EXISTING CONDITION NOTES

1. SITE VISIT: THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. BEFORE SUBMITTING BID, VISIT AND CAREFULLY EXAMINE SITE TO IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. NO EXTRA PAYMENT WILL BE ALLOWED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVER. SITE VISIT IS PARTICULARLY IMPORTANT BECAUSE THIS IS RENOVATION WORK.
2. PREPARATORY WORK: BEFORE STARTING WORK IN A PARTICULAR AREA OF THE PROJECT, VISIT SITE AND EXAMINE CONDITIONS UNDER WHICH WORK MUST BE PERFORMED INCLUDING PREPARATORY WORK DONE UNDER OTHER SECTIONS OR CONTRACTS BY OWNER. REPORT CONDITIONS THAT MIGHT AFFECT WORK ADVERSELY IN WRITING TO ARCHITECT AND OWNER. DO NOT PROCEED WITH WORK UNTIL DEFECTS HAVE BEEN CORRECTED AND CONDITIONS ARE SATISFACTORY. COMMENCEMENT OF WORK SHALL BE CONSTRUED AS COMPLETE ACCEPTANCE OF EXISTING CONDITIONS AND PREPARATORY WORK.
3. PHASING: WORK SHALL COMPLY WITH THE PHASING REQUIREMENTS OF THE PROJECT AND BE COORDINATED WITH THE OWNER AND ENGINEER.
4. PROVIDE 2 WEEKS NOTICE TO OWNER FOR SHUT DOWN OF ANY SERVICES AND/OR SYSTEMS.
5. REFER TO ENGINEER INSTRUCTIONS FOR ALL EXISTING EQUIPMENT AND MATERIALS THAT SHALL REMAIN THE PROPERTY OF THE OWNER. ITEMS OF VALUE WHICH ARE NOT DIRECTED TO BE RETURNED TO THE OWNER, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM SITE AND LEGALLY DISPOSED OF. STORAGE OR SALE OF ITEMS ON THE PROJECT SITE IS PROHIBITED.
6. PROTECTION: ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND BRACING TO PREVENT COLLAPSE. IMMEDIATELY REPAIR DAMAGED PROPERTY TO THE CONDITION BEFORE BEING DAMAGED. TAKE EFFECTIVE MEASURES TO PREVENT WINDBLOWN DUST.
7. UTILITIES: MAINTAIN ALL UTILITIES EXCEPT THOSE REQUIRING REMOVAL OR RELOCATION; KEEP UTILITIES IN SERVICE AND PROTECT FROM DAMAGE. DO NOT INTERRUPT UTILITIES SERVING OCCUPIED AREAS WITHOUT FIRST OBTAINING PERMISSION FROM THE OWNER IN WRITING. PROVIDE TEMPORARY SERVICES AS REQUIRED.
8. DEMOLITION WORK MUST FOLLOW THE CONSTRUCTION PHASING SEQUENCE AND MUST BE COORDINATED WITH THE GENERAL AND MECHANICAL DRAWINGS AND CONTRACTORS.
9. MAINTAIN AND RESTORE, IF INTERRUPTED BY REMOVALS OR IN PATH OF NEW CONSTRUCTION, ALL CIRCUITS, CONDUITS AND FEEDERS PASSING THROUGH AND SERVING UNDISTURBED AREAS (SHOWN OR NOT SHOWN). VERIFY CIRCUITS, DEVICES, AND EQUIPMENT SCHEDULED FOR REMOVAL TO ASSURE THAT THEIR REMOVAL WILL NOT ADVERSELY AFFECT ADJACENT AREAS NOT BEING RENOVATED.
10. ELECTRICAL SUBCONTRACTOR SHALL MAINTAIN POWER TO ALL CIRCUITS ADJACENT TO THE CONSTRUCTION AREA, THIS SHALL INCLUDE ANY CIRCUITS PASSING THROUGH THE CONSTRUCTION AREA OR CIRCUITS BEING POWERED FROM POWER PANELS OR BUS DUCTS WITHIN THE CONSTRUCTION AREA. EXTEND AND RELOCATE THESE CIRCUITS AS REQUIRED TO MAINTAIN SERVICE AND TO AVOID INTERFERENCE WITH THE NEW WORK. SUBCONTRACTOR SHALL NOTIFY REPRESENTATIVE FROM CONSTRUCTION MANAGER SHALL IT BE NECESSARY TO INTERRUPT POWER TO AREAS ADJACENT TO THIS CONSTRUCTION AREA.
11. ELECTRICAL SUBCONTRACTOR SHALL VERIFY ALL LIGHTING CIRCUITS WITHIN THE CONSTRUCTION AREA BEFORE DISCONNECTING POWER. CONTRACTOR SHALL PROVIDE NECESSARY WIRING TO MAINTAIN LIGHTING IN AREAS ADJACENT TO THIS CONSTRUCTION AREA WHICH WOULD BE AFFECTED BY THIS DEMOLITION WORK.
12. IN ANY AREA REQUIRING THE PERFORMANCE OF ANY TRADE'S WORK, THIS CONTRACTOR SHALL CAREFULLY REMOVE AND STORE ANY OR ALL ELECTRICAL ITEMS IN PATH OF WORK, REINSTALLING AND RECONNECTING SAME AS REQUIRED, AFTER COMPLETION OF OTHER TRADE'S WORK IN THAT AREA, IN ACCORDANCE WITH THE PLANS AND/OR AS DIRECTED.
13. EXISTING FIRE ALARM DEVICES SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION. THE FIRE ALARM SYSTEM SHALL BE MAINTAINED AND OPERATIONAL DURING CONSTRUCTION.

NEW WORK NOTES

1. ALL EQUIPMENT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, RECTILINEAR TO BUILDING STRUCTURE.
2. EXACT LOCATION OF MECHANICAL EQUIPMENT THAT REQUIRES ELECTRICAL IS SHOWN ON THE MECHANICAL DRAWINGS.
3. CONTRACTOR SHALL REVIEW ALL TRADES' CONTRACT DOCUMENTS TO DETERMINE SPECIFIC MOUNTING LOCATIONS FOR ELECTRICAL EQUIPMENT. COORDINATE EXACT MOUNTING LOCATIONS WITH THE ARCHITECT.
4. ELEMENTS OF THE ELECTRICAL WORK SHALL BE INSTALLED SUCH THAT AT COMPLETION THE ELEMENT SHALL BE FULLY ACCESSIBLE, INCLUDING OPEN-IN, FULL SWING ACCESS DOOR. ELEMENTS OF THE ELECTRICAL WORK INCLUDE, BUT ARE NOT LIMITED TO PANELS, SWITCHBOARDS, MOTOR CONTROLS, TRANSFORMER, DISCONNECTS, JUNCTION BOXES, AND ALL MAINTENANCE ACCESS POINTS INCLUDING CABLE PULL SPACE. FULLY ACCESSIBLE SHALL BE DEFINED AS; CAPABLE OF BEING ACCESSED FOR SERVICE, REPAIR OR REPLACEMENT BY AN INDIVIDUAL, ON A LADDER IF NECESSARY, AND CAPABLE OF BEING SERVICED OR REMOVED WITHOUT REMOVING, MODIFYING OR DISTORTING OTHER COMPONENTS OF THE WORK OF OTHER TRADES. CONFLICTS WITH MEETING THIS REQUIREMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE IN A TIMELY MANNER.
5. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL INCIDENTAL ACCESSORIES NECESSARY TO MAKE ELECTRICAL WORK COMPLETE AND READY FOR OPERATION.
6. ALL CABLE AND CONDUIT SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE, INDEPENDENT OF OTHER SYSTEMS INCLUDING PLUMBING PIPING, HVAC DUCTWORK, DROP CEILING SUPPORTS, ETC.
7. THE CONTRACTOR SHALL COORDINATE ALL MANUFACTURER'S SHOP DRAWINGS FOR EXACT LOCATION AND ROUGHIN IN DIMENSIONS OF ALL EQUIPMENT AND SHALL MAKE ALL FINAL CONNECTIONS AS REQUIRED.
8. FLEXIBLE METAL CONDUIT WITH PVC COATING SHALL BE USED FOR CONNECTIONS TO MOTORS AND EQUIPMENT.
9. ELECTRICAL CONDUIT AND CABLE SHALL NOT BE INSTALLED ON FOREIGN SYSTEMS (I.E. DUCTWORK, PIPING CEILING GRID, ETC) AND SHALL BE INDEPENDENTLY SUPPORTED FROM THE STRUCTURE USING LISTED COMPONENTS. LOW VOLTAGE WIRING (COMMUNICATIONS, AUDIO-VIDEO, ETC) SHALL NOT BE INSTALLED ON FOREIGN SYSTEMS (I.E. DUCTWORK, PIPING CEILING GRID, ETC) AND SHALL BE INDEPENDENTLY SUPPORTED FROM THE STRUCTURE USING LISTED COMPONENTS.
10. ALL ELECTRICAL EQUIPMENT INSTALLED SHALL BE NEW AND UL LISTED.

GENERAL NOTES

1. ALL CONDUIT / CABLE / WIRING ROUTING SHALL BE COORDINATED WITH EXISTING HISTORIC STRUCTURE AND SHALL BE APPROVED BYOWNER PRIOR TO ANY ROUGH-IN AND INSTALLATION.
2. ALL EQUIPMENT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, RECTILINEAR TO BUILDING STRUCTURE.
3. ALL COMPONENTS SHOWN ON THE RISER DIAGRAMS, BUT NOT ON THE PLAN OR VICE VERSA, SHALL BE INCLUDED AS IF SHOWN ON BOTH.
4. EXACT LOCATION OF MECHANICAL EQUIPMENT THAT REQUIRES ELECTRICAL CONNECTION IS SHOWN ON THE MECHANICAL DRAWINGS.
5. ALL RACEWAYS CROSSING BUILDING EXPANSION JOINTS SHALL BE EQUIPPED WITH EXPANSION FITTINGS.
6. CONDUIT HOMERUNS SHOWN ON THE DRAWING WITH MORE THAN 3 CURRENT CARRYING CONDUCTORS ARE SHOWN DIAGRAMATICALLY. THIS CONTRACTOR SHALL NOT INSTALL MORE THAN 3 CURRENT CARRYING CONDUCTORS IN A RACEWAY UNLESS INSTALLATION COMPLIES WITH ARTICLE 310 OF THE NATIONAL ELECTRIC CODE. NOTES TO AMPACITY TABLES REGARDING CONDUCTOR ADJUSTMENT FACTORS.
7. CONTRACTOR SHALL REVIEW ALL TRADES' CONTRACT DOCUMENTS TO DETERMINE SPECIFIC MOUNTING LOCATIONS FOR ELECTRICAL EQUIPMENT.
8. ELEMENTS OF THE ELECTRICAL WORK SHALL BE INSTALLED SUCH THAT AT COMPLETION THE ELEMENT SHALL BE "FULLY AND REASONABLY ACCESSIBLE", ELEMENTS OF THE ELECTRICAL WORK INCLUDE, BUT ARE NOT LIMITED TO PANELS, MOTOR CONTROLS, TRANSFORMER, DISCONNECTS, JUNCTION BOXES, AND ALL MAINTENANCE ACCESS POINTS INCLUDING CABLE PULL SPACE. "FULLY AND REASONABLE ACCESSIBLE" SHALL BE DEFINED AS; CAPABLE OF BEING ACCESSED FOR SERVICE, REPAIR OR REPLACEMENT BY AN AVERAGE SIZE INDIVIDUAL, ON A LADDER IF NECESSARY, AND CAPABLE OF BEING SERVICED OR REMOVED WITHOUT REMOVING, MODIFYING OR DISTORTING OTHER COMPONENTS OF THE WORK OF OTHER TRADES. CONFLICTS WITH MEETING THIS REQUIREMENT SHALL BE BROUGHT TO THE ATTENTION OF THE OWNERS REPRESENTATIVE IN A TIMELY MANNER.
9. EACH LIGHTING AND RECEPTACLE BRANCH CIRCUIT SHALL INCLUDE A SEPARATE NEUTRAL CONDUCTOR FOR EACH AND EVERY CIRCUIT, UNLESS SPECIFICALLY NOTED OTHERWISE.
10. COORDINATE FLOOR PENETRATIONS WITH WORK OF OTHER SECTIONS AND REVIEW ALL PENETRATIONS WITH OWNER PRIOR TO ANY WORK.

WIRING DEVICES LEGEND

Φ^2	125 VOLT, 2 POLE, 3 WIRE, 20 AMP., DUPLEX RECEPTACLE. "2" - DENOTES CIRCUIT NUMBER.
	125 VOLT, 2 POLE, 3 WIRE, 20 AMP., DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER OR HIGHER THAN STANDARD RECEPTACLE MOUNTING HEIGHT.
	125 VOLT, 2 POLE, 3 WIRE, 20 AMP. DOUBLE DUPLEX RECEPTACLE.
WP	125 VOLT, 2 POLE, 3 WIRE, 20 AMP., DUPLEX RECEPTACLE EQUIPPED WITH INTEGRAL GROUND FAULT INTERRUPTER AND MOUNTED IN CAST OUTLET BOX WITH WEATHERPROOF COVER.

NOTES:

1. ALL RECEPTACLES SHALL BE INSTALLED WITH GROUND PRONG IN THE UP POSITION.
2. ALL RECEPTACLES SHALL BE SIDE WIRED.
3. ALL RECEPTACLES AND SWITCH COVER PLATES SHALL BE STAINLESS STEEL TYPE.
4. ALL EMERGENCY RECEPTACLES SHALL BE RED IN COLOR.

CIRCUITRY AND FEEDERS LEGEND

PS218-1	HOMERUN TO PANEL "PS218", CIRCUIT #1. EACH BRANCH CIRCUIT SHALL HAVE A DEDICATED NEUTRAL CONDUCTOR UNLESS OTHERWISE NOTED. PROVIDE UNSHARED GROUNDING CONDUCTORS FOR EACH CIRCUIT IN ACCORDANCE WITH SPECIFICATIONS AND N.E.C. UNLESS OTHERWISE NOTED. MINIMUM SIZE CONDUIT SHALL BE 3/4" UNLESS OTHERWISE NOTED. SEE NOTE #1 BELOW.
PS218-1,2	MULTIPLE HOMERUNS TO PANEL "PS218", CIRCUIT #1 AND #2. PROVIDE DEDICATED NEUTRAL AND GROUND FOR EACH CIRCUIT NUMBER SHOWN UNLESS OTHERWISE NOTED. SEE NOTE #1 BELOW.
PS218-1,3,5	HOMERUN TO PANEL "PS218", CIRCUIT #1,3,5 VIA 3-POLE CIRCUIT BREAKER. SEE NOTE #1 BELOW.
	CIRCUITRY TURNING UP
	CIRCUITRY TURNING DOWN

NOTES:

1. REFER TO PANEL SCHEDULES FOR BREAKER SIZE OF EACH CIRCUIT HOMERUN.

EQUIPMENT LEGEND

	208Y/120 VOLT, 3Φ, 4 WIRE PANEL
	480Y/277 VOLT, 3Φ, 4 WIRE PANEL
T3*	DRY TYPE TRANSFORMER. "T3" DENOTES TRANSFORMER TYPE. REFER TO THE "DRY TYPE TRANSFORMER SCHEDULE" FOR FURTHER INFORMATION. ASTERISK DENOTES TRAPEZE MOUNTED TRANSFORMER.
S L MD MG	MOTOR. NUMERAL INDICATES HORSEPOWER RATING. "L" INDICATES LOUVER MOTOR, "MD" INDICATES MOTORIZED OVERHEAD DOOR, "MG" INDICATES MOTORIZED GATE.
VFD	VARIABLE FREQUENCY DRIVE
	DISCONNECT SWITCH (UNFUSED)
	DISCONNECT SWITCH (FUSED)
P	MANUAL MOTOR STARTER COMPLETE WITH THERMAL OVERLOAD PROTECTION. "P" DENOTES EQUIPPED WITH PILOT LIGHT, PROVIDED BY ELECTRICAL CONTRACTOR.
	DENOTES FLEXIBLE LIQUID TIGHT CONNECTION AND CONDUCTORS BY THE ELECTRICAL CONTRACTOR TO EQUIPMENT BY OTHERS.
J	JUNCTION AND/OR PULL BOX IN CEILING
J	JUNCTION AND/OR PULL BOX
BAS EHD ESD EWC OPS OVP SEC	"BAS" - DENOTES CONNECTION TO BAS PANELS. "EHD" - DENOTES CONNECTION TO ELECTRIC HAND/HAIR DRYER. "ESD" - DENOTES CONNECTION TO ELECTRIC SOAP DISPENSER. "EWC" - DENOTES CONNECTION TO ELECTRIC WATER COOLER. PROVIDE GFCI PROTECTION; HUBBELL "GFBF20ILA" OR EQUAL. "OPS" - DENOTES CONNECTION TO OPERABLE PROJECTOR SCREEN MOTOR. "OVP" - DENOTES TO CONNECT TO OVERHEAD VIDEO PROJECTOR. "SEC" - DENOTES TO CONNECT TO SECURITY PANELS. "FH" - DENOTES CONNECTION TO FUME HOOD
E	EMERGENCY POWER OFF (EPO) BUTTON
XX X MS217-2	PLUMBING AND MECHANICAL EQUIPMENT DESIGNATION. REFER TO ELECTRICAL/MECHANICAL SCHEDULE. DESIGNATION "MS217-2" DENOTES BRANCH CIRCUIT DESIGNATION FOR EQUIPMENT.
1 E5-1	PART PLAN REFERENCE TAG. THE TOP LETTER OR NUMBER IS THE PART PLAN REFERENCE AND THE LOWER REFERENCE INDICATES THE DRAWING THE PART PLAN IS LOCATED.

EXISTING EQUIPMENT ABBREVIATIONS

XM	EXISTING EQUIPMENT TO REMAIN
XN	RELOCATED EQUIPMENT AT NEW LOCATION
XR	EXISTING EQUIPMENT TO BE REMOVED WITH ALL ASSOCIATED WIRING AND APPURTENANCES BACK TO SOURCE
XRE	EXISTING EQUIPMENT TO BE REMOVED AND RELOCATED. PROVIDE WIRING / CABLING, AND CONDUIT TO NEW LOCATION. MATCH EXISTING SIZE AND TYPE.

GENERAL ABBREVIATIONS

A	AMPERES	LTG	LIGHTING
ADA	AMERICANS WITH DISABILITIES ACT	LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
AFF	ABOVE FINISH FLOOR		
AFG	ABOVE FINISH GRADE	MC	METAL CLAD CABLE
AHJ	AUTHORITY HAVING JURISDICTION	MCB	MAIN CIRCUIT BREAKER
AHU	AIR HANDLING UNIT	MCC	MOTOR CONTROL CENTER
AIC	AMPERE INTERRUPTING CAPACITY	MCP	MOTOR CIRCUIT PROTECTOR
AL	ALUMINUM	MISC	MISCELLANEOUS
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	MLO	MAIN LUGS ONLY
		NC	NORMALLY CLOSED
ARCH	ARCHITECT	NEC	NATIONAL ELECTRIC CODE
ATS	AUTOMATIC TRANSFER SWITCH	NEMA	NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION
ATC	AUTOMATIC TEMPERATURE CONTROL		
AVC	AUDIO VISUAL CONTRACTOR	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
AWG	AMERICAN WIRE GAUGE		
BFG	BELOW FINISH GRADE	N.I.C.	NOT IN CONTRACT
BLDG	BUILDING	NO	NORMALLY OPEN OR NUMBER
C	CONDUIT	NTS	NOT TO SCALE
CAT	CATALOG	P	POLE
CB	CIRCUIT BREAKER	PB	PUSHBUTTON
CBM	CERTIFIED BALLAST MANUFACTURERS	PNL	PANEL
CKT	CIRCUIT	POS	PROVIDED UNDER OTHER SECTIONS
CL	CENTERLINE	PT	POTENTIAL TRANSFORMER
CLF	CURRENT LIMITING FUSE	PVC	POLYVINYL CHLORIDE
COL	COLUMN	PWR	POWER
CPT	CONTROL POWER TRANSFORMER	QTY	QUANTITY
CT	CURRENT TRANSFORMER	REQD	REQUIRED
CU	COPPER	RMC	RIGID METAL CONDUIT
CUH	CABINET UNIT HEATER	RMS	ROOT MEAN SQUARED
DDL	DIRECT DIGITAL CONTROL	RNMC	RIGID NON-METALLIC CONDUIT
DWG	DRAWING	RTU	ROOF TOP UNIT
EC	ELECTRICAL CONTRACTOR	SP	SPARE
EF	EXHAUST FAN	SW	SWITCH
EM	EMERGENCY	SYM	SYMMETRICAL
EMT	ELECTRICAL METALLIC TUBING	TEL	TELEPHONE
EPO	EMERGENCY POWER OFF	TMCB	THERMAL MAGNETIC CIRCUIT BREAKER
EWC	ELECTRIC WATER COOLER		
F	FUSE	UG	UNDERGROUND OR UNDERGRADE
FA	FIRE ALARM	UL	UNDERWRITERS LABORATORIES
FCU	FAN COIL UNIT	U.O.N.	UNLESS OTHERWISE NOTED
FLA	FULL LOAD AMPERES	UH	UNIT HEATER
FMC	FLEXIBLE METAL CONDUIT	UPS	UNINTERRUPTABLE POWER SUPPLY
FT	FEET	V	VOLT
GFI	GROUND FAULT INTERRUPTER	VI	VACUUM INTERRUPTER
GND,G	GROUND OR GROUNDING	W	WIRE
GRMC	GALVANIZED RIGID METALLIC CONDUIT	WH	WATER HEATER
HOA	HAND, OFF, AUTOMATIC SWITCH	WP	WEATHERPROOF
HPF	HIGH POWER FACTOR	XFMR	TRANSFORMER
IG	ISOLATED GROUND	△	DELTA
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS	Y	WYE
		Φ	PHASE
IMC	INTERMEDIATE METAL CONDUIT		
INT	INTERLOCK		
kcmil	THOUSAND CIRCULAR MILS		
kVA	KILOVOLT AMPERES		
kW	KILOWATTS		

NOVA Parks
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Fairfax Station, VA 22039

Carlyle House, HVAC System Retrofit

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Drawing Title

ELECTRICAL COVER SHEET

COMMONWEALTH OF VIRGINIA
CHIRAG M. AMIN
Lic. No. 0402061339
PROFESSIONAL ENGINEER
Docusigned by: Chirag Amin
12/9/2020

E-001

E L E C T R I C A L   S P E C I F I C A T I O N S

PART 1 - GENERAL

1.1 REFERENCES

A. Conditions of the Contract, General Requirements, apply to work of this Section. Electrical Contractor shall be licensed in the State or District where the work is performed. Licensed Electrical Journeyman to be on site at all times and to provide direct supervision of apprentice electricians.

B. Examine Drawings and other Sections of Specifications for requirements that affect work of this section.

C. As used in this Section, "provide" means "furnish and install" and "POS" means Provided Under Other Sections." "Furnish" means "to purchase and deliver to the project site complete with every necessary appurtenance and support," and "Install" means "to unload" at the delivery point at the site and perform every operation necessary to establish secure mounting and correct operation at the proper location in the project."The word "Provide" is implied in all statements.

D. Perform work and provide material and equipment as shown on Drawings and as specified or indicated in this Section of the Specifications. Completely coordinate work of this Section with work of other trades and provide a complete and fully functional installation. Drawings and Specifications form complimentary requirements; provide work specified & not shown, and work shown and not specified as though explicitly required by both. Although work is not specifically shown or specified, provide supplementary or miscellaneous items, appurtenances, devices and materials obviously necessary for a sound, secure and complete installation. Remove all debris caused by contractors work.

E. Perform work strictly as required by rules, regulations, standards, codes, ordinances, and laws of local, state, and Federal governments, and other authorities that have lawful jurisdiction.

F. Give notices, file plans, obtain permits and licenses (if required), pay fees and backcharges and obtain necessary approvals from authorities that have jurisdiction.

G. Work shall include, but shall not be limited to, the following:
   1. Conduit and raceways
   2. Branch circuit wiring
   3. Wiring devices and plates
   4. Disconnect Switches
   5. Relocation of existing electrical components that interfere with new construction with removal and disposal of obsolete components
   6. Nameplates, labels and tags
   7. Testing

H. Remove, extend, alter and reconnect existing conduits as directed by Owner's Project Representative. Reconnect existing conduit that is cut and disconnected to accommodate work. Pull in new wires between nearest accessible outlets intended for reuse. Provide new conduit where wire cannot be pulled in existing. Connect new and existing work to function as complete, continuously grounded system. Remove conduit and equipment not intended for reuse and store where directed. Use conduit exposed by Work of this Contract in conjunction with nearest outlet intended for reuse as directed.

I. For purpose of this project. Occupying tenant shall be referred to from this point forward as "OWNER".

1.2 CONTRACT DOCUMENTS

A. Work to be performed under this Section is shown primarily on the Electrical Drawings.

B. Listing of Drawings does not limit responsibility of determining full extent of work required by Contract Documents. Refer to Electrical and other Drawings and other Sections that indicate types of construction in which work shall be installed and work of other trades with which work of this Section must be coordinated.

C. Except where modified by a specific notation to the contrary, it shall be understood that the indication and/or description of any item, in the drawings or specifications or both, carries with it the instruction to furnish and install the item, regardless of whether or not this instruction is explicitly stated as part of the indication or description.

D. Items referred to in singular number in Contract Documents shall be provided in quantities necessary to complete work.

E. Drawings are diagrammatic. They are not intended to specify or to show every offsets, fittings, and components. The purpose of the drawings is to indicate a systems concept, the main components of the systems, & the approximate geometrical relationships. Based on the systems concept, the main components, and the approximate geometrical relationships, the contractor shall provide all other components and materials necessary to make the systems fully complete and operational.

1.3 DISCREPANCIES IN DOCUMENTS

A. Address questions regarding drawings to Engineer in writing before award of contract. After award follow Project Manager's RFI and CA procedures.

1.4 SITE VISIT

A. Before submitting bid, visit and carefully examine site to identify existing conditions and difficulties that will affect work of this Section. No extra payment will be allowed for additional work caused by unfamiliarity with site conditions that are visible or readily construed by experienced observer.

1.5 CODES, STANDARDS, AUTHORITIES, & PERMITS

A. Perform work in strict accordance with NEC 2014 standards; the rules, regulations, standards, codes, ordinances, and laws of local, state, and Federal governments, and other authorities having legal jurisdiction over the site.

B. Material and equipment shall be new and listed by Underwriters' Laboratories (UL).

1.6 GUARANTEE & 24 HOUR SERVICE

A. Guarantee Work in writing for one year from date of final acceptance. Repair or replace defective materials or installation at no cost to Owner. Correct damage caused in making necessary repairs and replacements under guarantee at no cost to Owner.

B. Submit guarantee to Owner's Project Representative before final payment.

C. All permits are the responsibility of the contractor.

1.7 RECORD DRAWINGS

A. Maintain record drawings on site. Record set must be complete and current and available for inspection when requisitions for payment are submitted.

1.8 SUBMITTALS

A. Submit shop drawings and product data. Check, stamp and mark with project name submittals before transmitting to Owner. Indicate deviations from contract documents.

B. Schedule at least ten working days, exclusive of transmittal time, for submittal review.

C. Material and equipment requiring Shop Drawing and Product Data submittal shall include, but shall not be limited to:
   1. Wiring devices and faceplates
   2. Enclosed Safety / Disconnect Switches
   3. Conductors
   4. Raceway and boxes
   5. Cabling

PART 2 - PRODUCTS

ALL PRODUCTS SHALL BE NEW UNLESS AGREED TO IN WRITING BY THE OWNER'S PROJECT REPRESENTATIVE.

A. Unless otherwise noted, all electrical distribution equipment shall be provided by the following manufacturers: Eaton Cutler Hammer.

2.1 RACEWAYS

A. Electrical metallic tubing (EMT), min. 3/4-inch, ANSI C80.3 galvanized steel.

B. Flexible metal conduit (FMC), min 3/4", galvanized steel, UL1. Liquid tight flexible metal conduit (LFMC) in wet locations.

C. Rigid galvanized steel conduit (RGS), min. 3/4", ANSI C80.1.

D. Steel connectors and couplings with insulated throats; manufactured elbows; locknuts; and plastic or bakelite bushings at terminations. Couplings and connectors shall be gland and ring compression or stainless steel multiple point locking or steel concrete-tight set screw. Compression couplings & connectors shall form positive ground. Set-screw connectors and couplings shall have wall thickness equal to conduit, case-hardened, hex-head screws and separate ground wire. Bushings for rigid steel and connectors for EMT shall have insulating inserts that meet requirements of UL 514 flame test.

2.2 OUTLET BOXES

A. For concealed work shall be at least 4" square or octagonal, galvanized pressed steel with plaster rings as required. For exposed conduit work shall be cast aluminum alloy with cast aluminum alloy covers.

B. Fitted with galvanized steel plaster covers of required depth to finish flush with finished wall or ceiling.

C. Switch boxes, receptacle boxes and other outlet boxes shall be standard 4" square with plaster rings or gang cover as required.

D. Provide only enough conduit openings to accommodate conduits at individual location. Each box shall be large enough to accommodate number and sizes of conduits, wires and splices to meet NEC requirements, but shall be at least size shown or specified. Necessary volume shall be obtained by using boxes of proper dimensions.

2.3 JUNCTION BOXES & PULL BOXES

A. Provide code gauge galvanized steel junction and pull boxes for conduit 1-1/4" trade size and larger, where indicated and as necessary to facilitate installation, of required dimensions, with accessible, removable screw-on covers. Provide junction and pull boxes in special sizes and shapes determined in field where necessary.

B. Covers shall be accessible. Do not install junction boxes above ceiling except where ceiling is removable or where access panel is provided.

C. Sheet metal pull boxes shall be supported adequately to maintain shape. Larger boxes shall have structural steel bracing welded into rigid assembly formed adequately to maintain alignment in shipment and installation. Secure covers with corrosion-resistant screws or bolts.

2.4 CONDUCTORS (600 V INSULATION)

A. Provide single-conductor, annealed copper wire and cable with insulation rated 600 V, of sizes specified and scheduled on Drawings, for secondary service, feeders, branch and system wiring. Wire insulated for 300 V may be used where voltage is less than 100 V, if isolated from higher voltages. Wire sizes shown and specified are American Wire Gauge for copper.

B. 'NM' or 'NMC' will not be accepted.

C. Wire #10 and larger shall be stranded; #12 and smaller shall be solid. Wire and cable shall have THWN-THHN or XHHW insulation, 75°C.

D. Wiring within light fixtures and other high-temperature equipment shall have 150°C insulation as required by NEC.

E. Splices and Terminations
   1. Make splices in branch circuit wiring with UL-listed, solderless connectors rated 600 V, of sizes and types required by manufacturer's recommendations with temperature ratings equal to those of wires. Splice connectors shall be screw-on. Insulate splices with integral covers or with plastic or rubber friction tape to preserve characteristics of wire and cable insulation.
   2. Provide standard bolt-on lugs with hex screws to attach copper wire and cable to panelboards and electrical equipment.
   3. Ampacity of splices and connectors shall be equal to those of associated wires and cables.

2.5 COLOR CODING

A. Color code secondary service, feeders and branch circuit conductors as follows: 208Y/120V white (neutral), black, red, blue. Provide with solid green grounding conductor. 480Y/277V gray (neutral), brown, orange, yellow. Provide with solid green grounding conductor.

B. Branch circuit conductors #12 and #10 shall have solid color compound, solid color coating. Neutrals and equipment grounds shall have solid compound or solid color coating (white, gray and green), except where colored stripes are required. Conductors #8 and larger with stripes, bands or hash marks shall have background color other than white, green and gray.

2.6 WIRE PULLING EQUIPMENT

A. Provide polyethylene ropes for pulling wire.

B. Provide fish wires for telephone and other empty conduit systems required, without splices and with ample exposed lengths at each end.

2.7 WIRING DEVICES

A. Provide wiring devices by single manufacturer. Device colors shall be white unless otherwise noted. Manufactures: Hubbell, Leviton, and Pass and Seymour.

B. Toggle Switches:
   1. Single-pole shall be 20A., 120-277 V AC. Ivory yoke color.

C. Receptacles:
   1. Duplex shall be NEMA 5-20R, 125 V, 20 A, 2-pole, 3 W, grounding.
   2. Ground fault circuit interrupt outlets shall be similar to the duplex outlets with solid state ground fault sensing and circuit interrupter, class a group, per UL 943 with 5 mA trip level.
   3. Single twist lock receptacles shall have ratings as indicated on drawings. Black in color.

2.8 WIRING DEVICE PLATES

A. Provide stainless steel device faceplates.

B. Device plates shall be by manufacturer of wiring devices.

C. Outlets shall be flush to surface and labeled with circuit number and panel name in black text on transparent adhesive label.

2.09 CIRCUIT BREAKERS

A. Protective devices shall be molded case circuit breakers providing complete circuit overcurrent protection by having inverse time and instantaneous tripping characteristics, and have an AIC rating specified in the "panel schedule".

B. Bolted panelboard breakers only. Each single pole, double pole and three phase breakers shall have a single handle operator - no pin tied handles.

C. Each distribution panelboard shall have Arc Flash Protection warning labels.

D. Circuit breakers shall be operated by a toggle-type handle and shall have a quick-make, quick-break over-center switching mechanism that is mechanically trip free.

E. Automatic tripping of the breaker shall be clearly indicated by the handle position.

F. Provide HACR rated circuit breakers for motor circuit protection.

2.10 ENCLOSED SAFETY / DISCONNECT SWITCHES

Fusible switch assemblies:
   A. Description: nema ks 1, type hd, enclosed load interrupter knife switch. handle lockable in off position.
   B. Fuse clips: Designed to accommodate Nema fu1, class r fuses.

Nonfusible switch assemblies
   A. Description: Nema ks 1, type hd enclosed load interrupter knife switch. Handle lockable in off position.

Manual Motor Starter Switch (MMS)
   A. Description: Fractional Horsepower Manual Non-reversing Controller: "Quick-make, quick-break" toggle action with markings to show whether unit is off, on, or tripped.
   B. Overload Relays: Inverse-time current characteristics; NEMA ICS 2, Class 10 tripping characteristics; heaters matched to nameplate full-load current of actual protected motor; external reset push button; bimetallic type.

Enclosures
   A. Fabrication: Nema KS 1. Interior dry locations: Type 1.

PART 3 - EXECUTION

3.1 MATERIALS & WORKMANSHIP

A. Work shall be executed in workmanlike manner (in accordance with NEC, NECA, and NEIS standards) and shall present neat, rectilinear and mechanical appearance when completed. Maintain maximum headroom at all times. Do not run pipes and ducts exposed unless shown exposed on drawings. Material and equipment shall be new and installed according to manufacturer's recommended best practice so that completed installation shall operate safely and efficiently.

3.2 CONTINUITY OF SERVICES

A. Do not interrupt existing services without Owner's Project Representative's approvals.

3.3 TESTING, INSPECTION, & CLEANING

A. Test wiring and connections for continuity and grounds before devices are connected; demonstrate insulation resistance by megger test as required. Insulation resistance between conductors and grounds for secondary distributions systems shall meet NEC requirements. NETA standard by qualified technicians.

B. Test lighting fixtures with specified lamps in place for 10 hours; check fixtures in sections. Do not operate lamps other than for testing before final inspection by University Project Representative. Replace lamps that fail within 90 days after acceptance by University Project Representative within Contract Price.

C. Failure or defects in workmanship or materials revealed by tests or inspection shall be corrected promptly and retested. Replace defective material.

D. Clean panels and other equipment. Panelboard interiors shall be cleaned and vacuumed. Equipment with damage to painted finish shall be repaired to University Project Representative's satisfaction.

E. Equipment
   1. After completion of project, clean the exterior surface of equipment included in this section, including concrete residue.

F. Electrical and mechanical closets shall be cleaned and vacuumed.

3.4 NAMEPLATES

A. Provide nameplates in or on panelboards, disconnects, junction boxes and cabinets, and for special purpose switches or other controls furnished or installed under this section. Nameplates shall designate equipment controlled with panel and circuit designation.

B. Nameplates shall be laminated black bakelite with 1/4" high white recessed letters. Nameplates shall be securely attached to the equipment with galvanized screws. Adhesives or cements shall not be used.

3.5 WIRING METHODS

A. Install wire in approved raceways as specified and as approved by authorities that have jurisdiction. Surface metal raceways shall not be used unless explicitly specified and shown on Drawings. Do not use surface raceways on floor.

B. Wire from point of service connection to receptacles, lighting fixtures, devices, equipment, outlets for future extension, and other electrical apparatus as shown on Drawings. Provide slack wire for connections. Tape ends of wires and provide blank covers for outlet boxes designated for future use. Wire from source to first device shall be #10 AWG minimum.

C. Follow circuit numbers shown on Drawings to connect circuits to panelboards. Wiring devices shown with a homerun indicate dedicated branch circuits. Multi-wire branch circuits shall not be installed.

D. Electrical metallic tubing may be used generally, if approved by local codes, for lighting fixture and receptacle circuits, telephone, inter-communications, signal and instrumentation circuits, & for control circuits. EMT may be used generally, if approved normal traffic level and where not subject to accidental damage or abuse. by authorities, in masonry walls, above hung ceilings, in equipment rooms, in mechanical and electrical chases and closets, in exposed locations along ceilings or walls above.

E. Install connectors and couplings as recommended by manufacturers. Compression fittings shall not be used with RGS.

F. Provide flexible conduits for connections to electrical equipment and to equipment furnished by the Mechanical or Plumbing trades that are subject to movement, vibration or misalignment; where available space dictates; and where noise transmission must be eliminated or reduced.

G. Run concealed conduit in as direct lines as possible with minimum number of bends of longest possible radius. Run exposed conduit and EMT parallel to or at right angles to building lines. Ends shall be free from dents or flattening.

H. Conduit and EMT runs shall be mechanically and electrically continuous from service entrance to outlets. Conduit shall enter and be secured to cabinet, junction box, pull box or outlet box with locknut outside and bushing inside, or with liquid-tight, threaded, self-locking, cold-weld wedge adapter. Provide additional wrench-tighten locknut for EMT or flexible conduit where circuit voltage exceeds 250 V. Locknuts and bushings or self-locking adapters will not be required where conduits are screwed into tapped connections. Vertical conduit runs that terminate in bottoms of wall boxes or cabinets shall be protected from entrance of foreign material before installation of conductors.

I. Size conduit and flexible metallic conduit as required by NEC except as specified or shown on drawings otherwise.

J. Check raceway sizes to determine that green equipment ground conductor fits in same raceway with phase and neutral conductors to meet NEC percentage of fill requirements. Increase duct, conduit, tubing and raceway sizes shown or specified as required to accommodate conductors.

K. Unless specified or shown otherwise, conduit may be run exposed on unfinished walls and ceilings and in unfinished penthouses, attics and roof spaces. Provide stand-off clips in wet locations, machinery rooms and exterior masonry walls.

L. Install conduit systems complete before drawing in conductors. Blow through and swab after plaster is finished and dry, and before conductors are installed.

M. Attach pull ropes to conductors with basket-weave grips on pulling eyes. Pull cables that share conduit at same time.

N. Provide inserts, hangers, anchors and steel supports as necessary.

3.6 GROUNDING & BONDING

A. Per code: provide jumpers or bonding conductors where raceway is electrically discontinuous. Provide copper ground conductor minimum #12 AWG in all 120 volt branch circuits. Each branch circuit to have a separate ground conductor. Grounds shall be continuous from source to equipment.

B. Maximum point to point resistance to ground shall not exceed 0.5 ohms.

C. Provide equipment grounding system per NEC.

3.7 VOLTAGE CHECK:

A. At completion of job and after full building occupancy. Check voltage at several points of utilization on the system which has been installed under this contract. During the test, energize all loads installed.

3.8 PANELBOARDS:

A. Revise all existing panelboard directories with new type written index showing circuit changes under this contract, including updating of existing circuits not being changed. Place directory in clear plastic sleeve and positively attach to the inside of the panelboard door.

B. Provide terminal strips in existing panels to accommodate the increase in neutral and ground wires.

C. Provide new circuit breakers of manufacturer, type, and short circuit rating to match existing where required to supplement existing quantity. Provide "HACR" rated circuit breakers for HVAC equipment installed in ceiling plenums.

3.09 FIRE PROOFING:

A. Maintain the integrity of new and existing fire and smoke walls and barriers. Use fire barrier caulk 3M Company or approved equal.

3.10 CODES AND STANDARDS

A. Provide all material and work in accordance with the applicable codes of the jurisdiction, which includes but not limited to:
   1. NFPA 70, 72, 101
   2. IBC, ADA
   3. IECC 2015 / ASHRAE 90.1 2013
   4. VIRGINIA STATE AND LOCAL CODES
   5. CITY OF ALEXANDRIA CODES AND STANDARDS
   6. NEMA, NECA, ANSI
   7. BICSI, TIZ/EIA
   8. IEEE

NOVA Parks
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Fairfax Station, VA 22039

Carlyle House, HVAC System Retrofit

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Job Number: N1409.00	Sheet of
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Checked by: CA	
Date of Original:	
Revised:	
PERMIT / 100% CONSTRUCTION DOCUMENTS 12/09/2020	
Scale: NONE	
Drawing Title: ELECTRICAL SPECIFICATIONS	

COMMONWEALTH OF VIRGINIA
CHIRAG M. AMIN
Lic. No. 0402061339
PROFESSIONAL ENGINEER

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12/9/2020

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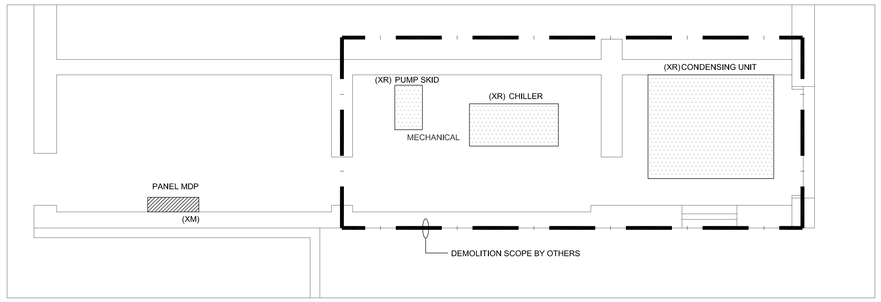
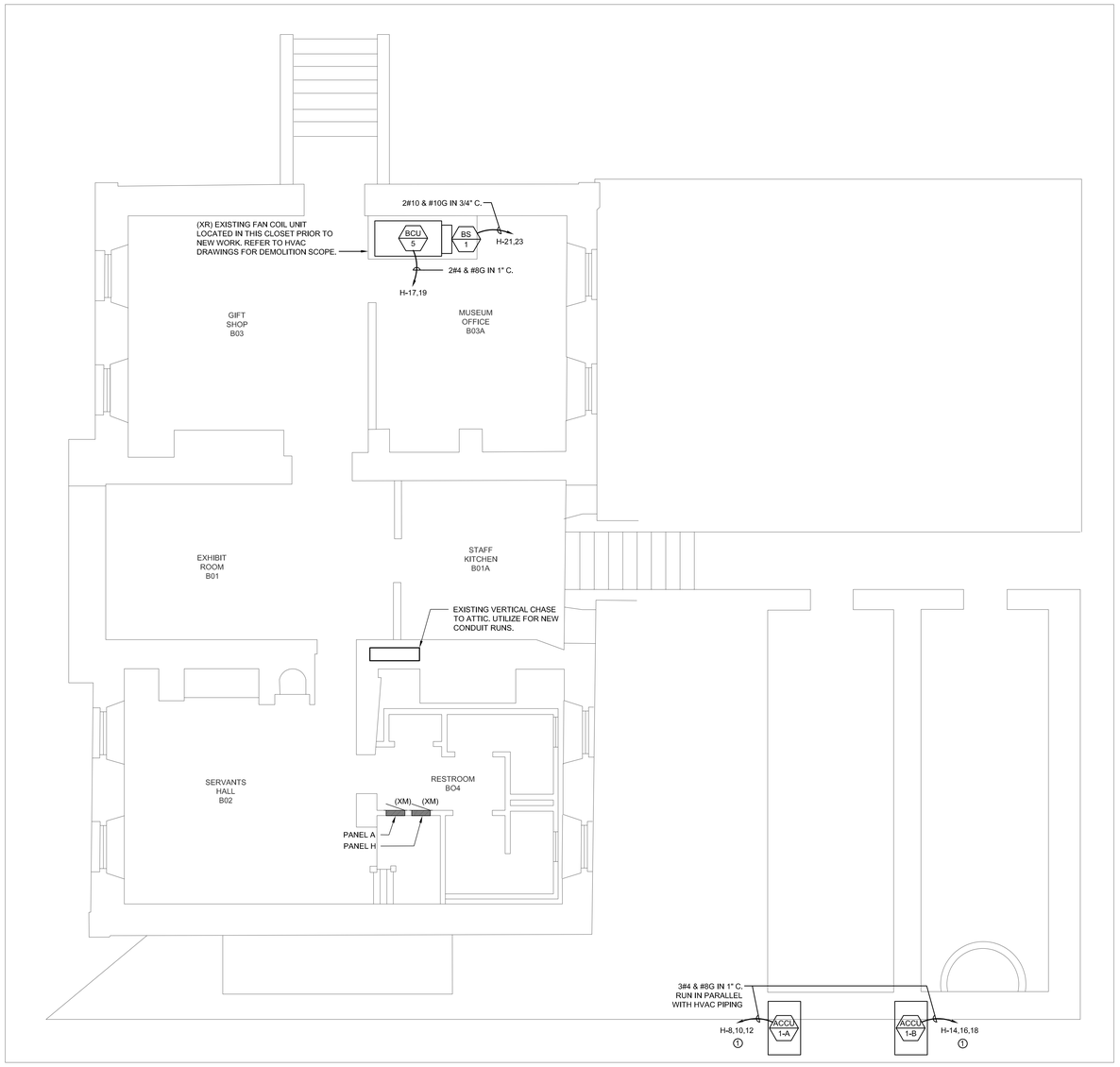


BANK BUILDING - BASEMENT LEVEL

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

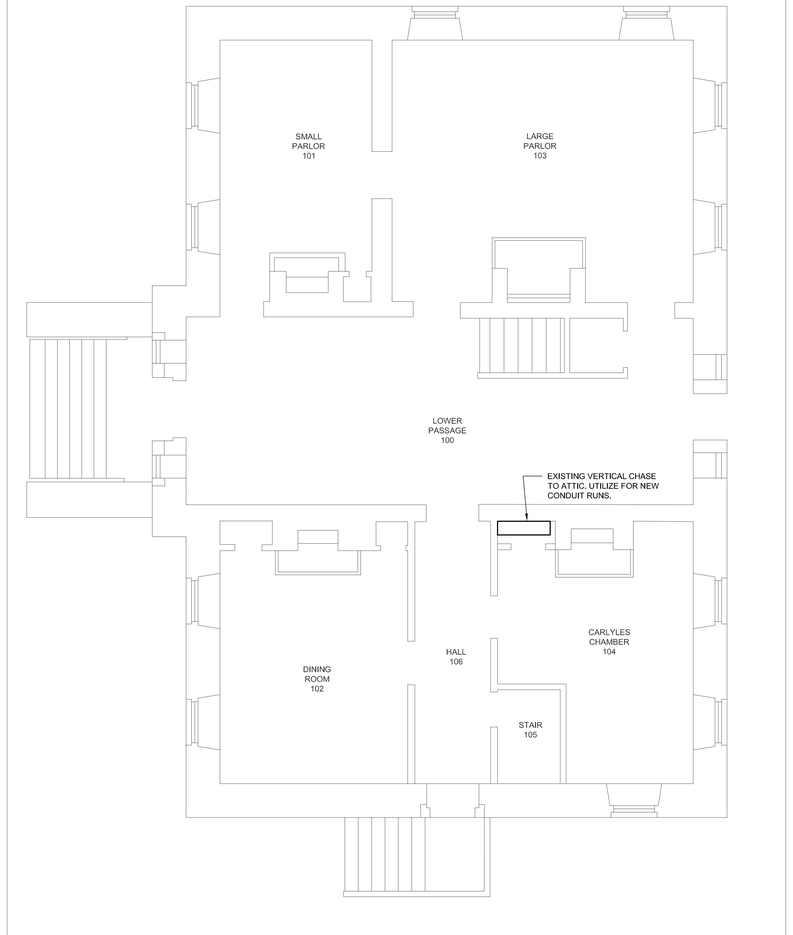


CARLYLE HOUSE - BASEMENT LEVEL

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

KEY NOTES:

1. CONDUIT TYPES:
PVC-40 CONDUIT UNDERGROUND, RGS CONDUIT ABOVE GROUND AND AT 90 DEG TURN UP THROUGH SLAB, LIQUID TIGHT FLEXIBLE METAL CONDUIT FOR FINAL CONNECTION TO EQUIPMENT.



CARLYLE HOUSE - FIRST FLOOR

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

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Carlyle House, HVAC System Retrofit

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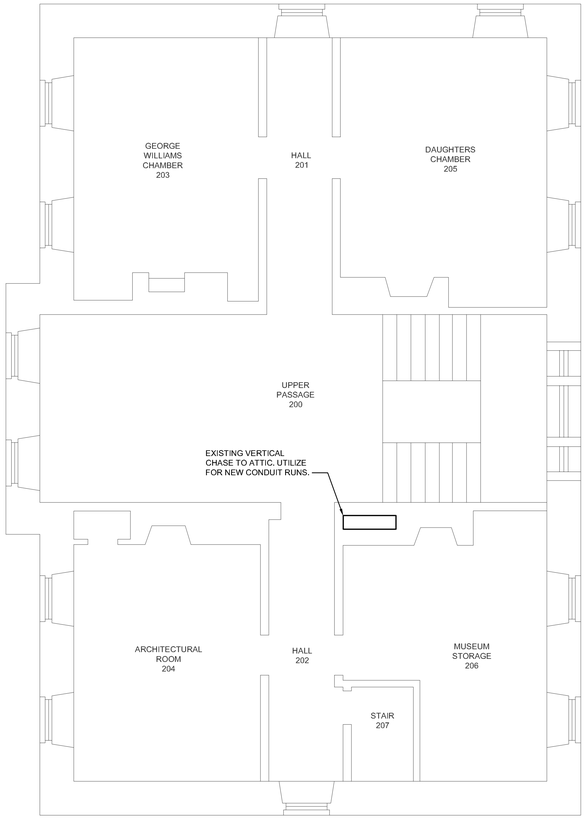
Drawing Title

PARTIAL PLAN
BASEMENT &
FIRST FLOOR

COMMONWEALTH OF VIRGINIA
CHIRAG M. AMIN
Lic. No. 0402061339
PROFESSIONAL ENGINEER
12/9/2020

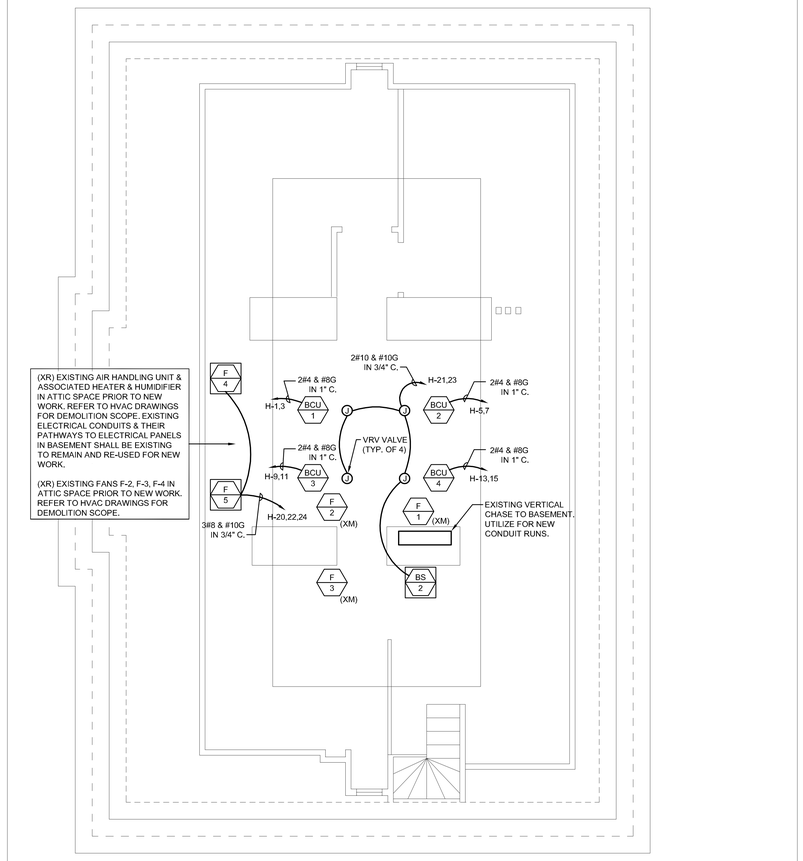
DocuSigned by: Chirag Amin

E-200



CARLYLE HOUSE - SECOND FLOOR

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



CARLYLE HOUSE - ATTIC

SCALE 1/4" = 1'-0"

NOVA Parks
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Fairfax Station, VA 22039

Carlyle House, HVAC System Retrofit

CARLYLE HOUSE HISTORIC PARK
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Revised:	
PERMIT / 100% CONSTRUCTION DOCUMENTS 12/09/2020	
Scale: 1/4" = 1'-0"	

Drawing Title

PARTIAL PLAN
SECOND FLOOR
& ATTIC

COMMONWEALTH OF VIRGINIA
CHIRAG M. AMIN
Lic. No. 0402061339
PROFESSIONAL ENGINEER
12/9/2020

E-201

DocuSigned by: Chirag Amin

EXISTING PANEL **PANEL: MDP** — **600 Amps**

AMP: 600 VOLT: 120/208
PHASE: 3 4 WIRE + GND
MOUNTING: SURFACE MAIN: MLO AIC: 42K AMPS RMS SYM

Branch Circuit Load Description	KVA Load A	KVA Load B	KVA Load C	Trip Poles	Ckt. No.	Phase	Ckt. No.	Trip Poles	KVA Load A	KVA Load B	KVA Load C	Branch Circuit Load Description
EXISTING AIR COMPRESSOR	0.00			20/1	1	A	2	20/3	0.00			EXISTING CHILLED
EXISTING FAN COIL UNIT		0.00		20/2	3	B	4	"		0.00		WATER PUMP.
"			0.00	"	5	C	6	"			0.00	"
SPACE	0.00			/1	7	A	8	20/3	0.00			EXISTING CONDENSING UNIT.
EXISTING OFFICE FURNACE		0.00		80/2	9	B	10	"		0.00		"
"			0.00	"	11	C	12	"			0.00	"
EXISTING PANEL	0.00			70/3	13	A	14	100/3	0.00			EXISTING PANEL 'BANK'.
'OUTSIDE LIGHTS'		0.00		"	15	B	16	"		0.00		"
"			0.00	"	17	C	18	"			0.00	"
EXISTING PANEL B.	0.00			100/3	19	A	20	100/3	0.00			EXISTING PANEL A.
"		0.00		"	21	B	22	"		0.00		"
"			0.00	"	23	C	24	"			0.00	"
EXISTING PANEL H	37.38			400/3	25	A	26	/3	0.00			SPACE
"		32.95		"	27	B	28	"		0.00		"
"			32.95	"	29	C	30	"			0.00	"
EXISTING MAIN	9.30			600/3	31	A	32	"	9.30			EXISTING MAIN
CIRCUIT BREAKER		9.30		"	33	B	34	"		9.30		CIRCUIT BREAKER
"			9.30	"	35	C	36	"			9.30	"
	46.68	42.25	42.25	<< PHASE SUB-TOTALS >>					9.30	9.30	9.30	

PHASE A 55.98 kVA
PHASE B 51.55 kVA
PHASE C 51.55 kVA
159.1 kVA TOTAL CONNECTED LOAD

PROVIDE THE FOLLOWING:

NOTE: EXISTING MAX SERVICE DEMAND LOAD IS 44.7KVA BASED ON UTILITY BILLS.
125% OF THAT IS SHOWN AS THE LOAD UNDER THE EXISTING MAIN CIRCUIT BREAKER.

EXISTING PANEL **PANEL: A** — **100 AMPS**

AMP: 100 VOLT: 120/208
PHASE: 3 4 WIRE + GND
MOUNTING: RECESSED MAIN: MLO AIC: 10K AMPS RMS SYM

Branch Circuit Load Description	KVA Load A	KVA Load B	KVA Load C	Trip Poles	Ckt. No.	Phase	Ckt. No.	Trip Poles	KVA Load A	KVA Load B	KVA Load C	Branch Circuit Load Description
EXISTING CIRCUIT	0.00			20/1	1	A	2	20/1	0.00			EXISTING CIRCUIT
EXISTING CIRCUIT		0.00		20/1	3	B	4	20/1		0.00		EXISTING CIRCUIT
EXISTING CIRCUIT			0.00	20/1	5	C	6	20/1			0.00	EXISTING CIRCUIT
EXISTING CIRCUIT	0.00			20/1	7	A	8	20/1	0.00			EXISTING CIRCUIT
EXISTING CIRCUIT		0.00		20/1	9	B	10	20/1		0.00		EXISTING CIRCUIT
EXISTING CIRCUIT			0.00	20/1	11	C	12	20/1			0.00	EXISTING CIRCUIT
EXISTING CIRCUIT	0.00			20/1	13	A	14	20/1	0.00			EXISTING CIRCUIT
EXISTING CIRCUIT		0.00		20/1	15	B	16	20/1		0.00		EXISTING CIRCUIT
EXISTING CIRCUIT			0.00	20/1	17	C	18	20/1			0.00	EXISTING CIRCUIT
EXISTING CIRCUIT	0.00			20/1	19	A	20	20/1	0.00			EXISTING CIRCUIT
EXISTING CIRCUIT		0.00		20/1	21	B	22	20/1		0.00		EXISTING CIRCUIT
EXISTING CIRCUIT			0.00	20/1	23	C	24	20/1			0.00	EXISTING CIRCUIT
EXISTING CIRCUIT	0.00			20/1	25	A	26	20/1	0.00			EXISTING CIRCUIT
EXISTING CIRCUIT		0.00		20/1	27	B	28	20/1		0.00		EXISTING CIRCUIT
EXISTING CIRCUIT			0.00	20/1	29	C	30	20/1			0.00	EXISTING CIRCUIT
SPACE	0.00			/1	31	A	32	/1	0.00			SPACE
SPACE		0.00		/1	33	B	34	/1		0.00		SPACE
SPACE			0.00	/1	35	C	36	/1			0.00	SPACE
	0.00	0.00	0.00	<< PHASE SUB-TOTALS >>					0.00	0.00	0.00	

PROVIDE THE FOLLOWING:

ELECTRICAL MECHANICAL SCHEDULE

TAG NAME	TAG #	DESCRIPTION	PHYSICAL LOCATION	LOAD HP	LOAD kW	LOAD FLA	VOLTS	Ø	STARTER TYPE	STARTER BY DIV.	STARTER LOCATION	LOCAL DISCONNECT TYPE	LOCAL DISCONNECT BY DIV.	LOCAL DISCONNECT LOCATION	KEY NOTE
BCU	1	BLOWER COIL UNIT - MOTOR	ATTIC	(2) 3/4	-	14.2	208	1	CP-EC	23	ON UNIT	DS	23	ON UNIT	1
		BLOWER COIL UNIT - HEAT		-	8.1	39	208	1	-	23	-				
		BLOWER COIL UNIT - VRV VALVE		-	-	1	208	1	-	-	-	-	-	-	
BCU	2	BLOWER COIL UNIT - MOTOR	ATTIC	(2) 3/4	-	14.2	208	1	CP-EC	23	ON UNIT	DS	23	ON UNIT	1
		BLOWER COIL UNIT - HEAT		-	8.1	39	208	1	-	23	-				
		BLOWER COIL UNIT - VRV VALVE		-	-	1	208	1	-	-	-	-	-	-	
BCU	3	BLOWER COIL UNIT - MOTOR	ATTIC	(2) 3/4	-	14.2	208	1	CP-EC	23	ON UNIT	DS	23	ON UNIT	1
		BLOWER COIL UNIT - HEAT		-	8.1	39	208	1	-	23	-				
		BLOWER COIL UNIT - VRV VALVE		-	-	1	208	1	-	-	-	-	-	-	
BCU	4	BLOWER COIL UNIT - MOTOR	ATTIC	(2) 3/4	-	14.2	208	1	CP-EC	23	ON UNIT	DS	23	ON UNIT	1
		BLOWER COIL UNIT - HEAT		-	8.1	39	208	1	-	23	-				
		BLOWER COIL UNIT - VRV VALVE		-	-	1	208	1	-	-	-	-	-	-	
BCU	5	BLOWER COIL UNIT - MOTOR	BASEMENT	(2) 3/4	-	14.2	208	1	CP-EC	23	ON UNIT	DS	23	ON UNIT	1
		BLOWER COIL UNIT - HEAT		-	8.1	39	208	1	-	23	-				
		BLOWER COIL UNIT - VRV VALVE		-	-	1	208	1	-	-	-	-	-	-	
F	4	FAN	ATTIC	2	-	7.8	208	3	VFD	23	AT UNIT	DS	23	INTEGRAL TO VFD	
F	5	FAN	ATTIC	3	-	11	208	3	VFD	23	AT UNIT	DS	23	INTEGRAL TO VFD	
ACCU-1	A	CONDENSING UNIT	OUTSIDE ON GRADE	-	-	49.5	208	3	CP	23	ON UNIT	DS	26	AT UNIT	2
ACCU-1	B	CONDENSING UNIT	OUTSIDE ON GRADE	-	-	49.5	208	3	CP	23	ON UNIT	DS	26	AT UNIT	2
BS	1	BRANCH SELECTOR BOX	BASEMENT	-	-	0.1	208	1	-	23	-	MMS	26	AT UNIT	
BS	2	BRANCH SELECTOR BOX FOR ACCU	ATTIC	-	-	0.8	208	1	-	23	-	MMS	26	AT UNIT	

NOTES:
1) SINGLE POINT CONNECTION
2) WEATHERPROOF NEMA 3R LOCAL DISCONNECT

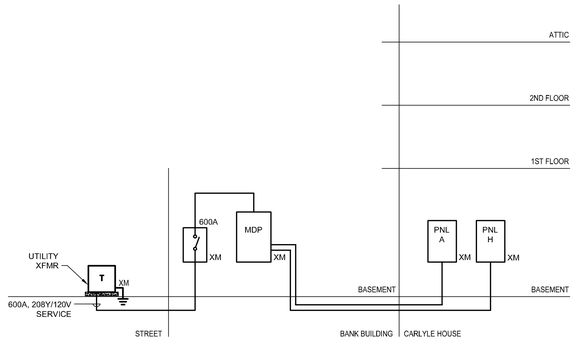
EXISTING PANEL **PANEL: H** — **400 AMPS**

AMP: 400 VOLT: 120/208
PHASE: 3 3 WIRE + GND
MOUNTING: RECESSED MAIN: MLO AIC: 42K AMPS RMS SYM

Branch Circuit Load Description	KVA Load A	KVA Load B	KVA Load C	Trip Poles	Ckt. No.	Phase	Ckt. No.	Trip Poles	KVA Load A	KVA Load B	KVA Load C	Branch Circuit Load Description
BCU-1 - ATTIC	5.53			70/2	1	A	2	20/3	1.00			EXISTING 3KW WATER HEATE
"		5.53		"	3	B	4	"		1.00		"
BCU-2 - ATTIC			5.53	70/2	5	C	6	"			1.00	"
"	5.53			"	7	A	8	70/3	6.00			**ACCU-1-A - OUTSIDE**
BCU-3 - ATTIC		5.53		70/2	9	B	10	"		6.00		"
"			5.53	"	11	C	12	"			6.00	"
BCU-4 - ATTIC	5.53			70/2	13	A	14	70/3	6.00			**ACCU-1-B - OUTSIDE**
"		5.53		"	15	B	16	"		6.00		"
BCU-5 - BASEMENT			5.53	70/2	17	C	18	"			6.00	"
"	5.53			"	19	A	20	30/3	2.26			**FANS - ATTIC**
VRV VALVES &		1.10		20/2	21	B	22	"		2.26		"
BRANCH SELECTOR BOXES			1.10	"	23	C	24	"			2.26	"
	22.12	17.69	17.69	<< PHASE SUB-TOTALS >>					15.26	15.26	15.26	

PHASE A 37.38 kVA
PHASE B 32.95 kVA
PHASE C 32.95 kVA
103.28 kVA TOTAL CONNECTED LOAD

PROVIDE THE FOLLOWING:



ELECTRICAL SHEET NOTES - MECHANICAL EQUIPMENT SCHEDULE

1	REFER TO THE MECHANICAL, PLUMBING AND FIRE PROTECTION DRAWINGS AND SPECIFICATIONS FOR THE LOCATIONS OF ALL EQUIPMENT REQUIRING AN ELECTRICAL CONNECTION. PROVIDE FLEXIBLE CONNECTIONS TO ASSOCIATED EQUIPMENT.
2	LOCATE DISCONNECT SWITCHES, COMBINATION CONTROLLERS AND VFD'S AS CLOSE AS PRACTICABLE TO EQUIPMENT SERVED, AND IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE. CONTROL EQUIPMENT NOT WITHIN SITE OF THE MOTOR SHALL BE PROVIDED WITH A LOCAL FUSED DISCONNECT WITH ENCLOSURE PROPERLY RATED FOR THE APPLICATION. ELECTRICAL EQUIPMENT SHALL BE RATED FOR THE MAXIMUM AVAILABLE FAULT CURRENT, AND SHALL BE RATED IN HORSEPOWER TO MEET THE REQUIREMENTS OF THE EQUIPMENT SERVED.
3	PROVIDE NAMEPLATE FOR EACH CONTROLLER AND/OR DISCONNECT MOUNTED ON FRONT OF UNIT ENCLOSURE. NAMEPLATE SHALL INDICATE EQUIPMENT NAME (I.E. AHU-4), CONTROLLER DESIGNATION (I.E. VFD, STARTER, ETC.); EQUIPMENT ELECTRICAL CHARACTERISTICS (I.E. VOLTAGE, PHASE, HP), SOURCE FED FROM (I.E. FROM PANEL MPD) AND LOCATION OF SOURCE (I.E. LOCATED IN ELECTRICAL ROOM 142).
4	REFER TO POWER PLANS FOR ALL FAN COIL, FAN BOX, AND UNIT HEATER BRANCH CIRCUIT WIRING INFORMATION.
5	AQUASTAT FOR WATER HEATER CIRCULATION PUMP, FURNISHED AND INSTALLED BY PLUMBING CONTRACTOR, WIRED BY ELECTRICAL CONTRACTOR.

MECHANICAL EQUIPMENT SCHEDULE DEVICE LEGEND

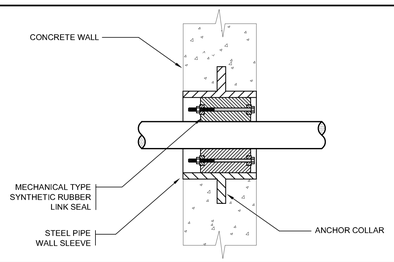
ABBREVIATION	DESCRIPTION
CP	CONTROL PANEL: EQUIPMENT HAVING A CONTROL PANEL SHALL BE FURNISHED AND INSTALLED BY DIVISION 22 OR 23 AND WIRED BY DIVISION 26.
CP-EC	CONTROL PANEL: EC MOTOR CONTROL EQUIPMENT HAVING A CONTROL PANEL SHALL BE FURNISHED AND INSTALLED BY DIVISION 22 OR 23 AND WIRED BY DIVISION 26.
CSD	COMBINATION MOTOR CIRCUIT PROTECTOR & STARTER: EQUIPMENT REQUIRING A STARTER SHALL BE FURNISHED WITH A COMBINATION STARTER/MOTOR CIRCUIT PROTECTOR BY DIVISION 26. THE ELECTRICAL CONTRACTOR SHALL INSTALL AND WIRE THE COMBINATION STARTER/MOTOR CIRCUIT PROTECTOR.
DS	DISCONNECT SWITCH: UNLESS OTHERWISE INDICATED, ALL DISCONNECT SWITCHES ARE PROVIDED BY DIVISION 26.
FDS	FUSED DISCONNECT SWITCH: UNLESS OTHERWISE INDICATED, ALL FUSED DISCONNECT SWITCHES ARE PROVIDED BY DIVISION 26.
JB	JUNCTION BOX: UNLESS OTHERWISE INDICATED, JUNCTION BOX PROVIDED AND INSTALLED BY DIVISION 26.
MMS	MANUAL MOTOR STARTER: THERMAL OVERLOAD PROVIDED AND INSTALLED BY DIVISION 26.
VFD	VARIABLE FREQUENCY DRIVE: UNLESS OTHERWISE INDICATED, VARIABLE FREQUENCY DRIVES FURNISHED BY DIV. 23 (REFER TO HVAC DRAWINGS FOR SPECIFICATION) AND INSTALLED BY DIV. 26, REFER TO DIV. 23 DRAWINGS AND SPECIFICATIONS FOR QUANTITY OF VFD'S REQUIRED FOR EACH EQUIPMENT/APPLICATION. COORDINATE LOCATIONS OF VFD WITH MECHANICAL CONTRACTOR AND FIELD CONDITIONS. EQUIPMENT WITH VFD NOT WITHIN SIGHT OF THE ASSOCIATED EQUIPMENT SHALL BE PROVIDED WITH A LOCAL DISCONNECT. DISCONNECT SWITCHES LOCATED AT MOTORS, SERVED BY A VFD, SHALL HAVE ELECTRICAL INTERLOCK KIT FOR INTERFERENCE TO VFD SHUTDOWN. A PIVOT ARM OPERATES FROM THE SWITCH MECHANISM, BREAKING THE CONTROL CIRCUIT BEFORE THE MAIN SWITCH BLADES BREAK. PROVIDE, IN ADDITION TO THE MOTOR FEED, 2#12 IN A 3#4" CONDUIT FROM THE DISCONNECT TO THE VFD.
VFD*	VARIABLE FREQUENCY DRIVE: VFD'S SHOWN IN THIS SCHEDULE DENOTED WITH " * " INDICATES VFD PROVIDED WITH EQUIPMENT. ELECTRICAL CONTRACTOR SHALL PROVIDE FUSED DISCONNECT SWITCH WITH PIVOT ARM CONTACTS AT EQUIPMENT EXTERIOR. THE PIVOT ARM OPERATES FROM THE SWITCH MECHANISM, BREAKING THE CONTROL CIRCUIT BEFORE THE MAIN SWITCH BLADES BREAK. PROVIDE, IN ADDITION TO THE MOTOR FEED, 2#12 IN A 3#4" CONDUIT FROM THE DISCONNECT TO THE VFD.

PANELBOARD SCHEDULE GENERAL NOTES

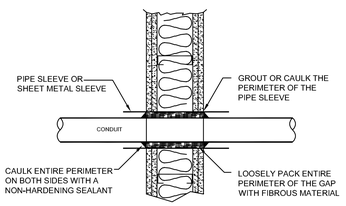
1. BRANCH CIRCUIT LOAD DESCRIPTIONS IN DARK, BOLD TEXT ARE NEW CIRCUITS. REMOVE EXISTING CIRCUIT BREAKERS IN THESE POLE SPACES AND PROVIDE NEW CIRCUIT BREAKERS AS SHOWN. NEW BREAKERS SHALL MATCH MANUFACTURER, TYPE AND SHORT CIRCUIT RATING OF EXISTING DEVICES. PROVIDE NEW WIRING / CABLING PER FLOOR PLAN DRAWINGS.

ELECTRICAL POWER RISER DIAGRAM

NO SCALE

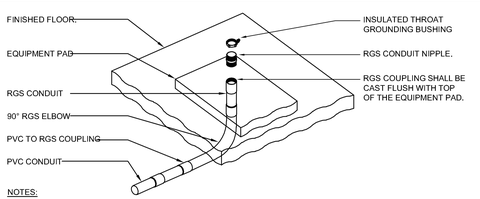


4 WATERTIGHT SLEEVE
SCALE: NONE BOR_4.75x8.DWG



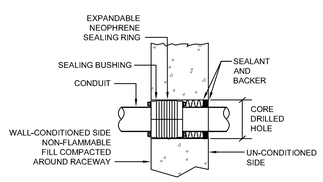
NOTES
1. DETAIL APPLIES TO CONDUIT OR MC PENETRATIONS THROUGH ANY PARTITIONS.

5 PENETRATIONS IN GWB PARTITIONS
SCALE: NONE

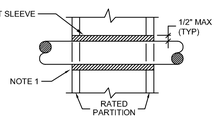


NOTES:
1. FOR EXACT QUANTITY, SIZE, ELEVATIONS , TYPE, ETC OF CONDUITS SEE FLOOR PLANS. VIBRATE CONCRETE AT CONDUITS TO FILL ALL VOIDS.
2. COORDINATE LOCATION OF CONDUITS WITH EQUIPMENT MANUFACTURERS INSTALLATION DRAWINGS.
3. CONDUIT NIPPLE AND INSULATED GROUNDING BUSHING SHALL BE INSTALLED AFTER EQUIPMENT IS SET IN PLACE AND BEFORE CABLE IS PULLED.

1 TYPICAL CONDUIT TURN-UP AT SLAB ON GRADE EQUIPMENT PAD
SCALE: NONE



2 CONDUIT SEALANT PENETRATION
SCALE: NONE



NOTES:
1. AT FIRE RATED PARTITIONS, PROTECT PENETRATIONS AS PART OF AN APPROVED FIRE STOP SYSTEM (INSTALLED AS TESTED IN ACCORDANCE WITH ASTM E 814 OR UL 1479, WITH A MIN POSITIVE PRESSURE DIFFERENTIAL OF 0.01 IN. W.G.) AND IN COMPLIANCE WITH VBC SECTION 714.
2. SEAL AND FILL FUTURE SLEEVE PENETRATIONS THROUGH FIRE RATED ASSEMBLIES W/ FIRE RATED FIRE STOP AS PART OF AN APPROVED FIRE STOP SYSTEM (INSTALLED AS TESTED IN ACCORDANCE WITH ASTM E 814 OR UL 1479, WITH A MIN POSITIVE PRESSURE DIFFERENTIAL OF 0.01 IN. W.G.) AND IN COMPLIANCE WITH VBC SECTION 714.
3. PIPE/CONDUIT PENETRATIONS THROUGH CORRIDOR WALLS ABOVE THE CEILING ARE TO BE FIRE STOPPED AROUND THE PENETRATION.
4. REFER TO THE A01 SERIES ARCHITECTURAL DRAWINGS FOR NRTL LISTED DETAILS.

3 PIPE AND CONDUIT PENETRATIONS THRU FIRE RATED PARTITIONS
SCALE: NONE

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Drawing Title

RISER, SCHEDULES, & DETAILS

COMMONWEALTH OF VIRGINIA
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PROFESSIONAL ENGINEER
Docusigned by: Chirag Amin
12/9/2020

E-301