPE SECURED TO PIPE WITH SET SCREW.

Q. ESCUTCHEONS FOR PIPES PASSING THROUGH FLOORS SHALL BE RITTER PATTERN AND CASTING CO., NO. 36A, SPLIT-HINGED, CAST BRASS TYPE, DESIGNED TO FIT PIPE ON ONE END AND COVER SLEEVE PROJECTING THROUGH FLOOR ON THE OTHER END.

R. ESCUTCHEONS FOR PIPES PASSING THROUGH INTERIOR WALLS, PARTITIONS, AND CEILINGS SHALL BE RITTER PATTERN AND CASTING CO., NO. 3A, SPLIT-HINGED, CAST BRASS CHROMIUM PLATED TYPE.

2.0 COORDINATION

A. THE CONTRACTOR IS TO PRODUCE AND SUBMIT FOR APPROVAL COORDINATED SHOP DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL TRADES EQUIPMENT, INCLUDING ALL SUPPORTS, TRAPEZES, HANGERS, ETC. FOR A COMPLETE AND COORDINATED INSTALLATION.

3.0 PIPING

3.1 GENERAL

A. PROVIDE AND ERECT IN A WORKMANLIKE MANNER, ACCORDING TO THE BEST PRACTICE OF THE TRADE, ALL PIPING SHOWN ON THE DRAWINGS OR REQUIRED TO COMPLETE THE INSTALLATION INTENDED BY THESE SPECIFICATIONS.

B. DISSIMILAR PIPING SHALL BE CONNECTED W/ DIELECTRIC FITTINGS AS MANUFACTURED BY EBCO OR EQUAL.

C. PROVIDE UNIONS AT ALL PIPING CONNECTIONS TO EQUIPMENT TO FACILITATE EASY REMOVAL FOR SERVICING. UNIONS 2" AND SMALLER SHALL BE SCREWED, UNIONS 2-1/2" AND LARGER SHALL BE FLANGED.

D. FURNISH AND INSTALL PIPE SLEEVES PASSING THROUGH INTERIOR WALLS. SLEEVES SHALL BE STEEL PIPE: ASTM A 53, TYPE E, GRADE A, SCHEDULE 40, GALVANIZED, PLAIN ENDS, LENGTH EQUAL TO WIDTH OF WALL.

E. PIPING SHALL NOT CROSS OVER DEDICATED SPACE REQUIRED FOR ELECTRICAL PANELS AND CONDUIT RUNS.

F. ALL PIPING SHALL BE TESTED FOR A PERIOD OF NOT LESS THAN FOUR (4) HOURS AT 1-1/2 TIMES THE MAXIMUM ALLOWABLE WORKING PRESSURE OF THE SYSTEM.

3.2 REFRIGERANT PIPING

A. ALL NEW REFRIGERANT PIPING SHALL BE COPPER TYPE 'K' ACR GRADE WITH BRAZED HIGH PRESSURE #250 WROUGHT COPPER FITTINGS, AND IN COMPLIANCE WITH AC UNIT MANUFACTURER'S REQUIREMENTS.

B. REFRIGERANT PIPING SHALL COMPLY WITH THE REQUIREMENTS OF THE INTERNATIONAL MECHANICAL CODE/2018, CHAPTER 11, SECTION 1107, AND MANUFACTURER OF AC UNIT.

C. REFRIGERANT PIPING SHALL BE OF SIZES AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER FOR COMPLETE AUTOMATIC OPERATION OF THE REFRIGERANT CYCLE, AND INSTALLED IN ACCORDANCE WITH STANDARD ENGINEERING PRACTICE AS RECOGNIZED BY THE AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR CONDITIONING ENGINEERS (ASHRAE 15).

D. REFRIGERANT PIPING INDICATED IS SCHEMATIC ONLY. CONTRACTOR SHALL SIZE AND DESIGN THE LAYOUT AND INSTALLATION OF THE PIPING, INCLUDING OIL TRAPS, DOUBLE RISERS, SPECIALTIES, PIPE AND TUBE SIZES, TO ENSURE PROPER OPERATION AND CONFORMATION WITH THE WARRANTIES OF CONNECTED EQUIPMENT.

3.3 AC CONDENSATE DRAIN PIPING:

A. ALL CONDENSATE DRAIN PIPING LOCATED INSIDE BUILDING SHALL BE SCHEDULE 40 PVC WITH SOLVENT ATTACHED FITTINGS. PVC PIPING SHALL NOT BE CONCEALED IN PLENUM AREAS.

B. PROVIDE FULL SIZE TRAP AT EQUIPMENT CONNECTION. AC CONDENSATE PIPING SHALL PITCH DOWN A MINIMUM OF 1/8 INCH PER LINEAR FOOT.

3.4 PIPE HANGERS:

A. PROVIDE NECESSARY STRUCTURAL MEMBERS, HANGERS AND SUPPORTS OF APPROVED DESIGN TO KEEP PIPING IN PROPER ALIGNMENT.

B. PIPE HANGERS SHALL BE OF THE CLEVIS, PIPE ROLL AND PIPE CLAMP TYPES. HANGERS SHALL BE GRINNELL OR EQUAL.

C. SUPPORT ALL HORIZONTAL PIPING 1-1/4" AND SMALLER NOT MORE THAN 6' ON CENTERS. ALL HORIZONTAL PIPING 1-1/2" AND LARGER SHALL BE SUPPORTED NOT MORE THAN 10' ON CENTERS, EXCEPT THAT COPPER TUBING SHALL NOT BE MORE THAN 8' ON CENTERS.

D. PROVIDE HANGER RODS OF SUITABLE LENGTH AND DIAMETER TO ADEQUATELY SUPPORT PIPING.

3.5 PIPING INSULATION

A. ALL INSULATION MUST BE APPLIED IN STRICT ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

B. APPLY INSULATION AFTER ALL TESTING HAS BEEN COMPLETED AND APPROVED.

C. ALL INSULATION PROVIDED FOR THE PROJECT MUST MEET A MAXIMUM FLAME SPREAD RATING OF 25 AND SMOKE DEVELOPED OF 50 OR LESS, AS TESTED IN ACCORDANCE WITH ASTM, NFPA & U.L. GUIDELINES.

D. ALL INSULATION FOR PIPING WITH A SURFACE TEMPERATURE BELOW 65°F, SHALL CONTAIN A COMPLETE VAPOR BARRIER SEAL.

E. ALL REFRIGERANT SUCTION, LIQUID AND HOT GAS PIPING SHALL BE INSULATED WITH 3/4" ELASTOMERIC FOAM, AS MANUFACTURED BY ARMAFLEX, TYPE AP, OR EQUAL. ALL EXTERIOR PIPING SHALL BE PVC JACKET. COAT OUTDOOR INSULATION WITH UV RESISTANT PAINT.

3.6 PIPE INSULATION FITTING COVERS AND JACKETS

A. INSTALL ZESTON-2000 (OR APPROVED EQUAL) PREMOLDED HEAVY-DUTY (30 mil) PVC COVERS ON ALL PIPE FITTINGS, ELBOWS, AND VALVES. IN ADDITION, INSTALL STANDARD WEIGHT (20 mil) PVC JACKET ON ALL REFRIGERANT PIPING LOCATED OUTDOORS.

B. ALL OUTDOOR PIPING SHALL HAVE ALUMINUM JACKET, SECURED WITH STAINLESS STEEL STRAPS. LOCATE LONGITUDINAL SEAM AT BOTTOM OF PIPE.

4.0 DUCTWORK

A. FURNISH AND INSTALL SHEET METAL DUCTWORK WHERE INDICATED ON THE DRAWINGS.

B. ALL DUCTWORK SHALL BE TESTED FOR AIR LEAKAGE. THE CONTRACTOR SHALL REPAIR ALL LEAKS AT HIS OWN EXPENSE AND RETEST SAME.

C. ALL DUCTWORK, UNLESS OTHERWISE NOTED, SHALL BE GALVANIZED SHEET META FABRICATED AND INSTALLED TO THE LATEST SMACNA STANDARDS AND SECURED WITH SHEET METAL SCREWS. ALL JOINTS 18" IN LENGTH OR GREATER SHALL BE OF THE DUCTMATE SYSTEM OR THE SMACNA EQUIVALENT CONNECTION AND CONSTRUCTION. PROVIDE GASKETS AT MATING FLANGES. ALL JOINTS SHALL BE SEALED WITH HIGH PRESSURE DUCT SEALANT. DUCT TAPE SHALL NOT BE PERMITTED AS A SEALANT ON ANY DUCT. SIZES ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS.

4.1 ACOUSTIC DUCT LINING

A. WHERE INDICATED ON DRAWING, PROVIDE 1" THICK FIBER-FREE ELASTOMERIC FOAM DUCT LINER MODEL AP ARMAFLEX SA, OR APPROVED EQUAL. PRODUCT SHALL HAVE BUILT-IN ANTIMICROBIAL PROTECTION, MINIMUM R-4.2 THERMAL RESISTANCE, PLENUM RATED.

B. DUCT SIZES LISTED ON DRAWINGS ARE MINIMUM CLEAR INSIDE AREA REQUIRED AND DO NOT TAKE INTO ACCOUNT LINERS OF ANY KIND. WHERE DUCTS ARE INDICATED TO BE LINED ADJUST SIZE ACCORDINGLY.

4.2 FLEXIBLE DUCTWORK

A. FLEXIBLE DUCTS SHALL BE TYPE AL006-150 INSULATED AS MADE BY UNITED SHEET METAL OR APPROVED EQUAL. THE FLEXIBLE RUN-OUTS SHALL BE FLAME RESISTANT, SHALL HAVE A LOW FRICTION LOSS, AND SHALL HAVE WORKING PRESSURE MINIMUM OF 3" W.G. FLEXIBLE RUN-OUTS SHALL BE NO LONGER THAN 8'-0". ANY ADDITIONAL LENGHTS NECESSARY TO CONNECT THE FLEXIBLE DUCT TO THE HIGH OR MEDIUM PRESSURE DUCTWORK SHALL BE MADE WITH SPIRAL LOCKSEAM SHEET METAL DUCT OF THE SAME SIZE AS THE FLEXIBLE DUCTWORK.

B. THE FLEXIBLE RUN-OUT DUCT SHALL MEET ALL REQUIREMENTS OF THE NATIONAL FIRE PROTECTION ASSOCIATION 90A – LATEST EDITION.

1. FLAME SPREAD NOT OVER 25, SMOKE DEVELOPED NOT OVER 50.

C. EACH LENGTH OF FLEXIBLE DUCT SHALL BE SEALED ON BOTH ENDS WITH 3M EC-800 SEALER, OR SEALING COMPOUND AS RECOMMENDED BY THE FLEXIBLE AIR DUCT MANUFACTURER. THE FLEXIBLE AIR DUCT SHALL BE SEALED AND COVERED TO A MINIMUM DEPTH OF 2" OF ITS MATING METAL COUPLING, BRANCH TAKE-OFF LAP OR DUCT AT EACH OF ITS ENDS. A WRAPLOCK IDEAL NO. 5900 STRAP-CLAMP SHALL BE FURNISHED AND INSTALLED AT EACH END OF THE FLEXIBLE DUCT.

D. COMPLETE INSTALLATION SHALL BE AIRTIGHT.

5.0 SPLIT AC UNIT

5.1 INDOOR CASSETTE UNIT

A. INDOOR, DIRECT-EXPANSION, IN-CEILING CASSETTE FAN COIL. UNIT SHALL BE COMPLETE WITH COOLING/HEATING COIL, FAN, FAN MOTOR, PIPING CONNECTORS, ELECTRICAL CONTROLS, MICROPROCESSOR CONTROL SYSTEM, AND INTEGRAL TEMPERATURE SENSING.

B. CABINET SHALL BE CONSTRUCTED OF ZINC--COATED STEEL. FULLY INSULATED DISCHARGE AND INLET GRILLES SHALL BE ATTRACTIVELY STYLED, HIGH-IMPACT POLYSTYRENE. GRILLE SHALL HAVE HINGES AND CAN BE OPENED TO OBTAIN ACCESS TO THE CLEANABLE FILTERS, INDOOR FAN MOTOR AND CONTROL BOX.

C. FANS:

1. FAN SHALL BE CENTRIFUGAL DIRECT--DRIVE BLOWER TYPE WITH AIR INTAKE IN THE CENTER OF THE UNIT AND DISCHARGE AT THE PERIMETER. AUTOMATIC, MOTOR--DRIVEN VERTICAL AIR SWEEP SHALL BE PROVIDED STANDARD. AUTOMATIC MOTOR--DRIVEN LOUVERS SHALL BE PROVIDED STANDARD AND SHALL BE ADJUSTABLE FOR 2, 3 OR 4-WAY DISCHARGE.
2. AIR SWEEP OPERATION SHALL BE USER SELECTABLE.

D. COIL SHALL BE COPPER TUBE WITH ALUMINUM FINS AND GALVANIZED STEEL TUBE SHEETS. FINS SHALL BE BONDED TO THE TUBES BY MECHANICAL EXPANSION AND ESPECIALLY BLUE HYDROPHILIC PRE-COATED FOR ENHANCED WET-ABILITY. A DRIP PAN UNDER THE COIL SHALL HAVE A FACTORY INSTALLED CONDENSATE PUMP AND DRAIN CONNECTION FOR HOSE ATTACHMENT TO REMOVE CONDENSATE.

E. MOTORS SHALL BE OPEN DRIP-PROOF, PERMANENTLY LUBRICATED BALL BEARING WITH INHERENT OVERLOAD PROTECTION. FAN MOTORS SHALL BE 3-SPEED.

F. CONTROLS SHALL CONSIST OF A MICROPROCESSOR-BASED CONTROL SYSTEM WHICH SHALL CONTROL SPACE TEMPERATURE, DETERMINE OPTIMUM FAN SPEED, AND RUN SELF-DIAGNOSTICS. THE TEMPERATURE CONTROL RANGE SHALL BE FROM 62°F TO 86°F (17°C TO 30°C) IN INCREMENTS OF 1°F OR 1°C, AND HAVE 46°F HEATING MODE (HEATING SETBACK). THE WIRELESS REMOTE CONTROLLER SHALL HAVE THE ABILITY TO ACT AS THE TEMPERATURE SENSING LOCATION FOR ROOM COMFORT.

G. THE UNIT SHALL HAVE THE FOLLOWING FUNCTIONS AS A MINIMUM:

1. AN AUTOMATIC RESTART AFTER POWER FAILURE AT THE SAME OPERATING CONDITIONS AS AT FAILURE.
2. A TIMER FUNCTION TO PROVIDE A MINIMUM 24-HOUR TIMER CYCLE FOR SYSTEM AUTO START/STOP.
3. TEMPERATURE-SENSING CONTROLS SHALL SENSE RETURN AIR TEMPERATURE.
4. INDOOR COIL FREEZE PROTECTION.
5. A WIRED REMOTE OR WIRELESS INFRARED REMOTE CONTROL OR A WIRED CONTROL TO ENTER SET POINTS AND OPERATING CONDITIONS.
6. AUTOMATIC AIR SWEEP CONTROL TO PROVIDE ON OR OFF ACTIVATION OF AIR SWEEP LOUVERS.
7. DEHUMIDIFICATION MODE SHALL PROVIDE INCREASED LATENT REMOVAL CAPABILITY BY MODULATING SYSTEM OPERATION AND SET POINT TEMPERATURE.
8. FAN-ONLY OPERATION TO PROVIDE ROOM AIR CIRCULATION WHEN NO COOLING IS REQUIRED.
9. DIAGNOSTICS SHALL PROVIDE CONTINUOUS CHECKS OF UNIT OPERATION AND WARN OF POSSIBLE MALFUNCTIONS. ERROR MESSAGES SHALL BE DISPLAYED AT THE UNIT.
10. FAN SPEED CONTROL SHALL BE USER-SELECTABLE: HIGH, MEDIUM, LOW, OR MICROPROCESSOR CONTROLLED AUTOMATIC OPERATION DURING ALL OPERATING MODES.
11. AUTOMATIC HEATING-TO-COOLING CHANGEOVER IN HEAT PUMP MODE. CONTROL SHALL INCLUDE DEADBAND TO PREVENT RAPID MODE CYCLING BETWEEN HEATING AND COOLING.
12. INDOOR COIL HIGH TEMPERATURE PROTECTION SHALL BE PROVIDED TO DETECT EXCESSIVE INDOOR DISCHARGE TEMPERATURE WHEN UNIT IS IN HEAT PUMP MODE.

H. UNIT SHALL HAVE FILTER TRACK WITH FACTORY-SUPPLIED CLEANABLE FILTERS.

I. INDOOR UNITS ARE 208/230-1-60 AND ARE POWERED FROM THE OUTDOOR UNIT.

J. THE 40MBCQ SYSTEM SHALL HAVE A MINIMUM SEER (SEASONAL ENERGY EFFICIENCY RATIO) AND HSPF AT AHRI CONDITIONS, AS LISTED ON THE SPECIFICATIONS TABLE.

K. ALL UNITS SHOULD HAVE REFRIGERANT LINES THAT CAN BE ORIENTED TO CONNECT FROM THE SIDE OF UNIT. BOTH REFRIGERANT LINES NEED TO BE INSULATED.

5.2 HORIZONTAL DISCHARGE CONDENSING UNIT

A. FACTORY ASSEMBLED, SINGLE PIECE, AIR-COOLED OUTDOOR UNIT. CONTAINED WITHIN THE UNIT ENCLOSURE SHALL BE ALL FACTORY WIRING, PIPING, CONTROLS, AND THE COMPRESSOR.

B. UNIT CABINET:

1. UNIT CABINET SHALL BE CONSTRUCTED OF GALVANIZED STEEL, BONDERIZED AND COATED WITH A BAKED-ENAMEL FINISH ON INSIDE AND OUTSIDE.
2. UNIT ACCESS PANELS SHALL BE REMOVABLE WITH MINIMAL SCREWS AND SHALL PROVIDE FULL ACCESS TO THE COMPRESSOR, FAN, AND CONTROL COMPONENTS.
3. OUTDOOR COMPARTMENT SHALL BE ISOLATED AND HAVE AN ACOUSTIC LINING TO ASSURE QUIET OPERATION.

C. FANS:

1. OUTDOOR FANS SHALL BE DIRECT-DRIVE PROPELLER TYPE, AND SHALL DISCHARGE AIR HORIZONTALLY. FANS SHALL DRAW AIR THROUGH THE OUTDOOR COIL.
2. OUTDOOR FAN MOTORS SHALL BE TOTALLY-ENCLOSED, SINGLE PHASE MOTORS WITH CLASS E INSULATION AND PERMANENTLY-LUBRICATED BALL BEARINGS. MOTOR SHALL BE PROTECTED BY INTERNAL THERMAL OVERLOAD PROTECTION.
3. SHAFT SHALL HAVE INHERENT CORROSION RESISTANCE.
4. FAN BLADES SHALL BE NON-METALLIC AND SHALL BE STATICALLY AND DYNAMICALLY BALANCED.
5. OUTDOOR FAN OPENINGS SHALL BE EQUIPPED WITH PVC METAL/MESH COATED PROTECTION GRILLE OVER FAN.

D. COMPRESSOR:

1. COMPRESSOR SHALL BE FULLY HERMETIC ROTARY TYPE.
2. COMPRESSOR SHALL BE EQUIPPED WITH OIL SYSTEM, OPERATING OIL CHARGE, AND MOTOR. INTERNAL OVERLOADS SHALL PROTECT THE COMPRESSOR FROM OVER-TEMPERATURE AND OVER-CURRENT.
3. MOTOR SHALL BE NEMA RATED CLASS E, SUITABLE FOR OPERATION IN A REFRIGERANT ATMOSPHERE.
4. COMPRESSOR ASSEMBLY SHALL BE INSTALLED ON RUBBER VIBRATION ISOLATORS.
5. COMPRESSORS SHALL BE SINGLE PHASE.

E. COIL SHALL BE CONSTRUCTED OF ALUMINUM BLUE HYDROPHILIC PRE-COATED FINS MECHANICALLY BONDED TO SEAMLESS COPPER TUBES, WHICH ARE CLEANED, DEHYDRATED, AND SEALED.

F. REFRIGERANT CIRCUIT COMPONENTS SHALL INCLUDE BRASS EXTERNAL LIQUID LINE SERVICE VALVE WITH SERVICE GAGE PORT CONNECTIONS, SUCTION LINE SERVICE VALVE WITH SERVICE GAGE CONNECTION PORT, SERVICE GAGE PORT CONNECTIONS ON COMPRESSOR SUCTION AND DISCHARGE LINES WITH SCHRADER TYPE FITTINGS WITH BRASS CAPS, ACCUMULATOR, REVERSING VALVE.

G. OPERATING CONTROLS AND SAFETIES SHALL BE FACTORY SELECTED, ASSEMBLED, AND TESTED. THE MINIMUM CONTROL FUNCTIONS SHALL INCLUDE THE FOLLOWING:

1. CONTROLS:
   a. A TIME DELAY CONTROL SEQUENCE IS PROVIDED STANDARD THROUGH THE FAN COIL BOARD.
   b. AUTOMATIC OUTDOOR-FAN MOTOR PROTECTION.
2. SAFETIES:
   a. SYSTEM DIAGNOSTICS.
   b. COMPRESSOR MOTOR CURRENT AND TEMPERATURE OVERLOAD PROTECTION.
   c. OUTDOOR FAN FAILURE PROTECTION.

H. ELECTRICAL REQUIREMENTS:

1. UNIT SHALL OPERATE ON SINGLE-PHASE, 60 HZ POWER AT 208-230V FOR UNIT SIZES 09, 12, 18, 24, 30 AND 36, AS SPECIFIED.
2. UNIT ELECTRICAL POWER SHALL BE A SINGLE POINT CONNECTION.
3. UNIT CONTROL VOLTAGE TO THE INDOOR FAN COIL SHALL BE 0-15V DC.
4. ALL POWER AND CONTROL WIRING MUST BE INSTALLED PER NEC AND ALL LOCAL ELECTRICAL CODES.
5. UNIT SHALL HAVE HIGH-AND LOW-VOLTAGE TERMINAL BLOCK CONNECTIONS.

6.0 BMS INTERFACE

A. THE NEW AIR CONDITIONING SYSTEM FOR THE SECURITY OFFICE SHALL BE INTERFACED WITH THE EXISTING BMS, AS INSTALLED BY A.M.E., UNDER A 2016 RENOVATION OF SCHOOL NUMBERS 2 & 3, SO AS TO:

1. ACCOMPLISH TIME CLOCK SCHEDULING.
2. ADJUST HEATING & COOLING SCHEDULING SETPOINTS IN OCCUPIED & UNOCCUPIED CYCLES.
3. MONITOR STATUS.
4. CONDENSATE ALARM.

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PRINT DATE: 12/2/19

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NJDOE SP #05-4930-070-19-3000

SECURITY UPGRADES - PROJECT A
SOUTHAMPTON SCHOOL #3
100 WARRIOR WAY
SOUTHAMPTON, NEW JERSEY

TITLE: PARTIAL FLOOR PLAN, DETAILS, & SCHEDULES - MECHANICAL

DRAWING DATE: 29 NOV 2019
REVISION DATE:

DRAWN BY: MB
COMMISION NO.: 5601A

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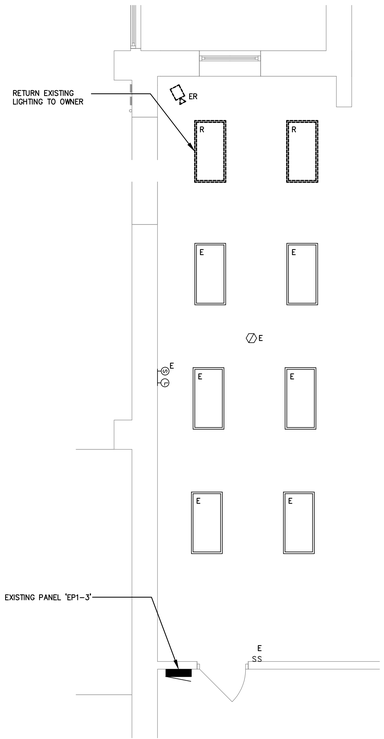
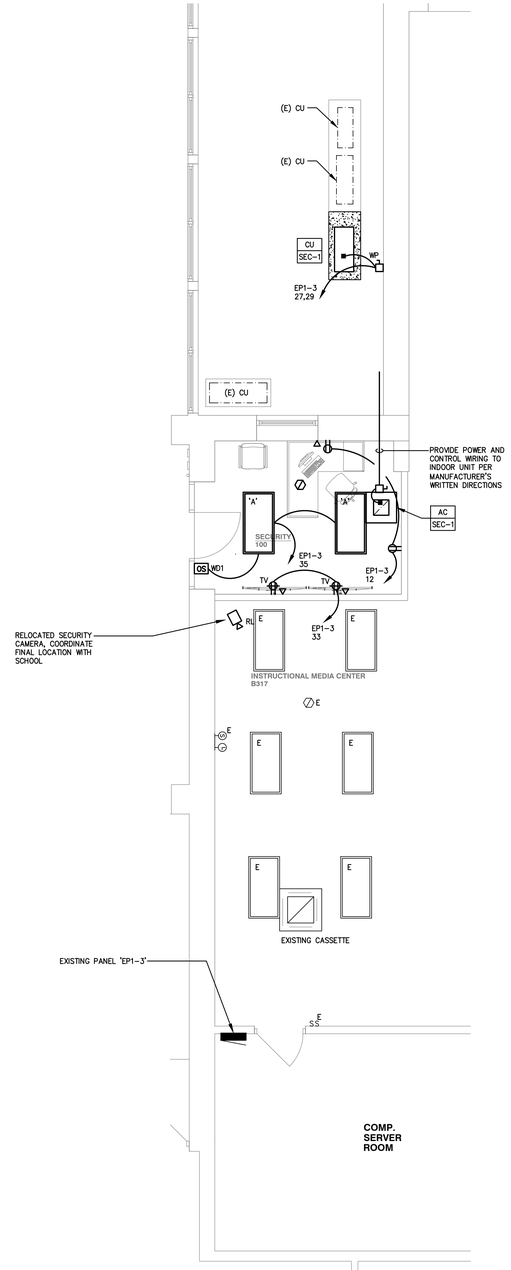


1 E1.0 PARTIAL FLOOR PLAN – ELECTRICAL DEMOLITION

SCALE 1/4" = 1'-0"

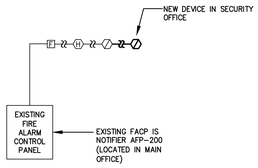
DEMOLITION NOTES:

1. THESE DEMOLITION PLANS ARE INTENDED TO BE USED AS A GUIDE TO THE CONTRACTOR. ALL DEMOLITION WORK REQUIRED, OR NECESSARY FOR THE INSTALLATION OF NEW WORK OR THE REMOVAL OF EXISTING EQUIPMENT, IS HEREBY INCLUDED, WHETHER SHOWN ON THESE PLANS OR NOT. REFER TO DRAWINGS OF ALL TRADES FOR ADDITIONAL WORK, AND COORDINATE IN THE FIELD.
2. THE CONTRACTOR SHALL VERIFY ACTUAL SITE CONDITIONS PRIOR TO SUBMITTING HIS BID. THE CONTRACTOR SHALL INCLUDE ALL DEMOLITION WORK NECESSARY FOR THE EFFECTIVE INSTALLATION AND PERFORMANCE OF NEW SYSTEMS. THE CONTRACTOR SHALL ALSO INCLUDE TEMPORARY REMOVAL AND REINSTALLATION OF EXISTING WORK WHEREVER NECESSARY. THE OWNER SHALL NOT ACCEPT EXTRA COSTS ASSOCIATED WITH THE DEMOLITION AND/OR TEMPORARY REMOVAL/REINSTALLATION WORK FROM THE CONTRACTOR.
3. THIS CONTRACTOR SHALL REMOVE ALL LIGHTING FIXTURES AND ELECTRICAL DEVICES AS INDICATED ON THE DEMOLITION PLANS, OR THAT ARE NO LONGER NEEDED BY THE OWNER. ALL EXISTING WIRING AND CONDUIT WHERE NO LONGER REQUIRED SHALL BE REMOVED BACK TO EXISTING PANEL. ALL EXISTING DISCONNECTED CIRCUITS NOT BEING REUSED SHALL BE TURNED OFF AND LABELED "SPARE". WHERE CONDUITS ARE INACCESSIBLE, REMOVE WIRE AND ABANDON CONDUITS.
4. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY POWER IS BEING PROVIDED TO ALL EXISTING EQUIPMENT REQUIRED TO REMAIN IN SERVICE. RECONNECT ALL DISTURBED FACILITIES WHICH ARE EXISTING TO REMAIN AND PLACE THEM IN OPERATIONAL CONDITION.
5. REMOVE ALL WIRING DEVICES FROM WALLS TO BE DEMOLISHED. REMOVE EXISTING LIGHT SWITCHES WHERE NO LONGER REQUIRED. REUSE ALL EXISTING CONCEALED CONDUIT AND RECESSED DEVICE BOXES WHERE POSSIBLE. ABANDON BOXES IF THEY ARE IN EXISTING WALLS TO REMAIN. PATCH WALLS OVER ABANDONED BOXES TO MATCH ADJACENT SURFACES.
6. REMOVE ABANDONED OUTLET BOXES, SURFACE METAL RACEWAY AND CONDUIT THAT WOULD BE EXPOSED, AND REPAIR DISTURBED SURFACES TO MATCH ADJACENT AREAS.
7. MAJOR PIECES OF EQUIPMENT ARE TO BE TURNED OVER TO THE OWNER FOR HIS USE, OR AT THE OWNER'S DISCRETION, REMOVED FROM THE SITE AND DISPOSED OF, IF NO LONGER REQUIRED.
8. PATCH ALL WALLS TIGHT AT REMOVALS. MAINTAIN FIRE RATINGS AS REQUIRED.
9. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL DRAWINGS FOR THE EXTENT OF WALL FINISHES AND CEILINGS TO BE REPLACED. ALL EXISTING DEVICES TO REMAIN SHALL BE TEMPORARILY DISCONNECTED AND REINSTALLED. WHERE TEMPORARY REMOVAL IS NOT POSSIBLE THE CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT OF EXISTING EQUIPMENT IN PLACE.
10. THE EXISTING FIRE ALARM SYSTEM SHALL BE MAINTAINED THROUGHOUT DEMOLITION AND CONSTRUCTION. PROVIDE TEMPORARY SUPPORT OF EXISTING DEVICES AS REQUIRED. THE CONTRACTOR SHALL NOTIFY THE FIRE MARSHAL UPON ANY MODIFICATIONS TO OR ANY NECESSARY INTERRUPTION IN SYSTEM OPERATION. NOTE THAT COVERING DEVICES DURING CONSTRUCTION IS AN INTERRUPTION TO COVERAGE.



2 E1.0 PARTIAL FLOOR PLAN – ELECTRICAL

SCALE 1/4" = 1'-0"



3 E1.0 FIRE ALARM SYSTEM RISER DIAGRAM

SCHEMATIC

FIRE ALARM SYSTEM NOTES:

1. PROVIDE ALL WIRING AS RECOMMENDED BY MANUFACTURER. ALL WIRING SHALL BE IN CONDUIT. FIRE ALARM LABELED MC CABLE MAY BE USED IN CONCEALED LOCATIONS WHERE PERMITTED BY CODE.
2. ALL EQUIPMENT AND WIRING SHALL MATCH EXISTING.
3. CONTRACTOR IS RESPONSIBLE FOR INSURING THAT COMPLETE SYSTEM MEETS ALL APPLICABLE CODES AND FOR OBTAINING FINAL APPROVAL FROM LOCAL FIRE INSPECTOR(S). SUBMIT SHOP DRAWING TO INSPECTOR(S) AND ENGINEER FOR REVIEW AND APPROVAL.
4. PROVIDE AT EACH LOCATION SHOWN, AUDIO/VISUAL DEVICES WITH OUTPUT LEVELS AS RECOMMENDED BY MANUFACTURER FOR THE SPACE TO COMPLY WITH ADA & CODE REQUIREMENTS. PROVIDE ADDITIONAL DEVICES TO THOSE SHOWN IF/AS REQUIRED TO MEET LEVELS AT NO ADDITIONAL COST.
5. ALL FIRE ALARM CONTROL PANELS, REMOTE ANNUNICIATORS, AND BOOSTER PANELS SHALL HAVE SMOKE DETECTORS COVERAGE ABOVE. PROVIDE DEVICES WHETHER SHOWN ON PLANS OR NOT.
6. PROVIDE FIRE ALARM SHOP DRAWINGS SIGNED AND SEALED BY A NEW JERSEY PROFESSIONAL ENGINEER. FIRE ALARM SHOP DRAWINGS TO CONTAIN MANUFACTURER CUT SHEETS FOR ALL DEVICES, SCALED DRAWINGS THAT INCLUDE LOCATIONS OF ALL INITIATING AND NOTIFICATION DEVICES AND LOCATION OF CONTROL UNIT AND POWER SUPPLIES. INDICATE CANDELA RATING FOR ALL VISUAL DEVICES AND DB RATING FOR AUDIBLE DEVICES. PROVIDE A COMPLETE FIRE ALARM RISER, VOLTAGE DROP, BATTERY CALCULATIONS, A SEQUENCE OF OPERATION AND ALL INFO REQUIRED BY IBC 907.1.1. FIRE ALARM SHOP DRAWINGS TO BE REVIEWED BY A/E AND SUBMITTED TO DCA FOR THEIR APPROVAL PRIOR TO RELEASE OR INSTALLATION OF ANY WORK.
7. UPON COMPLETION OF FIRE ALARM WORK, PROVIDE A RE-ACCEPTANCE TEST OF THE ENTIRE SYSTEM PER NFPA 72.

SYMBOL LIST & ABBREVIATIONS

	LIGHT FIXTURE – SEE SCHEDULE
OS	OCCUPANCY SENSOR – LETTER DENOTES TYPE OF SENSOR TO BE INSTALLED WATTSTOPPER OR APPROVED EQUAL, REFER TO AUTOMATIC LIGHTING CONTROL NOTES, PROVIDE ALL HARDWARE AND PROGRAMMING AS REQUIRED.
	WD1 = WD-270 PASSIVE INFRARED DIMMABLE SENSOR – LINE VOLTAGE
IG GFI D	DUPLEX RECEPTACLE, 20A, 125V, 2 POLE, 3 WIRE, GROUNDED D INDICATES DOUBLE DUPLEX RECEPTACLE. GFI INDICATES GROUND FAULT INTERRUPTION, IG INDICATES ISOLATED GROUND IG INDICATES ISOLATED GROUND
TV	DUPLEX RECEPTACLE MOUNTED 6'-6" AFF OR AS DIRECTED IN FIELD, FOR TELEVISION MONITOR. VERIFY LOCATION IN FIELD
	DATA/VOICE OUTLET – 4" X 4" OUTLET BOX WITH 3/4"C STUBBED UP ABOVE NEAREST ACCESSIBLE CEILING, (2) RJ45 JACKS, (2) CAT6 CABLES DRESSED AND TERMINATED, CIRCUITED BACK TO MDF ROOM
S	SINGLE POLE SWITCH
	UNFUSED DISCONNECT SWITCH
	208/120V PANELBOARD
FACP	FIRE ALARM, CONTROL PANEL
F	FIRE ALARM, MANUAL PULL STATION
H	FIRE ALARM, HEAT DETECTOR FIXED TEMPERATURE AND RATE-OF-RISE
	FIRE ALARM, SMOKE DETECTOR PHOTOELECTRIC
	CLOCK & SPEAKER WITH SEPERATE WALL MTD. CALL SWITCH
	CAMERA
	WIRE & CONDUIT, CONCEALED IN CEILING OR WALL
	HOMERUN TO PANEL, NUMERAL INDICATES CIRCUIT NUMBER
	CONNECTION TO EQUIPMENT
AC	AIR CONDITIONING
CU	CONDENSING UNIT
E	EXISTING
ER	EXISTING TO BE RELOCATED, CAREFULLY REMOVE AND STORE ON SITE, DISCONNECT AND SAFE-OFF ALL WIRING FOR FUTURE EXTENSION TO NEW LOCATION
R	EXISTING TO BE REMOVED
RL	RELOCATE EXISTING TO THIS LOCATION, COORDINATE EXACT LOCATION IN FIELD, PROVIDE NEW WIRING TO EXTEND EXISTING WIRING AS REQUIRED, MATCH EXISTING WIRING TYPE AND SIZE
WP	WEATHERPROOF

LIGHTING FIXTURE SCHEDULE

ID	LAMPS	MANUF.	CAT. NO.	MOUNTING	DESCRIPTION
A	(1)-32W LED SPX 35	METALUX OR APPROVED EQUAL BY LIGHTOLIER/LITHONIA	24CZ-LD5-45-UNV-L835-CDI-U	RECESSED	2'x4' BASKETED FIXTURE, 0-10V DIMMABLE, 120V INPUT

PRINT DATE: 12/2/19

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NJDOE SP #05-4930-070-19-3000

SECURITY UPGRADES - PROJECT A
SOUTHAMPTON SCHOOL #3
100 WARRIOR WAY
SOUTHAMPTON, NEW JERSEY

TITLE: PARTIAL FLOOR PLANS, SCHEDULES, DIAGRAM, DETAILS & SYMBOL LIST - ELECTRICAL

DRAWING DATE: 29 NOV 2019
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DRAWN BY:
COMMISION NO.: 5601A

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E1.0
1 OF 2

EXISTING PANELBOARD 'EP1-3'

208/120V, 3ϕ, 4W, S/N, SURFACE, 100A MAIN LUGS ONLY, 42K AIC

CKT#	DESCRIPTION	LOAD KVA	CIR. BREAKER POLES	CIR. BREAKER AMP	WIRE & CONDUIT	#A #B #C	WIRE & CONDUIT	CIR. BREAKER AMP	CIR. BREAKER POLES	LOAD KVA	DESCRIPTION	CKT#	
1	COPIER	–	2	20	EXISTING		EXISTING	20	2	–	SAC-1 & 2	2	
3												4	
5	MAIN OFFICE RECEP.	–	1	20	EXISTING		EXISTING	20	1	–	MAIN OFFICE REC.	6	
7	MAIN OFFICE RECEP.	–	1	20	EXISTING		EXISTING	20	1	–	MAIN OFFICE REC.	8	
9	MAIN OFFICE LTG.	–	1	20	EXISTING		EXISTING	20	1	–	MAIN OFFICE PWR POLE	10	
11	MAIN OFFICE BELL SYSTEM	–	1	20	EXISTING		2 #12 & 1 #12 GRD – 3/4"C	20	1	–	SECURITY OFFICE REC.	12	*
13	QUAD SERVICE O/C	–	1	20	EXISTING		EXISTING	20	1	–	FACP	14	
15	QUAD SERVICE O/C	–	1	20	EXISTING		EXISTING	20	1	–	SERVER ROOM T/L	16	
17	SERVER ROOM RECEP.	–	1	20	EXISTING		EXISTING	20	1	–	SERVER ROOM T/L	18	
19	SERVER ROOM RECEP.	–	1	30	EXISTING		EXISTING	20	1	–	SERVER ROOM T/L	20	
21	SERVER ROOM RECEP.	–	1	30	EXISTING		EXISTING	20	1	–	SERVER ROOM T/L	22	
23	SERVER ROOM RECEP.	–	1	30	EXISTING		EXISTING	20	1	–	SERVER RECEP.	24	
25	SERVER ROOM RECEP.	–	1	30	EXISTING		EXISTING	20	1	–	SERVER ROOM QUADS	26	
* 27	CU/AC SECURITY OFFICE	–	2	15	2 #12 & 1 #12 GRD – 3/4"C		EXISTING	20	1	–	SERVER ROOM OUTLETS	28	
29							EXISTING	20	1	–	SERVER RECEP.	30	
31	SERVER	–	1	30	EXISTING		EXISTING	30	1	–	SERVER RECEP.	32	
* 33	SECURITY OFFICE MON.	–	1	20	2 #12 & 1 #12 GRD – 3/4"C		EXISTING	30	1	–	SERVER RECEP.	34	
* 35	SECURITY OFFICE LTG.	–	1	20	2 #12 & 1 #12 GRD – 3/4"C		–	20	2	–	SPARE	36	
37	SPARE	–	3	30	–							38	
39							–	20	2	–	SPARE	40	
41												42	
	SUB TOTAL KVA	–								–	SUB TOTAL KVA		
		– TOTAL CONNECTED LOAD											

* PROVIDE NEW CIRCUIT BREAKERS, TYPE AND AIC RATING TO MATCH EXISTING IN PANELBOARD FOR ALL NEW CIRCUITS AS REQUIRED

GENERAL REQUIREMENTS

This Section is coordinate with and complementary to the General Conditions and Special Requirements.

Drawings are diagrammatic. Sizes and locations of equipment are shown to scale where possible, but may be distorted for clarity on the Drawings. Final locations shall be as required or directed.

Light and power and system riser diagrams and schematic diagrams generally indicate equipment and connections to be used for various systems. System conduit and wiring shall be as required. Provide all work shown on diagrams whether or not it is duplicated on the plans.

SCOPE OF WORK

In general the work includes, but is not limited to the following:

1. Raceways and installation components.
2. Wire and Cable.
3. Panelboards Modifications
4. Fuses.
5. Safety and disconnect switches.
6. Manual motor starters.
7. Grounding.
8. Lighting fixtures.
9. Testing.
10. Furnishing and setting of all sleeves through the floors, roof, and walls where required, including waterproofing, and fireproof sealing, and cap flashing.
11. Cutting, drilling and boring associated with electrical work.
12. Prime painting, where required for electrical equipment and installation.
13. Final connection of all equipment unless otherwise noted.

QUALITY ASSURANCE AND STANDARDS

The complete installation shall be in accordance with NJUCC (The State Building Code).

Contractor to be responsible for securing all necessary permits and obtaining all necessary approvals. He shall complete all necessary forms and pay all necessary fees, to be reimbursed by Owner.

SUBMITTALS

The Contractor shall submit shop drawings for all systems and components with such promptness as to cause no delay in his own work or that of another contractor.

EXAMINATION OF EXISTING CONDITIONS ON PREMISES

Before submitting his bid, this Contractor shall visit the site of the work and shall thoroughly familiarize himself with the existing conditions affecting the work. By the act of submitting a bid, the Contractor shall be deemed to have made such an examination, to have accepted such conditions, and to have made allowance therefore in preparing his bid. No additional compensation will be granted on account of extra work made necessary by the Contractor's failure to investigate such existing conditions. Verify all grades, elevations, dimensions, and clearances at the site.

COORDINATION OF WORK WITH OTHER TRADES

The contractor shall coordinate the work of this Section with the work of all other Contracts and all the Utility Companies. It shall be so arranged that there will be no delay in the proper installation and completion of all work.

INSPECTION AND TESTS

The entire wiring system must test free from short and open circuits. Every ground shall be tested for compliance with standards listed below.

PROTECTION, MAINTENANCE AND PRODUCT HANDLING OF ELECTRICAL EQUIPMENT

Electrical equipment shall be delivered and stored at the site, properly packed and crated until finally installed.

Provide effective protection against damage for all material and equipment during shipment and storage at the Project Site.

This Contractor shall be responsible for the maintenance of all installed equipment and systems until final acceptance by the Owner.

GUARANTEE

This Contractor shall guarantee in writing to the Owner that all work installed by him shall be free of defects in workmanship and materials and that all apparatus will develop the capacities and characteristics as indicated, and that, if during a period of two years from date of final approval of work by the Architect, any defects in workmanship, materials or performance appear, he will remedy them without any cost to the Owner.

ACCESSIBILITY AND MEASUREMENTS

All work shall be installed so as to be readily accessible for operation, maintenance, and repair. Minor deviations from the plans may be made to accomplish this, subject to approval.

Before ordering any material or doing any work, the Contractor shall verify all measurements at the Building, and shall be responsible for the correctness of same as related to the work under this Contract.

IDENTIFICATION NAMEPLATES

Identify and mark all electrical equipment to meet OSHA standards and as specified herein.

Unless otherwise noted, nameplates shall be black laminate with white letters of uniform size consisting of reasonably large capital letters, 3/16 inch minimum.

RACEWAYS AND INSTALLATION COMPONENTS

The requirements of this Section apply to raceway work specified elsewhere in these specifications.

The work includes the providing of completely coordinated grounded raceway systems complete with boxes, fittings, flexible connections to vibrating equipment and accessories, as specified and as required for a complete system.

The work permits the use of metal-clad cable in conjunction with conduit. See below.

Raceways and fittings shall be manufactured by Triangle or approved equal by Allied or Republic.

Rigid steel conduit shall be full weight steel pipe, hot dip galvanized inside and outside, threaded, minimum 3/4 inch.

Intermediate metal conduit (IMC) shall be intermediate steel pipe, hot dip galvanized, threaded, minimum 3/4 inch.

Electric metallic tubing (EMT) shall be steel thin wall pipe, galvanized, threadless, minimum 3/4 inch, maximum 2 inch.

Flexible steel conduit (Greenfield) shall be continuous single strip, galvanized, minimum 3/4 inch.

Liquid-tight flexible steel conduit (Seal-tite) shall be zinc coated, consist of flexible galvanized steel tubing over which is extruded a liquid-tight sheathing of polyvinyl chloride (PVC). Conduit shall be provided with a continuous copper bonding conductor would spirally between the convolutions.

Rigid steel and IMC conduit fittings shall be standard threaded couplings, locknuts, bushings, and elbows. Material shall be steel or malleable iron only.

Electrical metallic tubing fittings shall be compression waterproof connection type. Set screw or indent type connectors are not permitted.

Flexible steel conduit (Greenfield) fittings shall be multiple point type, threading into the internal wall of the conduit convolutions, and shall have insulated throat.

Liquid-tight flexible metal conduit fittings shall incorporate a threaded grounding cone, a steel or plastic compression ring, and a gland for tightening. Connectors shall have insulated throats.

Expansion and deflection couplings shall be manufactured by O-Z/Gedney, Crouse-Hinds, Appleton or approved equal.

Individual conduit hangers, shall be designed for the purpose, and have pre-assembled closure bolt and nut, and provisions for receiving hanger rod.

Multiple conduit (trapeze) hangers shall be not less than 1-1/2 by 1-1/2 inch, 12 gauge steel, cold formed, lipped channels. Hanger rods shall be not less than 3/8-inch diameter steel.

Solid masonry and concrete anchors shall be a type approved for the purpose.

Provide and assume responsibility for locating and maintaining in proper position all sleeves required for the work.

Openings through floors and walls in which cables, conduits, or pipe pass shall be sealed by U.L. classified smoke and fire stop fittings, and have an hourly rating equal to the fire rating of the floor or wall. Fittings shall be similar to O-Z/Gedney Type "CFS" or "CAFS".

Penetrations through fire-rated floors in which wiring for floor service outlets are routed shall be sealed by U.L. classified smoke and fire-stop fittings, and shall have an hourly rating equal to the floor rating. Fittings shall be similar to O-Z/Gedney Type "PTFS".

Outlet boxes shall be manufactured by Raco, RussellStoll, Steel City, Thomas & Betts or Crouse Hinds.

Outlet boxes for concealed work shall be galvanized steel, 4 in. square or octagon (except as otherwise required by construction, devices or wiring). Provide sufficient depth for application.

Outlet boxes located outdoors and in damp locations shall be weatherproof.

Offset back-to-back outlets shall have minimum 6 in. separation between them. In rated walls, they are to be separated by a stud

Junction, splice and pull boxes shall be made of code gauge sheet steel with removable covers fastened with brass or stainless steel screws, except as noted, and will include insulated supports for cables. Box dimensions shall conform to N.E.C. requirements.

Provide junction, splice and/or pull boxes as noted or as required to facilitate pulling of conductors or in raceway runs that have more than three (3) 90-degree bends.

For indoor applications, boxes shall have a gray enamel finish. For outdoor and damp locations, boxes shall be galvanized.

Wireways shall be as manufactured by Square D, General Electric, or approved equal.

Wireways shall be square, brake-formed of code gauge steel, furnished in standard 10-foot sections with knockouts as required. Wireways shall be of the screw cover type and all necessary offset and elbow fittings. They shall have a gray enamel finish. Size shall be as required for proper cable fill.

Install raceway and installation components as indicated, in accordance with manufacturer's written instructions, applicable requirements of NEC and in accordance with the recognized industry practices, to ensure that products serve intended function.

Raceway supports shall be provided by means of ceiling trapeze, strap hangers, or wall brackets. Use structural steel angles or channels, or manufactured steel support system. Spacing of supports shall be as per NEC and per manufacturer's recommendations but in no case shall exceed 8'-0" on centers. Provide U-bolts at each floor level for riser raceways and anchor to acceptable supports. Secure raceways to supports with pipe straps or U-bolts.

Mechanically join all metal raceways, enclosures and junction boxes to assure continuity.

Branch circuit conduits shall be supported by the building structure.

Conduits located underground beyond the building for branch wiring shall be installed with a minimum of 30 in. top cover as shown on the drawings.

Provide expansion-deflection fittings at expansion joints in accordance with manufacturer's recommendations. Expansion-deflection fittings shall be used for all trade sizes 1-1/4" or larger. For trade sizes up to 1" in size, a suitable length of flexible conduit (or liquid-tight flexible conduit) with sufficient slack for movement and grounding conductor fastened on each side of joint shall be permitted.

Rigid steel conduit shall be used for underground installation; in wet, damp or wash down locations; for exposed runs on the exterior of the building; embedded in concrete or masonry or below concrete that is in contact with earth.

Intermediate metal conduit (IMC) may be used in place of rigid steel in dry locations only.

EMT is to be used for feeders and branch circuits in dry locations such as hung ceilings, interior hollow block walls and furred spaces.

Flexible steel conduit shall be used in dry locations for short connections where rigid conduits or tubing is impracticable, and for final connections to lights and equipment other than motors and transformers.

Liquid-tight flexible steel conduit shall be used in damp locations for final connections to motor terminal boxes, transformers, and other vibrating equipment in damp and dry locations.

In general, cutting and core drilling is to be avoided. Where it becomes necessary, locations are to be coordinated with other trades, the Owner and the structural engineer. There is to be no cutting or core drilling without prior approval.

Provide an outlet box for each lighting fixture and device shown, or required, in the wiring system.

Provide galvanized steel extension rings (depth as required) and raised cover plates in plaster, dry wall, masonry and tile walls.

Mount outlet boxes for similar equipment at uniform height within same or similar areas.

Outlet boxes for fixtures recessed in non-accessible ceilings shall be accessible through the opening created by the removal of the fixture or through access doors provided by this contractor.

All outlet boxes in finished areas for convenience receptacles or local switches shall be 4" square and 1-5/8" deep minimum. Provide with regular deep switch extension cover.

Boxes for use with surface mounted raceways shall be of the same construction and manufacture as the raceway.

Provide junction, splice and pull boxes where required to facilitate installation of wiring, whether or not shown on Drawings. Size boxes according to code, and provide interior partitions, insulated supports, hot dip galvanized angle iron braces, screw-on one-piece or split covers, ground connectors, and other accessories as required.

All outdoor installations shall be weatherproof.

Support all material from the building structure in an approved manner.

Where electrical equipment is mounted in suspended ceiling panels, provide support members to span between runners of ceiling suspension system. Do not support electrical equipment from acoustical panels or other ceiling material; attach to this material for alignment only.
suspended ceilings, use independent support clips with threaded studs. Do not attach to tee bar
Where electrical outlet boxes, lighting fixtures, and other equipment is installed on tee bars of

except for alignment; use clip similar to Caddy "ID" that snaps around tee bar and has provisions for independent support wire. Attach a suitable anchor in the structure above ceiling, and suspend a minimum No. 12 support wire to engage the clip.

Do not exceed manufacturer' load rating for mounting devices.

At drywall partitions, provide support members to carry weight of equipment; do not use drywall material to carry any weight.

WIRE AND CABLE

The work includes providing wire and cable complete with all accessories in accordance with Drawings and Specifications and as required for a complete system. Wiring size referenced in this Section shall be AWG, except as noted

This project has been designed for copper conductors. Aluminum conductors are not acceptable and shall not be used. Cable shall be manufactured by Triangle or approved equal by Carol or Guardian Products.

No. 10 and smaller conductors shall be ASTM Standard, solid, copper; and, No. 8 and larger conductors shall be ASTM standard, stranded copper.

Minimum conductor size shall be No. 12 for lighting and power and No. 14 for control and alarm. Increase wire sizes as required for long runs to overcome voltage drop.

Communications and signal wiring shall conform to the recommendations of the manufacturer's communication and signal systems and shall be specified in respective Sections of these Specifications.

"THWN" or "XHHW" insulation shall be used for interior branch circuit and feeder wiring. Rating shall be 90°C in dry locations and 75°C in wet locations.

Green colored insulated wire shall be used for all grounding applications.

Phase wires shall be color-coded as follows:

1. 120/208 volt system: Black for A phase
   Red for B Phase
   Blue for C Phase

Neutral conductors shall be white for 120/208 volts.

Provide O-Z/Gedney Type "CSB" series or approved equal seal fittings between the wire and conduit for all cable and wire entering the building from underground, including service cables.

Not more than 3 current carrying conductors shall be in one (1) conduit unless otherwise indicated. Provide one neutral conductor for each 3 phase 4 wire homerun to a panelboard unless otherwise noted.

Make wire splices electrically and mechanically secure. Install small wire connectors so that no bare conductor is exposed. Tighten bolts on large conductor connectors so that conductor is deformed, but do not break strands of wire. Use compression tool with proper die for compression connectors in accordance with manufacturer's recommendations, so that conductors are deformed but not broken. Apply insulation over splice so that insulation thickness is at least 1-1/2 times that on conductor. Lap applied insulation at least 1" over conductor insulation so that no bare conductor is exposed.

In general, all feeders No. 8 and larger shall be continuous from point of origin to equipment being served. Splices shall only be used where necessary and with prior written approval of the Engineer.

Terminate conductors on terminal strips in equipment where terminal strips are used. Provide appropriate connectors, or hook conductors around terminal screws as required.

Provide encapsulated splice kits (3-M type 85 series or approved equal) for all splices in areas subject to moisture, including wet locations inside buildings and underground handholes, manholes, and buried junction boxes. Install splice kit in accordance with manufacturer's recommendations, and make splice waterproof. Apply sealing putty to surround each cable. Install mold body so that resin covers each cable sheath by a minimum of one inch.

All copper conductors No. 8 & larger shall be terminated, spliced, and tapped with color-keyed compression connectors, as manufactured by Thomas & Betts Co., Series 54000, Ideal Industries Series 87000, or approved equal. The manufacturer's recommended tooling shall be used. Mechanical type connectors shall not be used.

All copper conductors No. 10 AWG & smaller shall be terminated and spliced with Ideal Industries wing-nut wire connectors or approved equal compression connectors. The flame-retardant thermoplastic insulated type shall be used to isolate the terminal from other metal parts and equipment.

Use insulating boots supplied for compression connectors or fill joint with "Scotchfil" insulating putty and serve (3) 1/2 lap layers of "Scotch" #33 electrical tape.

WIRING DEVICES AND INSTALLATION COMPONENTS

All local switches near doors shall be located at strike side of door as finally hung, whether so indicated on the Drawings or not.

Height of outlets from finished floor to centerline of outlet shall be as follows:

Receptacle outlets: 1'-6", unless otherwise noted

Wall switch outlet: 3'-8"

Motor controllers: 5'-0"

Safety and disconnect switches: 5'-0"

Wiring devices and installation components shall be manufactured by Hubbell, Bryant Electric, Pass & Seymour, Leviton, Cooper Industries-Arrow Hart, or General Electric.

Receptacles shall be the grounding type, composition base, meeting NEMA standards, publication WD-1-1971, color as selected by Owner.

Duplex Convenience Receptacles shall be 20 amps, 125 volts, 2 pole, 3 wire, U ground slot type, Hubbell No. BR20.

Ground Fault Interrupter Duplex Receptacles: 20 amps, 125 volts, 2 pole, 3 wire, Hubbell No. GF-5352, with weatherproof cover, Hubbell No. 5221.

Where more than one switch or receptacle is being installed, provide multiple gang plates for number of devices as required.

Plates shall be beveled stainless steel satin chrome finish #302, of minimum .035" thickness.

Manual motor starters shall be Allen Bradley Bulletin 600 or approved equal by Square D or General Electric and shall be horsepower rated, and voltage rated for the motor load.

Local wall switches and receptacles shall be mounted vertically unless otherwise indicated.

SAFETY AND DISCONNECT SWITCHES

Switches shall be heavy-duty and service rated. They shall be General Electric Type "TH" or equal by Square D, Cutler Hammer, or Siemens. Switches shall include solid neutral where required. Provide auxiliary contacts where required to break motor control circuit power.

Interior enclosures shall be NEMA 1. Enclosures shall have interlocked doors and be capable of being positively padlocked in ON and OFF positions. For exterior installations, the enclosures shall be NEMA 4.

MOTOR INSTALLATION

Run all power feeds and connections from power panels to all motor starters or control panel locations. Where shown on Drawings connect the motor starting devices for motors, supplying and installing all necessary connections between starters and control devices and motors, in conduit, and leave motors ready to start. The power supply leads to the motors from the starters or control panels shall be of the same size and number of the other leads required for the proper operation of each motor. Provide (6) wires from starters to two speed motors.

Check motor nameplates for full-load current rating and allowable temperature rise to determine overload heater elements. Install correct heater element in the corresponding starter. Verify proper rotation.

Furnish motor safety disconnect switches for all motors except where such switches are specified to be furnished in other divisions or are included in the equipment control panel. Install all motor safety disconnect switches furnished under this Division or other Divisions of the Specification. Install manually-operated devices, such as push-buttons and manual starters, to permit convenient operation and be readily accessible.

Install "Sealtite" flexible conduit for final connections to all motors and vibrating equipment including transformers.

Individual starters furnished by others shall be received and erected under this Section. Starters shall be individually or group mounted plumb and level, on freestanding angle iron frames, supplied under this Section.

Provide manual motor starters for all fractional horsepower motors as shown on the Drawings or otherwise required.

PANELBOARDS (MODIFICATIONS)

Panel circuit breaker overcurrent protective devices shall be as scheduled on the Drawings and as specified. All breakers shall be bolted-on thermal magnetic type.

Panel circuit breakers shall be rated for 10,000 RMS symmetrical amperes minimum interrupting rating at 120/208 volts. Provide higher ratings as required or as scheduled on the Drawings.

Provide handle-locking attachments for all circuit breakers serving emergency lights, exit lights, clocks, and other functions indicated.

Furnish and install a typewritten circuit directory for all new and modified panels. Hand written will not be accepted.

FUSES

Fused safety and disconnect switches shall be provided with fuses of class, type, and rating as required or shown on Drawings.

Install disconnect switches used with motor-driven appliances, and motors and controllers within sight of the controller position unless otherwise indicated.

Fuses sizes 0 to 600 Amperes shall be Buss Fusetron Type FRS-R or equal by Chase Shawmut or Cefco. They shall be U.L. Class "RK-5" Time-Delay dual element.

GROUNDING

Ground rods shall be copper clad steel not less than 3/4" diameter and 10 foot long. Provide at least two per location separated by at least 24". Ground clamps shall be bronze, solderless type with bronze screws suitable for receiving required or noted conductors.

Grounding equipment shall be manufactured by Chance, Burndy, Cadweld, Thomas & Betts, Blackburn, or O-Z/Gedney.

The complete electrical installation shall be permanently and effectively grounded in accordance with all code requirements, whether or not such connections are specifically shown or specified. Measured resistance to ground shall be 5 ohms, maximum. All parts of the electrical installation shall be grounded.

Ground conductors shall be sized in accordance with the National Electrical Code. Ground conductors shall be continuous without splices.

Ground rods shall be vertically driven with tops below grade. Where required to obtain the specified ground resistance, install multiple rods.

Where ground connections will be permanently concealed, make the connections by the exothermic process to form solid metal joints. Make accessible ground connections with mechanical pressure type ground connections.

LIGHTING FIXTURES

Refer to Lighting Fixture Schedule on Drawings for manufacturer specified for each type of fixture. Manufacturers and catalog numbers indicated constitute the type and quality of equipment to be furnished. However, they shall be considered only as a guide. Similar equipment of equal quality may be submitted for review. Fixtures shall be suitable for application and environment where they are being installed. Fixtures shall have proper labels; i.e. 'hazardous', 'damp locations', 'dust tight', etc., whether or not specifically indicated in the specified catalog number or fixture description.

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Frank Tindall, P.E.
Professional Engineer

PRINT DATE: 12/2/19

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NJDOE SP #05-4930-070-19-3000

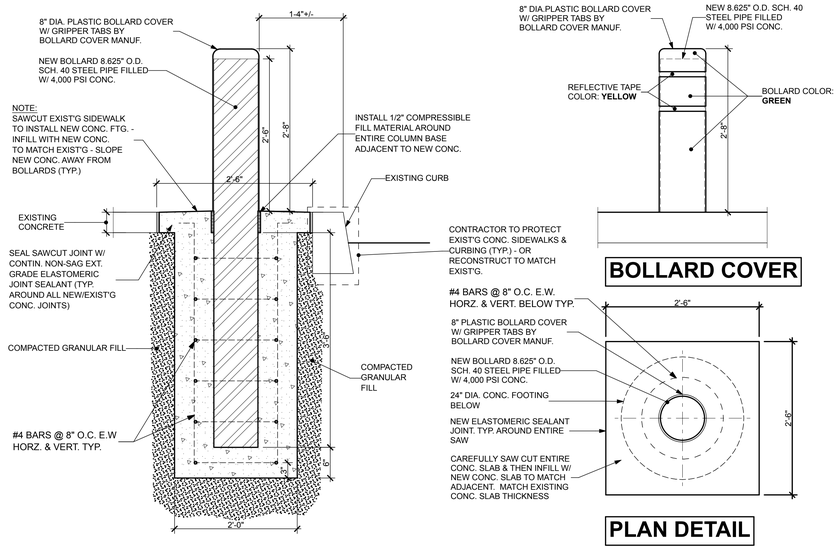
SECURITY UPGRADES - PROJECT A
SOUTHAMPTON SCHOOL #3
100 WARRIOR WAY
SOUTHAMPTON, NEW JERSEY

TITLE: SCHEDULE AND SPECIFICATIONS - ELECTRICAL

DRAWING DATE: 29 NOV 2019
REVISION DATE:
DRAWN BY:
COMMISION NO.: 5601A

E2.0

2 OF 2



BOLLARD COVER

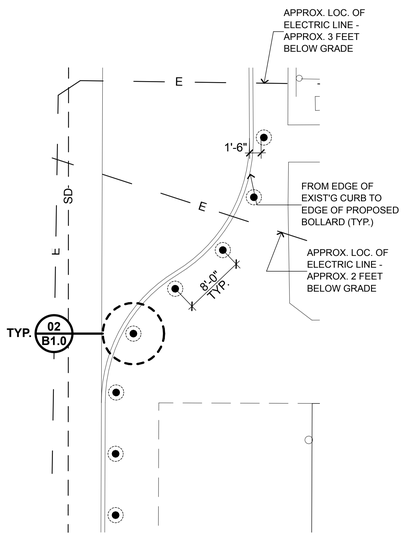
PLAN DETAIL

BOLLARD SECTION & ELEVATION SCALE: 1" = 1'-0" 02

UTILITY MARKOUT REQUIRED: CONTRACTOR IS RESPONSIBLE TO CALL NEW JERSEY ONE CALL (800-272-1000) FOR UTILITY MARK-OUT 3 FULL BUSINESS DAYS PRIOR TO COMMENCEMENT OF EXCAVATION.

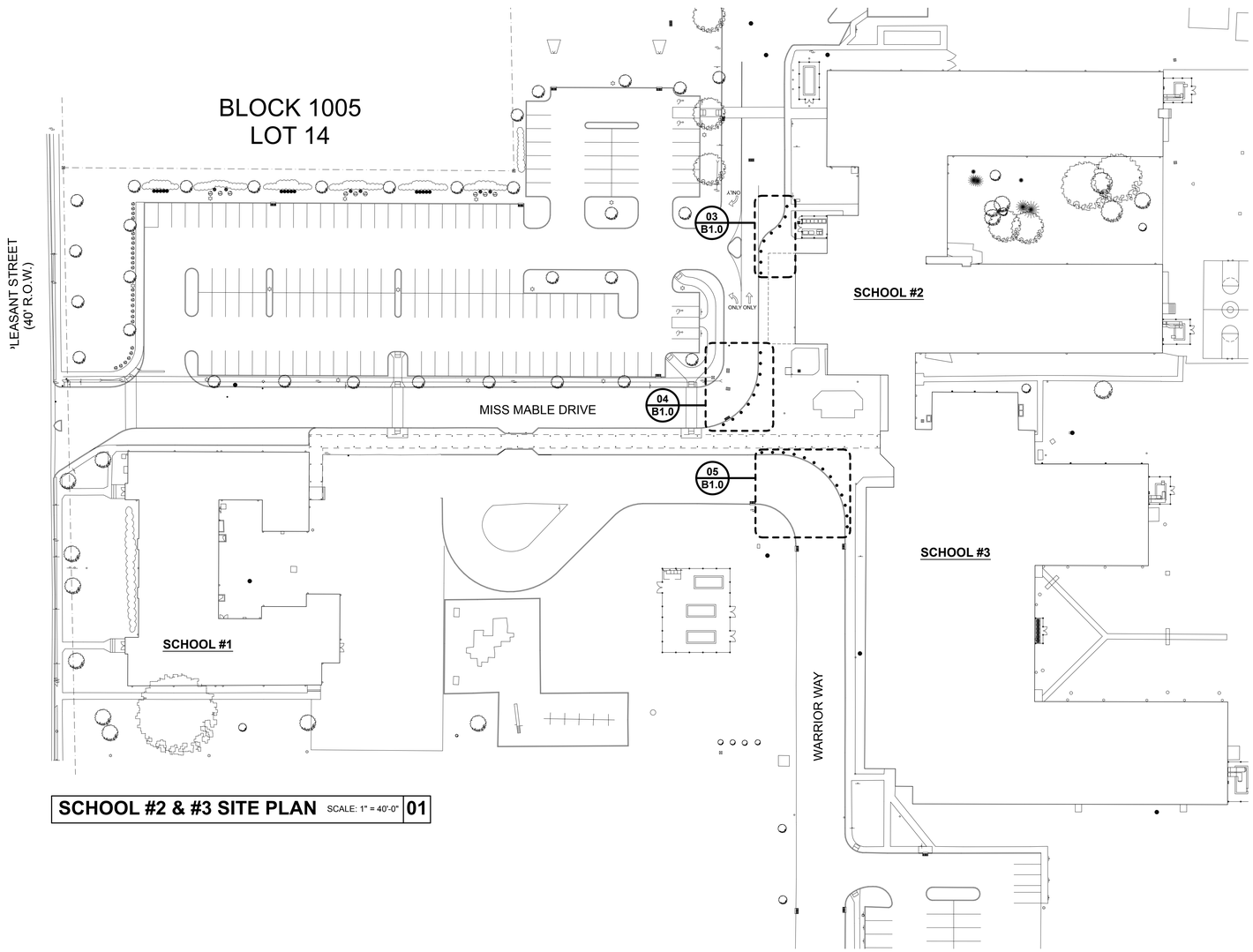
GENERAL NOTES:

1. FOLLOW GROUND PENETRATING RADAR INFORMATION IN PROJECT MANUAL.
2. ALL EXIST'G UTILITY LOCATIONS SHOWN ON DRAWING ARE APPROXIMATE & MUST BE FIELD-VERIFIED & LOCATED BY UTILITY & GROUND PENETRATING LOCATOR SERVICES PRIOR TO LAYING OUT BOLLARD LOCATIONS.

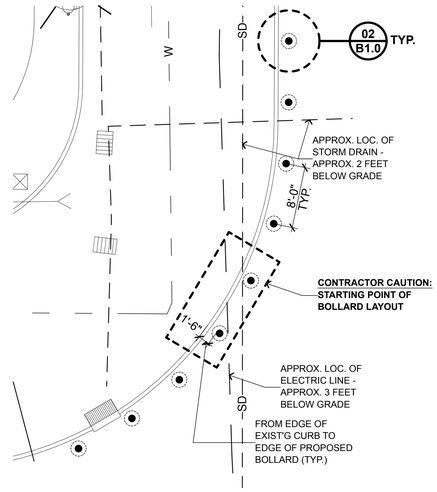


ENLARGED SITE PLAN SCALE: 1/8" = 1'-0" 03

8 BOLLARDS

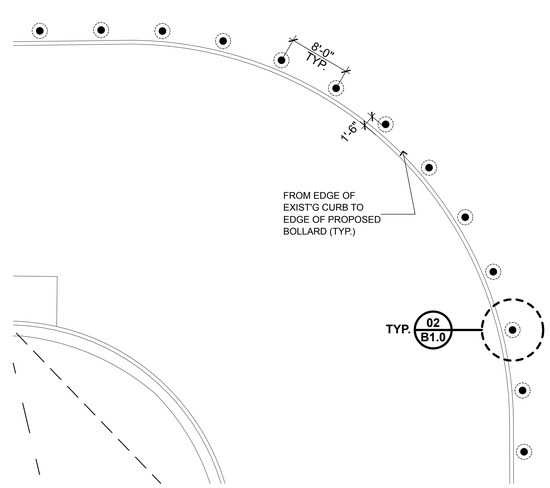


SCHOOL #2 & #3 SITE PLAN SCALE: 1" = 40'-0" 01



ENLARGED SITE PLAN SCALE: 1/8" = 1'-0" 04

9 BOLLARDS



ENLARGED SITE PLAN SCALE: 1/8" = 1'-0" 05

13 BOLLARDS

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PRINT DATE: 12/9/19

NJDOE SP #05-4930-060-19-1000 & #05-4930-070-19-2000

SECURITY UPGRADES - PROJECT B
SOUTHAMPTON SCHOOLS #2 & #3
100 MISS MABEL DRIVE & 100 WARRIOR WAY
SOUTHAMPTON, NEW JERSEY

TITLE: SITE PLAN & DETAILS

DRAWING DATE: 29 NOV 2019
REVISION DATE:
DRAWN BY: PF
COMMISSION NO.: 5601A

B1.0
1 OF 1