CONSTRUCTION: EST. YEAR OF COMPLETION 2026

OCCUPANCY: PRIMARY - ASSEMBLY OTHERS - STORAGE

BUILDING GROSS SQUARE FOOTAGE:

TOTAL: 1,366 GSF

BUILDING DESCRIPTION: THE PROJECT OF THE DEVEOLPMENT OF AN OUTDOORS OPEN PAVILION TO HOLD BOARD MEETINGS. THE SCOPE OF WORK INCLUDES ARCHITECTURAL, ELECTRICAL, PLUMBING, AND STRUCTURAL COORDINATION.

APPLICABLE CODE AND CRITERIA

• 2021 (VUSBC) VIRGINIA UNIFORM STATEWIDE BUILDING CODE 2021 (IBC) INTERNATIONAL BUILDING CODE

 2021 (NFPA-101) LIFE SAFETY CODE 2020 (NEC) NATIONAL ELECTRICAL CODE

 2021 (IECC) INTERNATIONAL ENERGY CONSERVATION CODE 2021 (IFC) INTERNATIONAL FIRE CODE • 2010 (ADA) ICC/ANSI A117.1 ACCESSIBILITY CODE

REVIEWED PER 2018 VIRGINIA INTERNATIONAL BUILDING CODE

CHAPTER 3 - USE AND OCCUPANCY CLASSIFICATION

302.1 OCCUPANCY CLASSIFICATION PRIMARY USE AND OCCUPANCY GROUP: BASSEMBLY OTHER USES AND OCCUPANCY GROUPS: STORAGE GROUP S-2

303.6: ASSEMBLY GROUP A-5: GROUP A-5 OCCUPANCY INCLUDES ASSEMBLY USES INTENDED FOR PARTICIPATION IN OR VIEWING OUTDOOR ACTIVITIES.

CHAPTER 5 - GENERAL BUILDING HEIGHTS AND AREAS

504.3 ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE ALLOWABLE HEIGHT (TYPE IIB CONSTRUCTION, NON-SPRINKLERED) ASSEMBLY STORAGE 55 FEET

PROPOSED:

504.4 ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE ALLOWABLE HEIGHT (TYPE IIB CONSTRUCTION, NON-SPRINKLERED) OCCUPANCY

3 STORIES STORAGE 1 STORY PROPOSED:

506.2 ALLOWABLE AREA FACTOR

ALLOWABLE HEIGHT (TYPE IIB CONSTRUCTION, NON-SPRINKLERED) OCCUPANCY ASSEMBLY

26,000 SQUARE FEET STORAGE PROPOSED: 1,366 SQUARE FEET

506.2.2 MIXED-OCCUPANCY BUILDINGS THE ALLOWABLE AREA OF EACH STORY OF A MIXED-OCCUPANCY BUILDING SHALL BE DETERMINED IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF SECTION 508.4.2 FOR SEPARATED OCCUPANCIES.

508.2 ACCESSORY OCCUPANCIES

ACCESSORY OCCUPANCIES ARE THOSE OCCUPANCIES THAT ARE ANCILLARY TO THE MAIN OCCUPANCY OF THE BUILDING OR PORTION THEREOF. ACCESSORY OCCUPANCIES SHALL COMPLY WITH THE PROVISIONS OF SECTIONS 508.2.1 THROUGH 508.2.4.

508.4 SEPARATED OCCUPANCIES BUILDING OR PORTIONS OF BUILDING THAT COMPLY WITH THE PROVISION OF THIS SECTION SHALL BE CONSIDERED AS SEPARATED OCCUPANCIES. OCCUPANCY ADJACENCY REQUIRED SEPARATION (NON-SPRINKLERED) ASSEMBLY (A5) & STORAGE (S-2)

NO SEPARATION REQUIRED

CHAPTER 6 - TYPES OF CONSTRUCTION

0 HOURS

601 - FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS) BUILDING ELEMENTS TYPE IIB CONSTRUCTION PRIMARY STRUCTURAL FRAME

EXTERIOR BEARING WALLS: 0 HOURS INTERIOR BEARING WALLS: 0 HOURS FLOOR CONSTRUCTION 0 HOURS

602 CONSTRUCTION CLASSIFICATION BUILDING CONSTRUCTION MATERIAL: TYPE IIB

ROOF CONSTRUCTION

603.1 ALLOWABLE MATERIALS COMBUSTIBLE MATERIALS SHALL BE PERMITTED IN BUILDINGS TYPE I OR II CONSTRUCTION IN THE FOLLOWING APPLICATIONS AND IN ACCORDANCE WITH SECTIONS 603.1.1 THROUGH 603.1.3.

CHAPTER 7 - FIRE-RESISTANCE-RATED CONSTRUCTION

711.2.1 MATERIALS: ASSEMBLIES SHALL BE OF MATERIALS PERMITTED BY THE BUILDING TYPE OF

CHAPTER 9 - FIRE PROTECTION & LIFE SAFETY SYSTEMS

903.2..1.5: GROUP A-5: AN AUTOMATIC SPRINKLER STSTEM SHALL BE PROVIDED FOR ALL ENCLOSED GROUP A-5 ACCESSORY USE AREAS IN EXCESS OF 1,000 SF.

PROPOSED: NOT ENCLOSED TYPE A-5 CONSTRUCTION PROVIDED

SECTION 905 - STANDPIPE SYSTEMS IS NOT REQUIRED.

SECTION 906 - PORTABLE FIRE EXTINGUISHERS 1. PORTABLE FIRE EXTINGUISHERS SHALL BE INSTALLED IN ALL OF THE FOLLOWING LOCATIONS: IN GROUPS A AND S OCCUPANCIES.

2. WITHIN 30 FEET DISTANCE OF TRAVEL FROM COMMERCIAL COOKING EQUIPMENT IN AREAS WHERE

3. ON EACH FLOOR OF THE STRUCTURE UNDER CONSTRUCTION 4. WHERE REQUIRED BY THE IBC SECTIONS INDICATED IN TABLE 906.1

FLAMMABLE OR COMBUSTIBLE LIQUIDS ARE STORE, USED OR DISPENSED.

906.3 906.3 FIRE EXTINGUISHERS FOR CLASS A FIRE HAZARDS LOW HAZARD MODERATE HAZARD HIGH HAZARD

MIN.-RATED EXTINGUISHER 2-A 2-A MAX. FA PER UNIT OF A 3,000 SF 1,500 SF 1,000 SF MAX. FA FOR EXTINGUISHER 11,250 SF 11,250 SF 11,250 SF MAX. DISTANCE OF TRAVEL 75 FEET 75 FEET 75 FEET

906.9 EXTINGUISHER INSTALLATION THE INSTALLATION OF PORTABLE FIRE EXTINGUISHERS SHALL BE IN ACCORDANCE WITH SECTIONS 906.9.1 THROUGH 906.9.3.

907.2 WHERE REQUIRED - NEW BUILDINGS AND STRUCTURES AN APPROVED FIRE ALARM SYSTEM INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF THIS CODE AND NFPA 72 SHALL BE PROVIDED IN NEW BUILDINGS AND STRUCTURES IN ACCORDANCE WITH SECTIONS 907.2.1 THROUGH 907.2.23 AND PROVIDE OCCUPANT NOTIFICATION IN ACCORDANCE WITH SECTION 907.5, UNLESS OTHER REQUIREMENTS ARE PROVIDED BY ANOTHER SECTION OF THIS CODE.

CHAPTER 10 - MEANS OF EGRESS

THE MEANS OF EGRESS SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7 FEET 6 INCHES ABOVE THE

1003.3 PROTRUDING OBJECTS PROTRUDING OBJECTS ON CIRCULATION PATHS SHALL COMPLY WITH THE REQUIREMENTS OF SECTIONS 1003.3.1 THROUGH 1003.4.

1004.4 MULTIPLE OCCUPANCIES. WHERE A BUILDING CONTAINS TWO OR MORE OCCUPANCIES, THE MEANS OF EGRESS REQUIREMENTS SHALL APPLY TO EACH PORTION OF THE BUILDING BASED ON THE OCCUPANCY OF THAT SPACE. WHERE TWO OR MORE OCCUPANCIES UTILIZE PORTIONS OF THE SAME MEANS OF EGRESS SYSTEM, THOSE EGRESS COMPONENTS SHALL MEET THE MORE STRINGENT REQUIREMENTS OF ALL OCCUPANCIES THAT

1004.5 MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT NUMBER OF OCCUPANTS FUNCTION OF SPACE ASSEMBLY AREA OCC. LOAD FACTOR

ARE SERVED.

STORAGE

TOTAL BUILDING OCCUPANT LOAD = 264 OCCUPANTS 1005.3.2 OTHER EGRESS COMPONENTS

THE CAPACITY, IN INCHES, OF MEANS OF EGRESS COMPONENTS OTHER THAN STAIRWAYS SHALL BE CALCULATED BY MULTIPLYING THE OCCUPANT LOAD SERVED BY SUCH COMPONENT BY A MEANS OF EGRESS CAPACITY FACTOR OF 0.2 INCH (5.1 MM) PER OCCUPANT.

DOORS, WHEN FULLY OPENED, SHALL NOT REDUCE THE REQUIRED WIDTH BY MORE THAN 7 INCHES (178 MM). DOORS IN ANY POSITION SHALL NOT REDUCE THE REQUIRED WIDTH BY MORE THAN ONE-HALF.

1006.2.1 EGRESS BASED ON OCCUPANT LOAD AND COMMON PATH OF EGRESS TRAVEL DISTANCE TWO EXITS OR EXIT ACCESS DOORWAYS FROM ANY SPACE SHALL BE PROVIDED WHERE THE DESIGN OCCUPANT LOAD OR THE COMMON PATH OF EGRESS TRAVEL DISTANCE EXCEEDS THE VALUES LISTED IN TABLE 1006.2.1. THE CUMULATIVE OCCUPANT LOAD FROM ADJACENT ROOMS, AREAS OR SPACES SHALL BE DETERMINED IN ACCORDANCE WITH SECTION 1004.2.

TABLE 1006.2.1 SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY (NON-SPRINKLERED) OCCUPANCY MAX. OCC. LOAD OF SPACE MAX. COMMON PATH OF TRAVEL (FEET) 75 FEET (OL>30)

PROVIDED: 264 TOTAL BUILDING OCCUPANTS, MAX. COMMON PATH OF TRAVEL = 40'-0"

DOORS IN THE MEANS OF EGRESS SHALL COMPLY WITH THE REQUIREMENTS OF SECTIONS 1010.1.1 THROUGH 1010.3.4. EXTERIOR EXIT DOORS SHALL ALSO COMPLY WITH THE REQUIREMENTS OF SECTION

DOORS, GATES AND TURNSTILES PROVIDED FOR EGRESS PURPOSES IN NUMBERS GREATER THAN REQUIRED BY THIS CODE SHALL COMPLY WITH THE REQUIREMENTS OF THIS SECTION.

DOORS IN THE MEANS OF EGRESS SHALL BE READILY DISTINGUISHABLE FROM THE ADJACENT CONSTRUCTION AND FINISHES SUCH THAT THE DOORS ARE EASILY RECOGNIZABLE AS DOORS. MIRRORS OR SIMILAR REFLECTING MATERIALS SHALL NOT BE USED ON MEANS OF EGRESS DOORS. MEANS OF EGRESS DOORS SHALL NOT BE CONCEALED BY CURTAINS, DRAPES, DECORATIONS OR SIMILAR MATERIALS.

1010.1.1 SIZE OF DOORS THE REQUIRED CAPACITY OF EACH DOOR OPENING SHALL BE SUFFICIENT FOR THE OCCUPANT LOAD THEREOF AND SHALL PROVIDE A MINIMUM CLEAR OPENING WIDTH OF 32 INCHES (813 MM). THE CLEAR OPENING WIDTH OF DOORWAYS WITH SWINGING DOORS SHALL BE MEASURED BETWEEN THE FACE OF THE DOOR AND THE STOP, WITH THE DOOR OPEN 90 DEGREES (1.57 RAD). THE MINIMUM CLEAR OPENING HEIGHT OF DOORS SHALL BE NOT LESS THAN 80 INCHES (2032 MM).

1010.1.2.1 DIRECTION OF SWING SIDE-HINGED SWINGING DOORS, PIVOTED DOORS AND BALANCED DOORS SHALL SWING IN THE DIRECTION OF EGRESS TRAVEL WHERE SERVING A ROOM OR AREA CONTAINING AN OCCUPANT LOAD OF 50 OR MORE

TABLE 1017.2 EXIT ACCESS TRAVEL DISTANCE (NON-SPRINKLERED) OCCUPANCY MAX. TRAVEL DISTANCE (FEET)

CHAPTER 11 - ACCESSIBILITY

BUILDINGS AND FACILITIES SHALL BE DESIGNED AND CONSTRUCTED TO BE ACCESSIBLE IN ACCORDANCE WITH THIS CODE AND ICC A117.1.

1104.1 SITE ARRIVAL POINTS AT LEAST ONE ACCESSIBLE ROUTE WITHIN THE SITE SHALL BE PROVIDED FROM PUBLIC TRANSPORTATION STOPS, ACCESSIBLE PARKING, ACCESSIBLE PASSENGER LOADING ZONES, AND PUBLIC STREETS OR SIDEWALKS TO THE ACCESSIBLE BUILDING ENTRANCE SERVED.

AT LEAST ONE ACCESSIBLE ROUTE SHALL CONNECT ACCESSIBLE BUILDINGS, ACCESSIBLE FACILITIES, ACCESSIBLE ELEMENTS AND ACCESSIBLE SPACES THAT ARE ON THE SAME SITE.

1104.3.1 EMPLOYEE WORK AREAS COMMON USE CIRCULATION PATHS WITHIN EMPLOYEE WORK AREAS SHALL BE ACCESSIBLE ROUTES.

IN ADDITION TO ACCESSIBLE ENTRANCES REQUIRED BY SECTIONS 1105.1.1 THROUGH 1105.1.7, AT LEAST 60 PERCENT OF ALL PUBLIC ENTRANCES SHALL BE ACCESSIBLE.

PROVIDED: PUBLIC ENTRANCE IS ACCESSIBLE.

1110.5.1 MINIMUM NUMBER (OF DRINKING FOUNTAINS) NO FEWER THAN TWO DRINKING FOUNTAINS SHALL BE PROVIDED. ONE DRINKING FOUNTAIN SHALL COMPLY WITH THE REQUIREMENTS FOR PEOPLE WHO USE A WHEELCHAIR AND ONE DRINKING FOUNTAIN SHALL COMPLY WITH THE REQUIREMENTS FOR STANDING PERSONS,

1110.10 STORAGE WHERE FIXED OR BUILT-IN STORAGE ELEMENTS SUCH AS CABINETS, COATS HOOKS, SHELVES, MEDICINE CABINETS, LOCKERS, CLOSETS AND DRAWERS ARE PROVIDED IN REQUIRED ACCESSIBLE SPACES, AT LEAST 5 PERCENT, BUT NOT LESS THAN ONE OF EACH TYPE SHALL BE ACCESSIBLE.

Dewberry

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KEY PLAN

SCALE

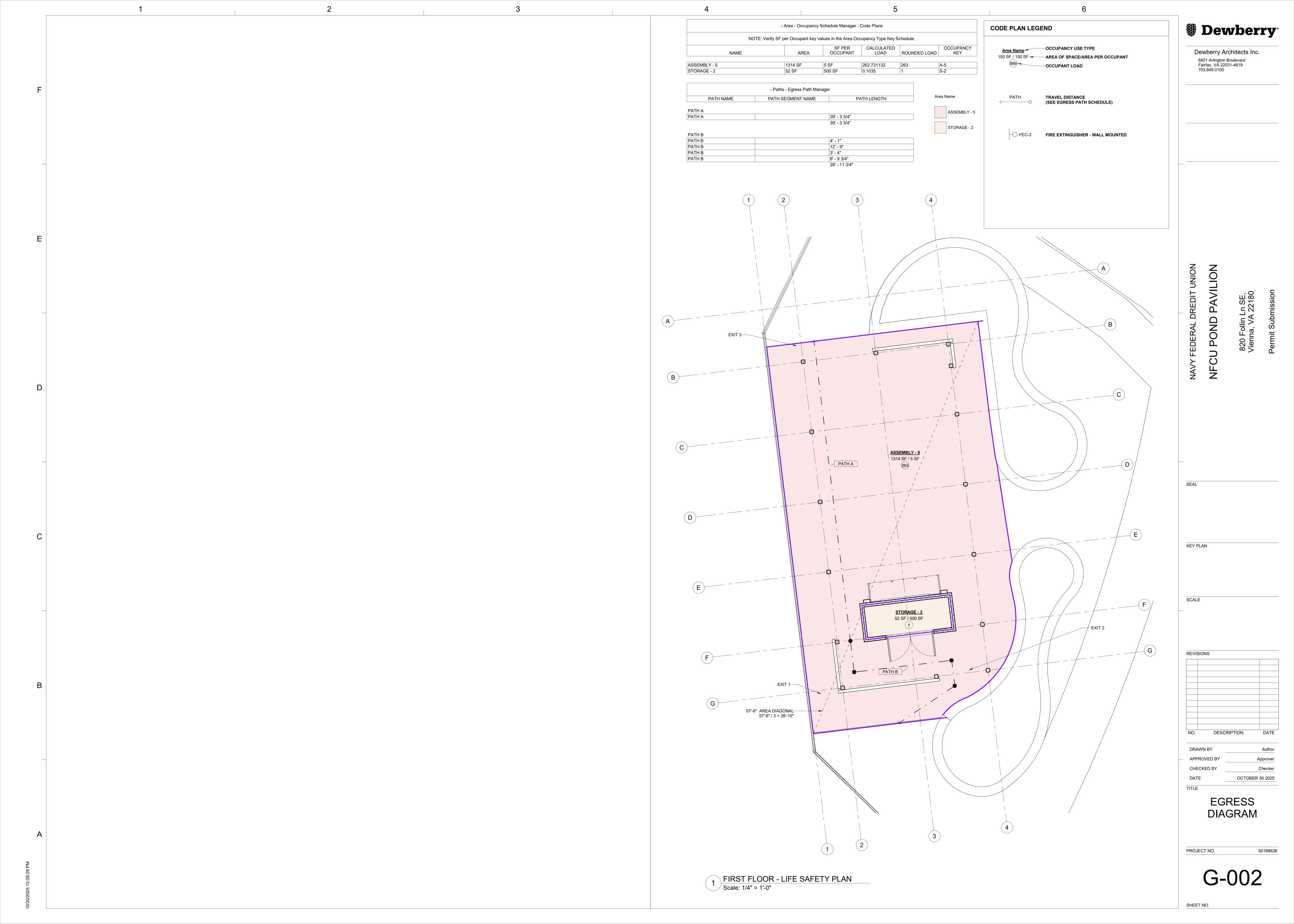
REVISIONS

DESCRIPTION

DRAWN BY APPROVED BY CHECKED BY DATE OCTOBER 30 2025

CODE ANALYSIS

PROJECT NO. 50188638



PANEL, RECESSED - TYPE | "VS" = VACANCY SENSOR

SINGLE RELAY

"VS2" = VACANCY SENSOR

"WP" = WEATHERPROOF

DUAL RELAY "VSD" = VACANCY SENSOR,

(CONTACTOR, RELAY,

ROOM CONTROLLER,

ETC.) AS SHOWN

;	SYM	BOL	-	DESCF	RIPTION
CEILING MTD	WALL MTD	POST MTD	FLOOR MTD		
\bigcirc	∇		V	CATV OUTLET	<u>SUBSCRIPTS</u>
\bigcirc	∇	V	\Box	DATA OUTLET	"#" = OUTLET QTY "AC" = ABOVE COUNTER
lacksquare	▼		V	COMBINATION TELEPHONE & DATA OUTLET	"IP" = INMATE PHONE "UC" = UNDER COUNTER "WAP"= WIRELESS ACCESS
				TELEPHONE OUTLET	POINT "WP" = WEATHERPROOF BOX
Э	<u></u>			JUNCTION BOX	SUBSCRIPTS
	Ю			CLOCK	"P" = FURNITURE POWER CONNECTION "T" = FURNITURE TELECOM
S	Ю			SPEAKER	CONNECTION
		<u> </u>		FLAT PANEL DISPLAY	
	<u>A(</u>	CP		AV CONTROL PANEL	
	<u>A\</u>	V4 L		AV INTERFACE PANEL	
		<u>\</u>		VOLUME CONTROL	
	<u> </u>	<u>y</u>		MICROPHONE JACK	
	P	T		POWER/TELECOMMUNICATION:	S POLE
	Н	<u>H</u>		POWER/TELECOMMUNICATION:	S HANDHOLE
	M	H)		POWER/TELECOMMUNICATION:	S MANHOLE

	WIRES	DESCRIPTION
	<unnamed></unnamed>	HOME RUN. NUMERALS INDICATE PANELBOARD AND CIRCUIT NUMBERS.
		HOME RUN. MULTIPLE ARROWS INIDCATES NUMBER OF CIRCUITS INCLUDED IN CONDUIT (1, 2 OR 3).
	/ _ ` _ ` _	UNCONTROLLED/UNSWITCHED CIRCUIT
	\$	INDICATES CIRCUIT CONTINUATION
:R :R		STUB INTO ACCESSIBLE CORRIDOR CEILING SPACE UNO
ESS		CAP END OF CONDUIT
F BOX	\$	INDICATES CONDUIT RISER UP

CIRCUIT SYMBOLS

STANDARD WALL MOUNTING HEIGHTS

INDICATES CONDUIT RISER DOWN

CONDUIT SLEEVE

STANDA	ARD WALL M	OUNTING HE	<u>:IGHTS</u>
DEVICE OR EQUIPMENT TYPE	MOUNTING HEIGHT (AFF/AFG)	MEASURED TO	NOTES
EMERGENCY LIGHTS	96"	TOP	1, 2
ENCLOSED CIRCUIT BREAKERS	78"	TOP	1, 3
EXIT SIGNS	SEE NOTES	TOP	1, 4
FA NOTIFICATION DEVICES	84"	воттом	1
FA PULL STATIONS	48"	TOP	1
LIGHT SWITCHES	48"	TOP	1
PANELBOARDS	78"	TOP	1, 3
PLUGMOLD AND WIREMOLD	SEE NOTES	TOP	1, 5
RECEPTACLES - NORMAL AREAS	18"	CENTER	1
RECEPTACLES - ABOVE COUNTER	SEE NOTES	TOP	1, 5
RECEPTACLES - EXTERIOR AREAS	18"	CENTER	1
RECEPTACLES - UNDER COUNTER	18"	CENTER	1
SAFETY SWITCHES	78"	TOP	1, 3
SENSORS - WALL MOUNTED	96"	TOP	1, 2

INSTALLATION.

- UNLESS NOTED OTHERWISE. WALL MOUNTING HEIGHTS INDICATED ON DRAWINGS OR DETAILS SHALL SUPERSEDE STANDARD WALL MOUNTING HEIGHTS LISTED HERE. COORDINATE ALL DEVICE LOCATIONS WITH OTHER TRADES PRIOR TO INSTALLATION. COORDINATE EXACT HEIGHT AND LOCATION WITH ARCHITECTURAL INTERIOR ELEVATIONS AND CASEWORK SHOP DRAWINGS PRIOR TO INSTALLATION. ADJUST TO MATCH MASONRY COURSES, IF APPLICABLE. MOUNT ALL BOXES TRUE AND PLUMB.
- 2. CEILING HEIGHT PERMITTING, OTHERWISE MOUNT 12" BELOW CEILING TO TOP
- MOUNTING HEIGHT AS MEASURED TO TOP OF ENCLOSURE OR CENTER OF OPERATING HANDLE AT HIGHEST POSITION, WHICHEVER IS HIGHER. STACKING OF SAFETY SWITCHES, ENCLOSED CIRCUIT BREAKERS AND MOTOR STARTERS IS PERMITTED.
- 4. CEILING HEIGHT PERMITTING, MOUNT EXIT SIGN 18" ABOVE TOP OF DOOR FRAME AS MEASURED FROM TOP OF SIGN. FOR ALL OTHER AREAS AND CEILING HEIGHT PERMITTING, MOUNT 96" AFF TO TOP OF BOX. OTHERWISE, MOUNT 12" BELOW CEILING TO TOP OF BOX.
- 5. MOUNT 6" ABOVE COUNTERTOP OR BACKSPLASH (IF APPLICABLE) TO TOP OF BOX. COORDINATE EXACT HEIGHT AND LOCATION WITH ARCHITECTURAL INTERIOR ELEVATIONS AND CASEWORK SHOP DRAWINGS PRIOR TO

STANDARD DETAILING SYMBOLS

SYMBOL	DESCRIPTION
PLAN / DETAIL REF. AREA TO BE ENLARGED SHEET REF.	CALLOUT
SECTION REF. SIM SHEET REF. A101	BUILDING/WALL SECTION
VIEW DESIGNATION VIEW NAME VIEW NAME Scale: 1/8" = 1'-0" VIEW SCALE	VIEW TITLE
LEVEL NAME—— FIRST FLOOR LEVEL ——————————————————————————————————	LEVEL LINE
GRID NUMBER OR ——————————————————————————————————	GRID LINE
INDICATES TRUE NORTH	NORTH INDICATOR
Space Name ROOM NUMBER — 101	ROOM TAG
REVISION NUMBER——1	REVISION TAG REVISION CLOUD
1	KEYNOTE TAG (PER SHEET NUMBERS
ELEVATION AT1' - 0" POINT INDICATED	SPOT ELEVATION SYMBOL
	POINT OF CONNECTION
	POINT OF DISCONNECTION
LINETYPES	
	BACKGROUND
	EXISTING
	DEMOLITION
	NEW

FUTURE

IDDEN/UNDER

ABBREVIATIONS - ELECTRICAL

THIS IS A MASTER ABBREVIATIONS LIST. SOME ABBREVIATIONS MAY NOT APPLY TO THIS PROJECT.

OBSTRUCTION

DRAWING LIST - ELECTRICAL

- E-001 ELECTRICAL SYMBOLS & ABBREVIATIONS E-002 ELECTRICAL SPECIFICATIONS E-111 ELECTRICAL PAVILION PLAN
- E-101 ELECTRICAL SITE PLAN E-501 ELECTRICAL DETAILS E-601 SCHEDULES AND DIAGRAMS Grand total: 6

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ADDITION

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RAYMOND S. HOLDENER Lic. No. 0402020062 KEY PLAN

REVISIONS

OCTOBER 23, 2025

ELECTRICAL SYMBOLS & **ABBREVIATIONS**

PROJECT NO.

 $\frac{\hbox{THIS IS A MASTER ABBREVIATIONS LIST. SOME ABBREVIATIONS MAY NOT}}{\hbox{APPLY TO THIS PROJECT.}}$ A, AMP AMPERE GFCI, GF, GROUND FAULT CIRCUIT INTERRUPTER ALTERNATING CURRENT GFI GFP GROUND FAULT PROTECTION AMERICANS WITH DISABILITIES ACT PVC GRC, GRMC GALVANIZED RIGID METALLIC CONDUIT PWR AMPERE FRAME HIGH INTENSITY DISCHARGE ARC FAULT CIRCUIT INTERRUPTER QTY HAND OFF AUTO HOA ABOVE FINISH FLOOR HP HORSE POWER AUTHORITY HAVING JURISDICTION HIGH VOLTAGE REC, RECP RECEPTACLE AMPERES INTERRUPTING CAPACITY HVAC HEATING, VENTILATION AND AIR ALUMINUM REQ, REQ'D REQUIRED CONDITIONING AMERICAN NATIONAL STANDARDS INSTITUTE HERTZ, FREQUENCY AMPERE TRIP INTERMEDIARY DISTRIBUTION FRAME AUTOMATIC TRANSFER SWITCH ISOLATED GROUND IG AMERICAN WIRE GAUGE JB, JBOX JUNCTION BOX BAS **BUILDING AUTOMATION SYSTEM** SPDT SPST BUILDING KCMIL, MCM THOUSAND CIRCULAR MILLS BUILDING MANAGEMENT SYSTEM KIRK KEY BRKR, BKR BREAKER KILOVOLT CONDUIT SWBD KILOVOLT-AMPERES KVA CIRCUIT BREAKER **SWGR** C/B, CB **KILOWATT** CATV CABLE TELEVISION SYM KILOWATT-HOUR CCTV CLOSED CIRCUIT TELEVISION TEL, TELE LCP LIGHTING CONTROL PANEL CANDELA LED LIGHT EMITTING DIODE TGB CKT CIRCUIT LFMC LIQUID TIGHT FLEXIBLE METALLIC CONDUIT CENTERLINE THD LOCKED ROTOR AMPS LRA CLG CEILING LIFE SAFETY COL COLUMN LONG, SHORT, INSTANTANEOUS & GROUND COMM COMMUNICATION LIGHTING LTG COLOR RENDERING INDEX LTS LIGHTS CURRENT TRANSFORMER LOW VOLTAGE COPPER METAL CLAD CABLE DECIBEL MINIMUM CIRCUIT AMPACITY DIRECT CURRENT MAIN CIRCUIT BREAKER DOWN VFD/VFC MCC MOTOR CONTROL CENTER VOIP DWG DRAWING MCCB MOLDED CASE CIRCUIT BREAKER **EXISTING** E, EX, (E)

PB

PH, Ø

PULL BOX

PHASE

ABBREVIATIONS - ELECTRICAL

EACH

ELEVATOR

FIRE ALARM

FLOOR

FOOT-CANDLE

FULL LOAD AMPS

FEED-THRU LUGS

FURNITURE

GENERATOR

GROUND

EM, EMERG EMERGENCY

ELEV

EMR

FLR

FSS

FTL

FURN

GEN

G, GND

ELECTRICAL CONTRACTOR

ELEVATOR MACHINE ROOM

ELECTICALLY OPERATED

EMERGENCY POWER OFF

FAULT CURRENT AVAILABLE

FAULT CURRENT RATING

FUSED SAFETY SWITCH

END OF LINE RESISTOR

ELECTRICAL METALLIC TUBING

ELECTRIC, ELECTRICAL

ENCLOSED CIRCUIT BREAKER

EQUIPMENT GROUNDING CONDUCTOR

ENERGY MANAGEMENT CONTROL SYSTEM

ENERGY REDUCTION MAINTENANCE SWITCH

MDF MAIN DISTRIBUTION FRAME MDP MAIN DISTRIBUTION PANEL MECH MECHANICAL MANUFACTURER MINERAL INSULATED MAIN LUGS ONLY MAXIMUM OVERCURRENT PROTECTION MANUAL TRANSFER SWITCH MEDIUM VOLTAGE MEGAWATT NORMALLY CLOSED N.C. NORMALLY OPEN NOT APPLICABLE NATIONAL ELECTRIC CODE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION NON-FUSED NATIONAL FIRE PROTECTION ASSOCIATION NFSS NON-FUSED SAFETY SWITCH NOT IN CONTRACT NOT TO SCALE NTS OVERCURRENT PROTECTIVE DEVICE

PROGRAMMABLE LOGIC CONTROLLER

ABBREVIATIONS - ELECTRICAL THIS IS A MASTER ABBREVIATIONS LIST. SOME ABBREVIATIONS MAY NOT APPLY TO THIS PROJECT. POWER OVER ETHERNET POTENTIAL TRANSFORMER POLYVINYL CHLORIDE

POWER

QUANTITY

REFLECTED CEILING PLAN

RIGID METALLIC CONDUIT

REMOTE TEST SWITCH

SAFETY SWITCH

SWITCHBOARD

SWITCHGEAR

SYMMETRICAL

TELEPHONE

TEMPORARY

UNDERGROUND

VOLT AMPERES

WIRE GUARD

WEATHERPROOF

TRANSFORMER

TYPICAL

VOLTS

WATT

XFMR

SHUNT TRIP

RIGID NON-METALLIC CONDUIT

SURGE PROTECTIVE DEVICE

SINGLE POLE DOUBLE THROW

SINGLE POLE SINGLE THROW

TELECOMMUNICATIONS GROUND BAR

TOTAL HARMONIC DISTORTION

UNDERWRITER'S LABORATORY

UNINTERRUPTABLE POWER SUPPLY

UNLESS NOTED OTHERWISE

VARIABLE FREQUENCY DRIVE

VOICE OVER INTERNET PROTOCOL

UNIVERSAL SERIAL BUS

REMOVE

SCALE

DESCRIPTION DRAWN BY APPROVED BY CHECKED BY

50188638

FURNISH AND INSTALL OCCUPANCY SENSORS WHERE REQUIRED PER

THE INTENDED AREAS. ALL DEVICES SHALL BE LOCATED PER THE

MANUFACTURER'S RECOMMENDATIONS WITH APPROVAL OF THE

ARCHITECT. UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS,

ADOPTED CODES AND AS INDICATED ON THE DRAWINGS. OCCUPANCY

SENSORS SHALL BE PROVIDED IN QUANTITIES TO ADEQUATELY COVER

OCCUPANCY SENSORS SHALL BE MANUFACTURED BY WATTSTOPPER,

TECHNOLOGY (PASSIVE INFRARED AND ULTRASONIC) SENSORS SHALL BE

SIMILAR TO WATTSTOPPER DW-100 SERIES; SENSOR SHALL BE SET FOR

RECOMMENDATIONS, AN ALTERNATE TECHNOLOGY (PASSIVE INFRARED

MANUFACTURER. POWER PACKS FOR CEILING MOUNTED OCCUPANCY

SENSORS SHALL BE SIMILAR TO WATTSTOPPER BZ-150. POWER PACKS

FOR ENCLOSED AREAS WILL TYPICALLY BE PROVIDED WITH A SINGLE

WATTSTOPPER RS SERIES FOR AUTO-ON OPERATION. DEVICE COLOR

SHALL BE CONFIRMED WITH ARCHITECT. DEVICE VOLTAGE AND LOAD

AND POWER WIRING, CONDUIT, RELAYS, COVER PLATES, JUNCTION

COMMISSION, SET, AND CONFIRM ALL ADJUSTABLE SETTINGS AND

ENSURE A TROUBLE FREE OCCUPANCY BASE LIGHTING CONTROL

THE CONTRACTOR SHALL COORDINATE THE EXACT LOCATIONS OF

ETC. TO PROVIDE ADEQUATE ILLUMINATION FOR SERVICES AND

11. ALL LIGHTING CONTACTORS SHALL BE SIMILAR OR EQUAL TO ASCO #917

OCCUPANCY SENSOR SYSTEM. EQUIPMENT LOCATED WITHIN PLENUMS

SHALL BE PLENUM RATED FOR INTENDED SPACE. CONTRACTOR SHALL

SENSOR PLACEMENT PER MANUFACTURER'S RECOMMENDATIONS TO

LIGHTING FIXTURES WITHIN MECHANICAL ROOMS AND OTHER BACK OF HOUSE AREAS WITH THE INSTALLED EQUIPMENT, DUCTWORK, PIPING,

BOXES, BACKBOXES, ETC. FOR A COMPLETE AND OPERATIONAL

OR COMBINATION TECHNOLOGY) MAY BE USED AS RECOMMENDED BY THE

POLE LINE VOLTAGE SWITCH FOR MANUAL OVERRIDE. WHERE INDICATED,

CAPACITY SHALL BE APPROPRIATE FOR INTENDED CIRCUIT. PROVIDE ALL

ACCESSORIES TO INCLUDE BUT NOT LIMITED TO POWER PACKS, CONTROL

LOW VOLTAGE MOMENTARY OVERRIDE SWITCHES SHALL BE SIMILAR TO

PUSH BUTTON ON AND VACANCY OFF. CEILING MOUNTED ULTRASONIC

HUBBELL, LEVITON, NOVITAS, OR LUTRON PROVIDED THEY MEET OR

EXCEED THE FOLLOWING REQUIREMENTS. WALL MOUNTED DUAL

SENSORS SHALL BE SIMILAR TO WATTSTOPPER WT SERIES FOR

INTENDED AREA COVERAGE. IN AREAS WHERE NO ARCHITECTURAL

CEILING IS PRESENT, SUSPENDED OCCUPANCY SENSORS SHALL BE

MOUNTED SUCH THAT THE BOTTOM OF THE SENSOR LENS IS AT THE

SAME HEIGHT AS THE LIGHTING FIXTURES AND OTHER OVERHEAD

DEVICES IN THE AREA. SHOULD THE MOUNTING HEIGHT OF THE

ULTRASONIC SENSOR EXCEED THE MANUFACTURER'S

LIGHTING CONTINUED:

SYSTEM.

MAINTENANCE.

SERIES, NEMA '1' ENCLOSURE.

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ELECTRICAL SPECIFICATIONS

50188638

PROJECT NO.

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE AND ALL APPLICABLE LOCAL CODES AS ADOPTED AND MODIFIED BY THE LOCAL CODE AUTHORITY. REFER TO THE ARCHITECTURAL DOCUMENTS FOR ADDITIONAL CODE AND LOCAL CODE AUTHORITY REQUIREMENTS. ALL TRADES SHALL COORDINATE ON PLACEMENT OF NEW EQUIPMENT. REFER TO THE TENANT GENERAL NOTES AND TENANT DEMOLITION NOTES FOR ADDITIONAL REQUIREMENTS.
- ANY BASE BUILDING WORK LETTER, TENANT SPECIFICATIONS, OR ARCHITECTURAL GENERAL CONDITIONS SHALL GOVERN ALL PRODUCTS AND THE EXECUTION OF WORK.

GENERAL:

- UNLESS NOTED OTHERWISE ALL EXISTING ELECTRICAL FIXTURES AND DEVICES SHALL REMAIN (THOSE INSTALLED UNDER PREVIOUS
- ELECTRICAL PLANS ARE DIAGRAMMATIC ONLY; REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS, DIMENSIONS, AND METHOD OF MOUNTING FOR LIGHTING FIXTURES, FIRE ALARM DEVICES, CEILING DEVICES, RECEPTACLES, SWITCHES, EXIT SIGNS, TELEPHONE, AND DATA
- CONTRACTOR SHALL VISIT SITE PRIOR TO BID TO DETERMINE EXACT
- 6. ALL WORK SHALL BE PERFORMED IN SUCH A MANNER TO CREATE MINIMAL POWER OUTAGES FOR THE OWNER. ALL SUCH OUTAGES SHALL BE CAREFULLY COORDINATED WITH THE OWNER SO THAT POWER TO ESSENTIAL SERVICES CAN BE MAINTAINED.
- CONTRACTOR SHALL GUARANTEE HIS WORKMANSHIP AND ALL MATERIALS AND EQUIPMENT FOR A PERIOD OF ONE YEAR IN WRITING COMMENCING UPON ACCEPTANCE OF INSTALLATION BY OWNER.
- CONTRACTOR SHALL MAINTAIN ACCESS, SAFETY, AND CLEANLINESS IN AREA THAT AFFECTS THE FLOW OF PEDESTRIAN TRAFFIC IN THE BUILDING, DUE TO RENOVATION.
- THE CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS AND PAY ALL GOVERNMENT SALES TAXES, FEES, AND OTHER COSTS, INCLUDING UTILITY CONNECTIONS OR EXTENSIONS, IN CONNECTION WITH HIS WORK; FILE ALL NECESSARY PLANS, PREPARE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS OF ALL GOVERNMENTAL DEPARTMENTS HAVING JURISDICTION; OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION OF HIS WORK AND DELIVER SAME TO THE ARCHITECT BEFORE REQUEST FOR ACCEPTANCE AND FINAL
- 10. ELECTRICAL CONTRACTOR SHALL REFER TO MECHANICAL/PLUMBING DRAWINGS FOR LOCATION OF MECHANICAL/PLUMBING EQUIPMENT. ELECTRICAL CONTRACTOR SHALL COORDINATE AND VERIFY VOLTAGE/PHASE INDICATED ON ELECTRICAL DRAWINGS WITH MECHANICAL/PLUMBING EQUIPMENT TO BE PROVIDED PRIOR TO INSTALLING ELECTRICAL SERVICE. SHOULD A DISCREPANCY BE NOTED BETWEEN EQUIPMENT TO BE SUPPLIED AND WHAT IS INDICATED ON THE DRAWINGS, CONTRACTOR SHALL OBTAIN WRITTEN DIRECTIONS FROM ENGINEER BEFORE PROCEEDING WITH WORK.
- PLUMBING/FIRE PROTECTION CONTRACTORS ON ANY REQUIRED CONTROL CIRCUITS INCLUDING "LINE" AND "LOW" VOLTAGE POWER REQUIREMENTS. THE ELECTRICAL CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING ANY NECESSARY "LINE" OR "LOW" VOLTAGE WIRING AND CONDUIT NOT PROVIDED UNDER THE MECHANICAL/PLUMBING/FIRE PROTECTION SCOPE.

11. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE MECHANICAL

- 12. CONTRACTOR SHALL PROVIDE BRANCH CIRCUIT WIRING, CONDUIT, AND OVERCURRENT PROTECTION MEETING SUBMITTED AND APPROVED EQUIPMENTS RESPECTIVE NAMEPLATE DATA AT NO ADDITIONAL COST (MAXIMUM OVERCURRENT PROTECTION (MOP) AND MINIMUM CIRCUIT
- 13. PIPING, DUCTWORK, LIGHTING FIXTURES, CABLE TRAYS, CONDUIT, CABLES, WIRING, RACEWAYS, JUNCTION BOXES, INSULATION, AND OTHER ITEMS LOCATED WITHIN THE RETURN AIR CEILING PLENUM SHALL BE COORDINATED, ARRANGED AND INSTALLED TO NOT OBSTRUCT OR OTHERWISE ADVERSELY AFFECT THE FLOW OF RETURN AIR FROM THE OCCUPIED SPACE, THROUGH THE RETURN AIR PATH, BACK TO THE RESPECTIVE HVAC UNIT. IN ALL AREAS OF THE RETURN AIR CEILING PLENUM, INCLUDING CONGESTED AREAS OF THE CEILING PLENUM, THE RETURN AIR VELOCITY SHALL NOT EXCEED 500 FPM. REFER TO THE MECHANICAL DRAWINGS FOR ADDITIONAL RETURN AIR PATH
- 14. ELECTRICAL EQUIPMENT REQUIRING ACCESS SUCH AS J-BOXES OR CONNECTIONS TO EQUIPMENT SHALL NOT BE INSTALLED ABOVE INACCESSIBLE CEILINGS OR BEHIND WALLS. CONTRACTOR SHALL REROUTE ANY EXISTING CONDUIT AND J-BOXES INCLUDING CONNECTIONS TO ELECTRICAL EQUIPMENT TO AN ACCESSIBLE LOCATION WHETHER INDICATED ON THE DRAWINGS OR NOT. EXISTING CONDUIT AND J-BOXES ABOVE INACCESSIBLE CEILINGS/WALLS WHICH CANNOT BE RELOCATED SHALL BE ABANDONED WITH ALL WIRING REMOVED.
- 15. CONTRACTOR IS TO X-RAY SLABS PRIOR TO PENETRATING STRUCTURE. X-RAYS, CONCRETE CUTTING, AND CORE DRILLING SHALL TAKE PLACE AFTER REGULAR BUSINESS HOURS AND SCHEDULED WITH BUILDING
- 16. AFTER FINAL INSTALLATION, CONTRACTOR WILL BE RESPONSIBLE FOR FILLING ALL VOIDS AROUND CONDUIT PENETRATIONS AND OTHER CORE DRILLS/OPENINGS IN SLAB AND WALLS WITH A FIRE SAFING REMOVABLE MASTIC. FILL SHALL EQUAL FIRE RATING OF FLOOR OR WALL AND BE COMPATIBLE WITH CONSTRUCTION MATERIALS.
- 17. CONTRACTOR SHALL DETERMINE THE NUMBER AND SIZE OF CORE DRILLS NECESSARY FOR INDICATED WORK AND SHALL DETERMINE RECOMMENDED LOCATION AND PROVIDE TO STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL PRIOR TO COMMENCING WORK.
- 18. CONTRACTOR SHALL MAINTAIN INTEGRITY OF VAPOR BARRIER AND INSULATION FOR ALL ELECTRICAL WORK AND DEVICES ON EXTERIOR AND
- 19. FURRING DEPTH ON COLUMNS, SHAFT WALLS, AND FIRE-RATED WALLS IS LIMITED. THE CONTRACTOR SHALL COORDINATE THE LOCATION OF COLUMN AND WALL MOUNTED EQUIPMENT/DEVICES WITH AVAILABLE MOUNTING DEPTH AND WITH THE REQUIREMENTS OF FIRE-RATED WALLS AND SHAFT ENCLOSURES. THE CONTRACTOR SHALL ADJUST THE POSITION OF THE EQUIPMENT/DEVICE TO AN ALTERNATE WALL OR SIDE OF THE SAME COLUMN AS REQUIRED TO ACCOMMODATE JOB SITE CONDITIONS AT NO ADDITIONAL COST.
- NEW AND MATCH BUILDING STANDARD(S) FOR MANUFACTURER AND TYPE OF EQUIPMENT FOR LIGHTS, EXIT SIGNS, FIRE ALARM DEVICES, WIRING DEVICES, LIGHTING\POWER PANELS, TRANSFORMERS, DISCONNECTS, ETC. WHERE NO BUILDING STANDARD EXISTS FOR ELECTRICAL EQUIPMENT, EQUIPMENT SHALL BE NEW AND U.L. LISTED AS MANUFACTURED BY CUTLER HAMMER, GENERAL ELECTRIC, SQUARE D, OR SIEMENS. MODIFICATIONS OR ADDITIONS TO EXISTING EQUIPMENT SHALL MATCH EXISTING TO MAINTAIN ANY U.L. ASSEMBLY LISTING. CONTRACTOR WILL BE RESPONSIBLE FOR CONTACTING AND COORDINATING WITH BUILDING OWNER ON DETERMINING ANY STANDARDS. THE FAULT CURRENT RATING OF ALL EQUIPMENT ADDED TO THE ELECTRICAL DISTRIBUTION SHALL MEET THE AVAILABLE FAULT

20. ALL MATERIALS AND EQUIPMENT FURNISHED FOR THIS PROJECT SHALL BE

- 21. SUBMITTALS SHALL INCLUDE PANELBOARDS, DISCONNECTS, MOTOR STARTERS, WIRING DEVICES, CONTACTORS, PDU'S, UPS'S, LIGHTING FIXTURES, TRANSFORMERS, CONDUCTORS, RELAY PANELS, TVSS, AND FIRE ALARM SYSTEM. SUBMITTAL DATA SHALL CONTAIN ONLY INFORMATION RELEVANT TO THE PARTICULAR EQUIPMENT OR MATERIALS TO BE FURNISHED FOR THIS SPECIFIC PROJECT. CATALOG SHEETS WHICH DESCRIBE SEVERAL DIFFERENT ITEMS IN ADDITION TO THOSE ITEMS TO BE USED SHALL NOT BE SUBMITTED UNLESS RELEVANT INFORMATION IS CLEARLY MARKED. SIMILAR EQUIPMENT SHALL BE SUBMITTED IN ONE COMPLETE SUBMITTAL PACKAGE (I.E. ALL PANELBOARDS, ALL LIGHTING FIXTURES, ETC.). TOTAL NUMBER OF SUBMITTALS SHALL BE KEPT TO A MINIMUM.
- 22. CONTRACTOR SHALL EXTEND AND RELOCATE EXISTING BASE BUILDING DEVICES (I.E. FIRE ALARM DEVICES, EXIT SIGNS, LIGHTS, ETC) INTO NEW TENANT SPACE AND MOUNT TO PARTITIONS, CEILINGS, ETC. AS REQUIRED.
- 23. NEW REMOVABLE DIRECTORY CARDS SHALL BE PROVIDED AT COMPLETION OF TENANT WORK WITH TYPED DESIGNATIONS INDICATING NAME, VOLTAGE, PHASE, ETC. AND FINAL CIRCUITING OF PANELBOARDS DEPICTING EACH POLE POSITION IN A TWO COLUMN FASHION. ROOM NUMBERS SHALL BE USED WHENEVER POSSIBLE ON CIRCUIT DESIGNATIONS. WHEN NEW CARDS ARE TYPED, EXISTING INFORMATION ON THE EXISTING CARDS THAT REMAINS APPLICABLE SHALL BE TRANSFERRED TO NEW CARDS, REGARDLESS OF DRAWING DESIGNATIONS SUCH AS "EXISTING LOAD".
- 24. CONTRACTOR SHALL TRACE ALL CIRCUITS INDICATED ON THE DRAWINGS USED IN THE LEASE AREA AND INDICATED AS "SPARES" ON PANEL SCHEDULES AND CONFIRM CIRCUITS ARE DEDICATED TO RENOVATED LEASE AREA AND NOT SERVING OTHER EXISTING OCCUPIED SPACES. CONTRACTOR SHALL NOT USE CIRCUITS PRESENTLY BEING USED BY OTHER OCCUPIED SPACES SO AS TO MINIMIZE ANY POTENTIAL INTERRUPTION OF SERVICE TO THAT LESSEE.

GENERAL CONTINUED:

- 25. AFTER COMPLETION OF WORK, CONTRACTOR SHALL OPEN (REMOVE AND REINSTALL COVERS UPON INSPECTION) ALL ELECTRICAL EQUIPMENT THAT WAS AFFECTED BY WORK OF THIS PROJECT FOR VISUAL INSPECTION TO INCLUDE BUT NOT LIMITED TO VISUALLY CONFIRM TERMINATIONS, CLEANLINESS, COLOR CODING, CIRCUIT IDENTIFICATION, GROUNDING, AND WIRING.
- 26. CONTRACTOR SHALL VACUUM CLEAN ALL DIRT AND DEBRIS FROM ELECTRICAL EQUIPMENT (E.G., OUTLETS, SWITCHES, DISCONNECTS, MOTOR STARTERS, PANELBOARDS, TRANSFORMERS, ETC.).
- 27. DURING THE PROGRESS OF THE WORK AND UPON COMPLETION, TESTS SHALL BE MADE AS SPECIFIED HEREIN AND AS REQUIRED BY AUTHORITIES HAVING JURISDICTION INCLUDING INSPECTORS, OWNER, ARCHITECT, AND ENGINEER. TESTS SHALL BE CONDUCTED BY THE CONTRACTOR AS PART OF THE WORK OF THIS DIVISION AND SHALL INCLUDE THE SERVICES OF QUALIFIED PERSONNEL AS WELL AS ALL EQUIPMENT, APPARATUS, AND SERVICES REQUIRED. TESTS SHALL INCLUDE CONDUCTOR INSULATION RESISTANCE OF CONDUCTOR #6 AWG AND LARGER, OPERATION OF FIRE ALARM SYSTEM, OPERATION OF ANY ENERGY MANAGEMENT SYSTEM. OPERATION OF ALL MOTORS WITH DEMONSTRATION OF CONTROLS AND INTERLOCKS, OPERATION OF ALL ELECTRICAL EQUIPMENT AND FOOD SERVICE APPLIANCES, OPERATION OF STANDBY LIGHTING, OPERATION OF ALL DRY TYPE TRANSFORMERS BY RECORDING SECONDARY VOLTAGE TO ASSURE PROPER TAP SETTINGS, AND OPERATION OF ANY DIMMING SYSTEM.
- 28. CONTRACTOR SHALL PROVIDE ALTERNATE PRICE TO THERMOGRAPHIC TEST USING AN INFRARED TEMPERATURE SCANNING UNIT ALL ELECTRICAL EQUIPMENT AFFECTED BY WORK OF PROJECT TO TENANT'S REPRESENTATIVE. SCOPE SHALL INCLUDE CORRECTING ANY DEFICIENCIES AND PROVIDING REPORT TO TENANT'S REPRESENTATIVE.

DISTRIBUTION EQUIPMENT AND OVERCURRENT PROTECTION:

- INSTALL 1/16" THICK ENGRAVED MELAMINE PLASTIC-LAMINATE SIGN ON EACH NEW UNIT OF ELECTRICAL EQUIPMENT ASSOCIATED WITH THE TENANT RENOVATION. PROVIDE SINGLE LINE OF TEXT, 1/2" HIGH LETTERING ON 1-1/2" HIGH SIGN WITH WHITE LETTERING ON A FIELD OF BLACK. PROVIDE TEXT MATCHING DESIGNATION ON THE CONTRACT DOCUMENTS. PROVIDE SIGNS FOR EACH UNIT OF PANELBOARDS, ELECTRICAL CABINETS, ENCLOSURES, MOTOR STARTERS, DISCONNECT SWITCHES, ETC. FASTENERS SHALL BE SELF-TAPPING STAINLESS STEEL SCREWS, EXCEPT USE CONTACT-TYPE PERMANENT ADHESIVE WHERE SCREWS CANNOT OR SHOULD NOT PENETRATE SUBSTRATE.
- PANELBOARDS SHALL BE STANDARD CATALOG ITEMS COMPLYING WITH NEC, UL, AND NEMA STANDARDS AND BEAR THE LABEL OF UNDERWRITER'S LABORATORIES. PROVIDE COPPER FULL-SIZE PHASE AND NEUTRAL BUSSES WHICH HAVE BEEN RATED IN ACCORDANCE WITH UL 67 HEAT-RISE TESTS. BUS BAR CONNECTIONS SHALL BE COLUMN CONSECUTIVE PHASE-SEQUENCE TYPE. BOTH 120/208 AND 277/480 VOLT PANELBOARDS SHALL HAVE BUS BARS DRILLED AND EQUIPPED WITH ALL HARDWARE FOR BOLT-ON MOLDED CASE CIRCUIT BREAKERS. PROVIDE A BOLTED ON COPPER GROUNDING BUS WITH MAIN LUG(S). PANELBOARD SHORT CIRCUIT BRACING AND BREAKER INTERRUPTING CAPACITY SHALL BE AS INDICATED ON THE DRAWINGS BUT SHALL NOT BE LESS THAN 14,000 AMPERES RMS SYMMETRICAL FOR 277/480 VOLT SERVICE AND 10,000 AMPERES RMS SYMMETRICAL FOR 120/208 VOLT SERVICE. PROVIDE MANUFACTURER'S STANDARD #16-GAGE (MINIMUM) GALVANEALED OR GALVANIZED SHEET STEEL CABINET WITH ENAMEL FRONT "HINGED DOOR IN DOOR" COVERS, MASTER-KEYED DOOR LOCKS, MULTIPLE KNOCKOUTS, WIRING GUTTERS, AND TYPED CIRCUIT DIRECTORY. PANELBOARD MAIN LUGS CONNECTED TO #6 AWG OR LARGER COPPER CONDUCTORS SHALL BE FURNISHED TO ACCOMMODATE COMPRESSION CONNECTORS. ADEQUATE WIRING SPACE SHALL BE PROVIDED TO ACCOMMODATE THE COMPRESSION CONNECTORS. NEW TENANT RENOVATION PANELBOARDS SHALL MATCH EXISTING PANELBOARDS PROVIDED THE ABOVE MINIMUM REQUIREMENTS HAVE BEEN MET. IT WOULD BE AN ACCEPTABLE OPTION FOR THE CONTRACTORS TO USE ALUMINUM BUS WITHIN PANELBOARDS IN LIEU OF COPPER BUS WITHIN PANELBOARDS. THE CONTRACTORS SHALL BE RESPONSIBLE FOR COORDINATING THE ADDITIONAL SPACE REQUIRED DUE TO THE ALUMINUM EQUIPMENT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTLY PHASING AND BALANCING THE CIRCUITS IN THE PANELBOARDS. PROVIDE CIRCUITS WITH DEDICATED NEUTRAL CONDUCTORS AS INDICATED ON THE DRAWINGS. PROVIDE CIRCUITS WITH SHARED NEUTRAL CONDUCTORS AS INDICATED ON THE DRAWINGS. NEUTRAL CONDUCTORS SHALL NOT BE COMBINED/SHARED WHERE NOT INDICATED ON THE DRAWINGS. WHERE NEUTRAL CONDUCTORS ARE INDICATED TO BE SHARED, THE PHASE CONDUCTORS SHALL BE ON OPPOSITE PHASES. PROVIDE JUNCTION BOXES AS REQUIRED FOR THE QUANTITY OF WIRES, CONNECTORS, AND DEVICES CONTAINED THEREIN WHERE COMBINING HOMERUNS.
- DISCONNECT SWITCHES INDICATED AND/OR SPECIFIED FOR 480 VOLT CIRCUITS SHALL BE 600-VOLT HORSEPOWER AND I2T RATED, DIRECT DRIVE, QUICK-MAKE, QUICK-BREAK TYPE SWITCHES WITH SPRING-REINFORCED WIRE GRIPS AND SELF-ALIGNING SWITCH CONTACTS SWITCHES SHALL BE ENCLOSED IN A HEAVY SHEET METAL ENCLOSURE WITH HINGED INTERLOCKING COVER WHICH SHALL PREVENT THE COVER FROM BEING OPENED WHEN SWITCH IS "ON". PROVIDE REJECTION-TYPE FUSE CLIPS FOR CARTRIDGE FUSES IN SWITCHES AS INDICATED AND ACCOMMODATION FOR R FUSES. SWITCHES SHALL BE NEMA TYPE HD. SWITCHES EXPOSED TO MOISTURE ON THE EXTERIOR OR INTERIOR OF THE BUILDING SHALL HAVE NEMA 4 STAINLESS STEEL ENCLOSURES (WATER AND DUST TIGHT). FUSED DISCONNECT SWITCHES SHALL BE SUBSTITUTED FOR NON-FUSED SWITCHES WHERE REQUIRED BY MANUFACTURER, LOCAL INSPECTING AUTHORITY, AND/OR FUSE PROTECTION IS INDICATED ON MOTOR NAMEPLATE AT NO ADDITIONAL COST. DISCONNECT SWITCHES FOR 208-VOLT CIRCUITS SHALL BE SIMILAR EXCEPT RATED 240-VOLT NEMA TYPE HD. ALL SWITCHES SHALL HAVE PROVISION FOR PADLOCKING.
- TRANSFORMERS SHALL BE DRY TYPE 60 HERTZ, 480 VOLT, 3 PHASE, DELTA TO 120/208 VOLT, 3 PHASE, 4 WIRE, GROUNDED WYE, NEMA TP-1. TEMPERATURE CLASSIFICATION SHALL HAVE A 220°C INSULATION SYSTEM. WINDING TEMPERATURE RISE SHALL NOT EXCEED 150°C IN A 40° C AMBIENT. SOUND RATING SHALL BE IN ACCORDANCE WITH ANSI-C89.2. BIL RATINGS SHALL BE IN ACCORDANCE WITH ANSI AND NEMA STANDARDS. TRANSFORMERS SHALL HAVE FOUR 2-1/2% FULL LOAD TAPS BELOW RATED VOLTAGE AND TWO 2-1/2% FULL LOAD TAPS ABOVE RATED VOLTAGE. USE COPPER BODIED COMPRESSION CONNECTORS FOR TERMINATING CABLES TO TRANSFORMER LUGS. INTERNAL VIBRATION ISOLATION MOUNTS SHALL BE PROVIDED. TRANSFORMERS SHALL BE GROUNDED PER NEC ARTICLE 250 TO STRUCTURAL STEEL IF PRESENT OR GROUND RISER IF STEEL IS NOT PRESENT. MOUNT TRANSFORMERS ON A FOUR INCH HIGH CONCRETE PAD APPROXIMATELY ONE INCH LARGER ALL AROUND THAN THE TRANSFORMER PROVIDED. SUSPEND TRANSFORMERS AS INDICATED ON THE CONTRACT DOCUMENTS AND WHERE REQUIRED DUE TO SPACE CONSTRAINTS. TRANSFORMERS SHALL BE SUSPENDED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND IN ACCORDANCE WITH THE STRUCTURAL DOCUMENTS.
- EACH MOTOR STARTER SHALL BE PROPERLY DESIGNED AND COORDINATED TO SUIT THE CHARACTERISTICS OF THE MOTOR IT CONTROLS AND THE DRIVEN EQUIPMENT. STARTERS PROVIDED WITH AUTOMATIC CONTROLS SHALL BE CAPABLE OF MAKING AS MANY FREQUENT STARTS AND STOPS AS THE CONTROL DEVICES MAY DEMAND. THE HORSEPOWER RATING OF EACH STARTER SHALL NOT BE LESS THAN THE RATING OF THE MOTOR IT CONTROLS. STARTERS SHALL BE IN ACCORDANCE WITH NEMA STANDARDS. ALL CONTROLLERS SHALL BE MOLDED CASE THREE POLE (TWO POLE FOR SINGLE PHASE) MAGNETIC ONLY CIRCUIT BREAKERS OR DISCONNECT SWITCHES IN COMBINATION WITH MOTOR STARTERS AS SHOWN ON THE DRAWINGS. INTERRUPTING RATING OF COMBINATIONS SHALL BE A MINIMUM OF 22,000 AMPERES RMS SYMMETRICAL AT 480 VOLTS. FUSED SWITCH COMBINATION STARTERS SHALL BE SUPPLIED FOR MOTORS WHERE REQUIRED BY MANUFACTURER, INSPECTING AUTHORITY, AND/OR FUSE PROTECTION IS INDICATED ON MOTOR NAMEPLATE. WHERE INDICATED ON THE DRAWINGS FOR MAGNETIC MOTOR STARTERS ONLY, REQUIREMENTS SPECIFIED HEREIN SHALL APPLY, HOWEVER, WITHOUT CIRCUIT BREAKER OR DISCONNECT. EACH MOTOR CONTROLLER CIRCUIT BREAKER/DISCONNECT SHALL BE CAPABLE OF BEING PADLOCKED IN THE "OFF" POSITION WITH UP TO THREE PADLOCKS. MOTOR CONTROLLER ENCLOSURES SHALL BE NEMA TYPE 1 GENERAL PURPOSE UNLESS EXPOSED TO THE WEATHER. MOTOR CONTROLLERS EXPOSED TO WEATHER SHALL BE NEMA TYPE 4 WATERTIGHT. GENERALLY, HOLDING COILS IN FULL VOLTAGE MAGNETIC MOTOR CONTROLLERS SHALL BE SUITABLE FOR USE ON 120 VOLT, AC CONTROL VOLTAGE. EACH CONTROLLER SUPPLYING LOADS ABOVE 120 VOLTS NOMINAL SHALL HAVE A CONTROL POWER TRANSFORMER WITH PRIMARY FUSES AND ONE SECONDARY FUSE IN THE UNGROUNDED PHASE. THE CONTROL POWER TRANSFORMER SHALL BE PROPERLY SIZED TO MEET THE REQUIREMENTS OF THE MECHANICAL/PLUMBING/ FIRE PROTECTION EQUIPMENT SERVED. ALL THREE PHASE FULL VOLTAGE MAGNETIC MOTOR CONTROLLERS SHALL HAVE OVERLOAD PROTECTION IN ALL THREE PHASES. ALL SINGLE PHASE FULL VOLTAGE MAGNETIC MOTOR CONTROLLERS SHALL HAVE OVERLOAD PROTECTION IN UNGROUNDED PHASES. ALL INTERNAL WIRING SHALL BE COPPER. EACH MOTOR CONTROLLER SHALL BE EQUIPPED WITH A 120 VOLT RED RUNNING PILOT LIGHT AND A HAND-OFF-AUTOMATIC SWITCH. ALL REQUIREMENTS OF THE MECHANICAL/PLUMBING/FIRE PROTECTION CONTRACTORS AND AUTOMATIC OPERATIONAL CONTROL SEQUENCES OF THEIR RESPECTIVE DIVISIONS SHALL BE MET. PILOT LIGHTS WILL BE OPERATED BY AN INTERLOCK ON THE MOTOR CONTROLLER AND NOT PLACED ACROSS THE OPERATING COIL. IN ADDITION TO THE "HOLDING INTERLOCK AND PILOT LIGHT INTERLOCKS". EACH CONTROLLER SHALL HAVE TWO EXTRA INTERLOCK CONTACTS WHICH SHALL BE FIELD CONVERTIBLE TO NORMALLY OPEN OR NORMALLY CLOSED. TERMINAL BLOCKS SHALL BE PROVIDED FOR REMOTE CONTROL FUNCTIONS AS REQUIRED BY THE FIRE ALARM SUBCONTRACTOR AND AUTOMATIC TEMPERATURE CONTROL SUBCONTRACTOR.

<u>DISTRIBUTION EQUIPMENT AND OVERCURRENT PROTECTION CONTINUED:</u>

SPECIFICATIONS - ELECTRICAL

- CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER SIZING OF ALL MOTOR OVERLOAD DEVICES (HEATERS) IN STARTERS BASED ON ACTUAL NAMEPLATE RATINGS ON THE MOTORS BEING INSTALLED.
- "MOLDED CASE 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 FROM THE HANDLE SO THAT THE CONTACTS CANNOT BE HELD CLOSED AGAINST SHORT CIRCUITS AND ABNORMAL CURRENTS. TRIPPING DUE TO OVERLOAD OR SHORT CIRCUIT SHALL BE CLEARLY INDICATED BY THE HANDLE AUTOMATICALLY ASSUMING A POSITION MIDWAY BETWEEN THE MANUAL ON AND OFF POSITIONS. ALL LATCH SURFACES SHALL BE GROUND AND POLISHED. POLES SHALL BE SO CONSTRUCTED THAT THEY CAN OPEN, CLOSE AND TRIP SIMULTANEOUSLY. BREAKERS SHALL BE COMPLETELY ENCLOSED IN A MOLDED CASE WITH THE AMPERE RATINGS CLEARLY VISIBLE. CONTACTS SHALL BE NON-WELDING SILVER ALLOY. BREAKERS SHALL BE UL LISTED FOR USE WITH 75°C AND 90°C INSULATED WIRE. CIRCUIT BREAKER RATINGS, MODIFICATIONS, ETC., SHALL BE AS INDICATED ON THE DRAWINGS. MOLDED-CASE CIRCUIT BREAKERS SHALL BE AS FOLLOWS:
 - THERMAL MAGNETIC TYPE THAT PROVIDES INVERSE TIME-DELAY OVERLOAD AND INSTANTANEOUS SHORT CIRCUIT PROTECTION BY MEANS OF A THERMAL MAGNETIC ELEMENT
- AMBIENT COMPENSATED STANDARD THAT PROVIDES INVERSE TIME-DELAY OVERLOAD AND INSTANTANEOUS SHORT CIRCUIT PROTECTION BY MEANS OF A THERMAL MAGNETIC ELEMENT. COMPENSATION SHALL ALLOW THE BREAKER TO CARRY RATED CURRENT BETWEEN 25°C AND 50°C WITH TRIPPING CHARACTERISTICS THAT ARE APPROXIMATELY THE SAME
- THROUGHOUT THIS TEMPERATURE RANGE. MULTI-POLE BREAKERS SHALL BE OF THE COMMON TRIP TYPE HAVING A SINGLE OPERATING HANDLE, EXCEPT THAT 240-VOLT MULTI-POLE BREAKERS SMALLER THAN 50-AMPERES MAY CONSIST OF FACTORY-CONNECTED, SINGLE-POLE BREAKERS WITH A **COMMON TRIP HANDLE** E. ALL CIRCUIT BREAKERS SHALL BE FULL SIZE AND BOLT-ON."
- SINGLE, TWO OR THREE POLE MOLDED CASE CIRCUIT BREAKERS INDICATED FOR SHUNT TRIP SHALL BE UL LISTED, 60 HZ, FACTORY INSTALLED, AND HAVE A 120 VOLT AC COIL IN ADDITION TO THE REQUIREMENTS INDICATED HEREINBEFORE. TRIP-COIL SHALL DE-ENERGIZE WHEN BREAKER OPENS. SHUNT TRIP BREAKERS SHALL TAKE AN EXTRA POLE POSITION WITHIN PANELBOARDS AND MAY BE EITHER LEFT OR RIGHT MOUNTED. CONTRACTOR SHALL PROVIDE THE 120 VOLT CIRCUIT TO POWER THE SHUNT TRIP CIRCUIT IF NECESSARY. THE SHUNT TRIP CIRCUIT ACTIVATION DEVICE SHALL BE A MOMENTARY CLOSE CONTACT TYPE. CONTRACTOR SHALL COORDINATE ALL ACCESSORIES REQUIRED FOR A COMPLETE AND FUNCTIONAL SHUNT TRIP CIRCUIT. CONTRACTOR MAY USE OTHER CONTROL VOLTAGES UPON ENGINEERS
- 10. WHERE POSSIBLE, MOLDED CASE CIRCUIT BREAKERS WITHIN PANELBOARDS SHALL BE INSTALLED IN THE ORDER INDICATED IN THE PANEL SCHEDULES.
- 11. ALL FUSES SHALL BE DUAL-ELEMENT LOW PEAK CLASS RK1 AS MANUFACTURED BY BUSSMAN OR LITTELFUSE. FUSE VOLTAGE RATING SHALL BE 250 VOLT FOR 120/208 VOLT SYSTEM AND 600 VOLT FOR 277/480 VOLT SYSTEM.

RACEWAYS AND CONDUCTORS:

- ALL CONDUCTORS SHALL BE COPPER. ALL CONDUCTORS #8 AWG AND LARGER SHALL BE STRANDED. CONDUCTOR SIZES #10 AWG, #12 AWG, AND #14 AWG SHALL BE SOLID. ALL CONDUCTORS SHALL BE STANDARD CODE TYPE "THW", "THHN", "THWN" OR "XHHW" INSULATED EXCEPT AS REQUIRED OTHERWISE PER THE NEC. ALL CONDUCTORS SHALL BE DURABLY MARKED ON THE SURFACE TO INDICATE RATED VOLTAGE INSULATION CODE, USE, MANUFACTURER, AND AWG SIZE. THE COLOR CODING SHALL BE CONTINUOUS AND SHALL EXTEND TO PANELS AND MOTORS. WHERE INSULATION COLOR CODING IS NOT AVAILABLE FOR CONDUCTORS #8 AWG AND LARGER, USE COLOR CODED PLASTIC TAPE AT EACH CONDUCTOR TERMINATION. ALL #8 AWG AND SMALLER CONDUCTORS SHALL BE SPLICED WITH PREINSULATED SPRING CONNECTORS. CONNECTORS SHALL BE SCOTCHLOCK, BUCHANAN B-CAP, OR APPROVED EQUAL. ALL #6 AWG AND LARGER COPPER CONDUCTORS TERMINATED ON LUGS OF PANELBOARDS SHALL BE TERMINATED WITH COPPER U.L. LISTED COMPRESSION CONNECTORS SUCH AS THOMAS & BETTS #54100 OR #54200 SERIES CONNECTORS. ALL #6 AWG AND LARGER COPPER CONDUCTOR TWO WAY SPLICES SHALL BE MADE WITH BARREL CONNECTORS REQUIRING COMPRESSION ON EACH END. ALL #6 AWG AND LARGER COPPER CONDUCTOR TAPPING AND PIGTAILING SHALL BE MADE USING "C" TYPE COMPRESSION TAPS SUCH AS THOMAS AND BETTS #54700 SERIES CONNECTORS. CONNECTOR SHALL BE U.L. LISTED FOR TYPE OF CONDUCTORS TO BE TAPPED. THE MANUFACTURERS RECOMMENDED INSTALLING TOOLS WITH REQUIRED NUMBER OF COMPRESSIONS SHALL BE USED FOR ALL TERMINATIONS.
- 2. AT THE CONTRACTOR'S OPTION, ALUMINUM CONDUCTORS MAY BE USED IN LIEU OF COPPER CONDUCTORS FOR ALL CIRCUITS PROTECTED BY 100 AMPS AND GREATER OVER CURRENT PROTECTION DEVICES EXCEPT FOR MOTOR LOADS INCLUDING BUT NOT LIMITED TO PUMPS, FANS, AND AIR HANDLING UNITS OR AS INDICATED ON THE DRAWINGS. ALL CIRCUITS PROTECTED BY OVER CURRENT PROTECTION DEVICES LESS THAN 100 AMPS ARE REQUIRED TO BE COPPER. THE USE OF ALUMINUM FOR CIRCUITS PROTECTED BY OVER CURRENT PROTECTION DEVICES LESS THAN 100 AMPS WILL NOT BE ACCEPTABLE. IF THIS OPTION IS SELECTED BY THE CONTRACTOR, THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE ADDITIONAL WORK AND SPACE REQUIRED FOR THE LARGER OR ADDITIONAL PARALLEL SETS OF CONDUIT AND CONDUCTORS REQUIRED TO MEET THE COPPER CONDUCTOR BASIS OF DESIGN CURRENT CARRYING CAPACITY. IN ADDITION, THE CONTRACTOR SHALL PROVIDE ALL THE NECESSARY ADDITIONAL HANGERS, CORE DRILLS, SLEEVES, FIRE PROOFING, ETC. REQUIRED TO ACCOMMODATE THE OPTIONAL ALUMINUM CONDUCTORS AND BUSSING AS INDICATED ON THE OPTIONAL ELECTRICAL DISTRIBUTION DIAGRAM SYSTEM UTILIZING ALUMINUM CONDUCTORS. ALL ALUMINUM CONDUCTORS SHALL BE TERMINATED WITH ALUMINUM U.L. LISTED COMPRESSION CONNECTORS. THE SMALLEST ALLOWABLE ALUMINUM CONDUCTOR FOR THE OPTIONAL
- ALUMINUM SYSTEM SHALL BE #1/0 AWG. WHERE EVER "MC" CABLE IS USED IT SHALL BE PROVIDED WITH TWO GREEN INSULATED COPPER GROUND WIRES FOR ANY INDICATED ISOLATED GROUND CIRCUITS/RECEPTACLES. WHERE "AC" CABLE IS ALLOWED, A SEPARATE GREEN INSULATED COPPER GROUND WIRE (HOSPITAL GRADE) SHALL BE PROVIDED FOR ANY INDICATED ISOLATED GROUND CIRCUITS/RECEPTACLES. THE "AC" CABLE COMBINATION METAL JACKET/BLEED WIRE SHALL BE UL LISTED AS A GROUNDING MEANS. "MC" CABLE MUST BE USED IN LIEU OF "AC" FOR ALL BRANCH CIRCUIT WIRING IN "PLACES OF ASSEMBLY" INTENDED FOR OCCUPANCIES OF 100 PERSONS OR MORE. EXCEPT IN THE DISTRICT OF COLUMBIA WHICH SHALL BE ANY
- SPACES WITH OCCUPANCIES OF 50 OR MORE. 4. ALL CABLING BELOW THE RAISED FLOOR SHALL BE U.L. LISTED LIQUID TIGHT WHEN ACCEPTABLE TO THE LOCAL AUTHORITY OR ARMOR/METAL CLAD CABLING SHALL BE PROVIDED TERMINATED INTO CONNECTORS OR CAST 'FS' TYPE BOXES WITH RECEPTACLES USING COMPRESSION OR THREADED TERMINATIONS. IN ADDITION, CABLING/CONDUIT SHALL MEET UL AND BOCA PLENUM AND NON-COMBUSTIBLE REQUIREMENTS. WHERE ARMOR/METAL CLAD CABLING IS USED, CONTRACTOR SHALL PROVIDE INSULATED EQUIPMENT ENCLOSURE GROUND WIRE IN ADDITION TO ANY ISOLATED GROUND DEVICE WIRE REQUIREMENTS.
- 5. ALL 20 AMP, 120 VOLT HOMERUNS SHALL BE A MINIMUM #12 AWG UNLESS LENGTHS EXCEED 60', THEN CONDUCTORS SHALL BE A MINIMUM #10 AWG. ALL 20 AMP, 277 VOLT HOMERUNS SHALL BE A MINIMUM #12 AWG UNLESS LENGTHS EXCEED 165'; THEN CONDUCTORS SHALL BE A MINIMUM #10
- RECEPTACLE NEUTRAL CONDUCTOR(S) SHALL BE A MINIMUM #10 AWG AT POINT WHERE MORE THAN ONE 20 AMP PHASE CONDUCTOR IS CONNECTED TO A COMMON NEUTRAL BACK TO PANELBOARD. #10 "AC" CABLE SHALL BE USED FOR ALL PHASES AND NEUTRAL FOR "AC" CABLE INSTALLATIONS AT CONNECTION POINT OF COMMON NEUTRAL.
- THE ACTUAL NUMBER OF WIRES REQUIRED MAY NOT BE INDICATED FOR ALL CIRCUITS, ONLY THOSE WHERE CLARIFICATION IS NECESSARY. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL WIRES NECESSARY FOR THE PROPER FUNCTION OF THE SYSTEM WHETHER INDICATED ON THE DRAWINGS OR NOT AT NO ADDITIONAL COST
- 8. TELEPHONE, DATA, AND CONTROL CABLES INSTALLED IN THE RETURN AIR PLENUM SHALL BE PLENUM RATED OR INSTALLED IN CONDUIT.
- 9. ALL RIGID, EMT AND FLEXIBLE CONDUIT SHALL BE U.L. LISTED. ALL CONDUIT SHALL BE SUITABLE FOR THE INTENDED SERVICE AND LOCATION. ANY MATERIALS LOCATED WITHIN ENVIRONMENTAL AIR PLENUMS SHALL BE U.L. LISTED FOR THE APPLICATION OR APPROVED IN WRITING BY ALL APPLICABLE LOCAL CODE AUTHORITIES. THE CONTRACTOR SHALL COORDINATE ALL RACEWAY SYSTEM COMPONENTS AND LOCATIONS WITH ALL NEW WORK. CONTRACTOR SHALL COORDINATE WITH WORK OF OTHER TRADES. CONTRACTOR SHALL COORDINATE WITH ALL EQUIPMENT, ARCHITECTURAL AND STRUCTURAL ELEMENTS. PLENUM AND CHASE LIMITATIONS AND REQUIREMENTS OF DRAWINGS AND SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR TIMELY PLACEMENT OF SLEEVES, CUTTING AND PATCHING OF NEW CONSTRUCTION TO FIT WORK OF THIS SECTION, LOCATION OF CHASE SPACE FOR VERTICAL ROUTING OF RACEWAY SYSTEMS AND LOCATION OF PLENUM SPACE FOR HORIZONTAL ROUTING OF RACEWAY SYSTEMS. DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. DRAWINGS ARE NOT TO BE SCALED. IN PREPARATION OF THE DRAWINGS, A REASONABLE EFFORT TO COORDINATE RACEWAY SYSTEMS HAVE BEEN MADE, HOWEVER, SPACE REQUIREMENTS, EQUIPMENT ARRANGEMENTS, AND SITE CONDITIONS VARY, AND THE RESPONSIBILITY FOR ACCESS, LOCATION, PROPER FIT

AND TIMELY COMPLETION RESTS WITH THE CONTRACTOR.

- RACEWAYS AND CONDUCTORS CONTINUED:
- 10. METALLIC CONDUIT WITH CONDUCTORS SHALL BE USED IN LIEU OF CABLE IN ALL VISIBLE PUBLIC AREA AND BACK OF HOUSE LOCATIONS. "AC"/"MC" CABLE SHALL NOT BE TERMINATED AT PANELBOARDS. CABLE SHALL TERMINATE OUTSIDE OF ELECTRICAL CLOSETS AND ROOMS WITH GUTTERS. CONDUIT SHALL BE USED TO CONNECT GUTTERS TO PANELS.

SPECIFICATIONS - ELECTRICAL

- 11. ALL EMPTY CONDUIT RUNS IN EXCESS OF 10 FT. SHALL BE PROVIDED WITH A PULL WIRE OR FISH TAPE/CORD SECURELY FASTENED AT BOTH ENDS WITH OPPOSITE ENDS IDENTIFIED. IDENTIFICATION TAGS SHALL BE TYPED; HANDWRITTEN TAGS SHALL NOT BE ACCEPTABLE.
- 12. ALL CONDUIT SHALL BE RIGIDLY SUPPORTED TIGHT TO THE BUILDING STRUCTURE. MAXIMUM SPACING OF SUPPORTS, 10'-0" FOR VERTICAL, AND 8'-0" FOR HORIZONTAL RUNS. COUPLINGS AND FITTINGS FOR EMT SHALL BE OF STEEL (CAST POT METAL IS NOT ACCEPTABLE) AND SHALL BE OF THE COMPRESSION OR SET STEEL SCREW TYPE. NOT MORE THAN THE EQUIVALENT OF FOUR QUARTER BENDS SHALL BE USED IN ANY RUN BETWEEN TERMINALS AND CABINETS, OR BETWEEN OUTLETS AND JUNCTION OR PULL BOXES. CONTRACTOR SHALL PROVIDE THE NECESSARY NEC SIZED JUNCTION OR PULL BOXES TO MEET THIS REQUIREMENT DUE TO SITE CONDITIONS. CONDUITS SHALL NOT IMPEDE ON REQUIRED ACCESS AND CLEARANCE REQUIREMENTS FOR ALL EQUIPMENT.
- CABLES AND CONDUITS ON THIS PROJECT SHALL BE NEATLY ROUTED PARALLEL AND PERPENDICULAR TO BUILDING LINES. CABLES THAT ARE BUNDLED TOGETHER FOR SUPPORT SHALL NOT EXCEED TEN (10) IN QUANTITY IN ANY ONE LOCATION. MULTIPLE BUNDLES NEATLY INSTALLED AND SEPARATED BY PHYSICAL SPACE SHALL BE USED WHERE CABLE QUANTITIES EXCEED TEN.
- 14. RACEWAYS SHALL BE PROVIDED WITH EXPANSION FITTINGS AT BUILDING EXPANSION JOINTS AND OTHER AREAS WHERE NECESSARY TO COMPENSATE FOR THERMAL EXPANSION AND CONTRACTION. FURNISH AND INSTALL O-Z/ GEDNEY TYPE "EX" OR "TX" EXPANSION FITTINGS WITH BONDING JUMPER WHERE CONDUITS CROSS BUILDING EXPANSION
- 15. ALL CONDUIT SHALL BE TERMINATED WITH INSULATED THROAT CONNECTORS FOR 1/2" THROUGH AND INCLUDING 1" AND FOR GREATER THAN 1" WITH INSULATED BUSHINGS AND LOCKNUTS.
- 16. FURNISH JUNCTION AND PULL BOXES WHERE REQUIRED BY THE CODE OR WHERE INDICATED OR REQUIRED TO FACILITATE PULLING WIRES REGARDLESS OF WHETHER SHOWN ON THE DRAWINGS OR NOT AT NO ADDITIONAL COST. BOXES SHALL BE STEEL, HOT-DIPPED GALVANIZED AFTER FABRICATION, AND SHALL HAVE INDUSTRY STANDARD KNOCKOUTS NECESSARY TO ACCOMMODATE THE CONDUITS AT POINT OF INSTALLATION. SECTIONALIZED BOXES SHALL BE USED WHEREVER POSSIBLE TO GROUP ADJACENT DEVICES UNDER A SINGLE PLATE. ALL BOXES SHALL HAVE LUGS OR EARS INSIDE TO SECURE COVERS. OUTLET BOXES SHALL BE DEEP TYPE, FOUR INCH SQUARE, AND HAVE DEVICE COVERS WITH CENTER OPENINGS AS REQUIRED. OUTLET BOXES FOR EXPOSED SWITCHES, RECEPTACLES, AND PULL BOXES SHALL BE OF THE CAST ALUMINUM "CONDULET" TYPE, CROUSE-HINDS, STONCO OR EQUAL EXPOSED SHALL BE DEFINED AS LOCATED IN VIEW OF A PERSON WITHIN OR OUTSIDE OCCUPIABLE SPACE NOT CONCEALED WITHIN PLENUM OR WALL SPACES. EXPOSED SHALL INCLUDE BOTH INTERIOR AND EXTERIOR LOCATIONS WHERE SURFACE MOUNTING OR CONDUIT SUPPORTED STAND ALONE BOXES ARE REQUIRED. OUTLET BOXES IN OUTDOOR OR WET LOCATIONS SHALL ALSO HAVE GASKETED WEATHERPROOF ALUMINUM CAST-METAL COVERS WITH INDIVIDUAL GASKETED SPRING-LATCHED HINGED OUTLET COVERS. OUTLET BOXES FOR 20 AMPERE 120 VOLT OR 277 VOLT CIRCUITS SHALL HAVE A GREEN INSULATED #12 AWG SOLID COPPER CONDUCTOR GROUNDING PIGTAIL WITH GROUND SCREW.
- 17. MARK THE COVERS OF JUNCTION BOXES TO INDICATE THE CIRCUITS CONTAINED THEREIN WITH AN INDELIBLE MARKER. THE COVERS OF JUNCTION BOXES SHALL BE PAINTED PER THE BASE BUILDING STANDARD. OR AS FOLLOWS IF NO STANDARD EXISTS: TELEPHONE - YELLOW, ATC -BLUE, NORMAL POWER - BLACK, STANDBY POWER - ORANGE, AND FIRE ALARM - RED. CONDUITS SHALL BE MARKED SIMILARLY AT INTERVALS NOT TO EXCEED 20 FEET ON CENTER WITH 1.5" - 2.5" WIDE SELF-ADHESIVE VINYL TAPE.
- 18. CONTRACTOR SHALL IDENTIFY ALL ABANDONED AND UNUSED WIRING AND CABLING WITHIN AREA OF WORK INCLUDING BUT NOT LIMITED TO TELEPHONE, DATA, SECURITY, EMCS, FIRE ALARM, AND POWER WIRING. CONTRACTOR SHALL REVIEW ALL ABANDONED AND UNUSED WIRING AND CABLING WITH TENANT AND BUILDING OWNER AND UPON APPROVAL. REMOVE ANY THAT IS NOT IDENTIFIED FOR FUTURE USE.
- 19. THE TENANT RENOVATION EQUIPMENT GROUNDING SYSTEM SHALL CONSIST OF THE ELECTRICALLY CONTINUOUS METALLIC CONDUIT SYSTEM TOGETHER WITH INSULATED EQUIPMENT GROUNDING CONDUCTORS. EVERY ITEM OF EQUIPMENT SERVED BY THE ELECTRICAL SYSTEM SHALL BE BONDED TO THE BUILDING EQUIPMENT GROUND. THE EQUIPMENT GROUNDING SYSTEM SHALL BE DESIGNED SO ALL METALLIC STRUCTURES, ENCLOSURES, RACEWAYS, JUNCTION BOXES, OUTLET BOXES, CABINETS, MACHINE FRAMES, PORTABLE EQUIPMENT AND OTHER CONDUCTIVE ITEMS IN CLOSE PROXIMITY WITH ELECTRICAL CIRCUITS OPERATE CONTINUOUSLY AT GROUND POTENTIAL AND PROVIDE A LOW IMPEDANCE PATH FOR POSSIBLE GROUND FAULT CURRENTS. THE SYSTEM SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE. ALL BRANCH CIRCUITS AND FEEDERS SHALL HAVE A GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH THE
- 20. WHERE NEW EQUIPMENT CONSISTING OF GROUNDED METAL BODIES ARE INSTALLED ON THE EXTERIOR OF THE BUILDING (ROOF, GRADE, PERIMETER, ETC.) AND A LIGHTNING PROTECTION SYSTEM EXISTS, THE NEW EQUIPMENT SHALL BE BONDED IN ACCORDANCE WITH NFPA 780 TO THE EXISTING LIGHTNING PROTECTION SYSTEM. THE UL MASTER LABEL SHALL BE MAINTAINED.

WIRING DEVICES:

- CONTRACTOR SHALL MATCH EXISTING RECEPTACLES AND LIGHT SWITCHES UNLESS OTHERWISE NOTED ON THE ARCHITECT'S OR ENGINEER'S DRAWINGS. SHOULD NO STANDARD EXIST OR SHOULD THE ARCHITECT BE UNABLE TO PROVIDE A SPECIFICATION, DUPLEX RECEPTACLES SHALL BE SIMILAR TO PASS & SEYMOUR #CR20 SERIES AND LIGHT SWITCHES SHALL BE SIMILAR TO PASS & SEYMOUR #20AC1 SERIES. CONFIRM DEVICE COLOR WITH ARCHITECT.
- 2. COVER PLATES SHALL BE AS SPECIFIED BY THE ARCHITECT OR TYPE 302 BRUSHED STAINLESS STEEL TO MATCH DEVICE IT COVERS.
- UNLESS NOTED OTHERWISE ALL SWITCHES AND/OR RECEPTACLES SHOWN IN THE SAME LOCATION SHALL BE INSTALLED IN MULTIPLE GANG BOXES MOUNTED UNDER A COMMON COVERPLATE.
- 4. ALL DUPLEX RECEPTACLES ON DEDICATED CIRCUITS SHALL BE NEMA
- 5. ALL 15 AND 20 AMP (120V) RECEPTACLES LOCATED WITHIN ELEVATOR MACHINE ROOMS, HOISTWAYS, ELEVATOR PITS, BATHROOMS, ON ROOFTOPS, IN KITCHENS (PANTRIES), OR WITHIN 6'-0" OF A PLUMBING FIXTURE (INCLUDING SINKS AND WATER CLOSETS) SHALL BE GROUND FAULT INTERRUPTER (GFI) TYPE. GFI RECEPTACLES SHALL BE READILY ACCESSIBLE ALL BREAKERS WHICH SUPPLY HEAT TRACE SYSTEMS SHALL BE GFI TYPE UNLESS GFI PROTECTION IS PROVIDED BY THE MANUFACTURER'S CONTROLLER. ELECTRIC WATER COOLERS AND VENDING MACHINES SHALL BE PROTECTED WITH GROUND-FAULT CIRCUIT INTERRUPTER PROTECTION.
- PROVIDE SINGLE OUTLETS (OR HARDWIRED CONNECTIONS AS REQUIRED) FOR PANTRY EQUIPMENT (I.E. MICROWAVES, REFRIGERATORS, COFFEE MACHINES, DISHWASHERS, ICE MAKERS, VENDING MACHINES, WATER DISPENSERS, ETC.). PROVIDE PAD LOCKING HARDWARE ON CIRCUIT BREAKERS FOR SMALL PIECES OF EQUIPMENT WHICH ARE HARDWIRED WITHOUT A LOCAL DISCONNECTING MEANS.
- 7. THE HIGHEST OPERABLE PART OF THE ELECTRICAL AND COMMUNICATION OUTLETS SHALL BE PLACED WITHIN THE REACH RANGES AS REQUIRED IN THE AMERICAN WITH DISABILITIES ACT (ADA). THESE REQUIREMENTS DO NOT APPLY WHERE THE USE OF SPECIAL EQUIPMENT DICTATES OTHERWISE OR WHERE ELECTRICAL AND COMMUNICATION OUTLETS ARE NOT NORMALLY INDICATED FOR USE BY BUILDING OCCUPANTS.
- 8. TELEPHONE AND DATA OUTLETS LOCATED IN INSULATED AND LOW HEIGHT WALLS SHALL HAVE A 3/4" CONDUIT WITH PULLSTRING FROM J-BOX TO ACCESSIBLE CEILING SPACE FOR EACH GANG. GROMMETS SHALL BE PROVIDED AT THE END OF THE CONDUIT AT THE CEILING SPACE. OUTLETS LOCATED IN NON-INSULATED WALLS WILL REQUIRE PULLSTRING
- 9. OUTLETS SHALL NOT BE INSTALLED BACK TO BACK ON COMMON WALLS BETWEEN OFFICES. CONSULT WITH ARCHITECT FOR MINIMUM SEPARATION BETWEEN OUTLET DEVICES ON COMMON WALL.
- 10. AT LEAST 6 INCHES OF FREE CONDUCTOR SHALL BE LEFT AT EACH OUTLET, JUNCTION, AND SWITCH POINT FOR SPLICES OR THE CONNECTION OF FIXTURES AND DEVICES. FOR WIRE-BINDING SCREW POSTS, WRAP THE FRESHLY STRIPPED END OF THE CONDUCTOR TWO-THIRDS TO THREE QUARTERS OF THE DISTANCE AROUND THE POST. THE LOOP SHALL BE MADE SO THAT ROTATION OF THE SCREW IN TIGHTENING WILL TEND TO WRAP THE WIRE AROUND THE POST RATHER THAN UNWRAP IT.
- 11. BOTH SWITCH AND RECEPTACLE SCREW TERMINALS SHALL BE WRAPPED WITH AT LEAST ONE WRAP OF ELECTRICAL TAPE BEFORE DEVICE IS INSTALLED IN OUTLET BOX. VACUUM CLEAN ALL SWITCH AND RECEPTACLE OUTLETS, PRIOR TO AND AFTER INSTALLATION.

- **WIRING DEVICES CONTINUED:**
- 12. FLOOR OUTLETS (BOXES, POKE THRUS, ETC) SHALL BE LISTED FOR INSTALLATION IN PARTICULAR FLOOR TYPE. FLOOR DEVICES SHALL MEET UL REQUIREMENTS FOR SCRUB WATER, DIRT, AND DEBRIS EXCLUSION

SPECIFICATIONS - ELECTRICAL

- 13. "CONTRACTOR SHALL PROVIDE CORE DRILLS, SLEEVES, BLOCKOUTS, ETC. TO RETURN ALL POKE THRU HOMERUNS FROM FLOOR BELOW TO RESPECTIVE FLOOR'S ELECTRIC CLOSET. ANY OPEN VOID SPACE BETWEEN CONDUIT PENETRATING FLOOR AND SLAB SHALL BE FILLED WITH FIRE SAFING MASTIC EQUAL TO RATING OF FLOOR.
- 14. WIRING THROUGH POKE-THRUS TO EQUIPMENT CONNECTIONS SHALL BE MADE WITH #12 AWG CONDUCTORS MEETING DEVICES FILL REQUIREMENTS. HOMERUNS FROM BELOW POKE THRU TO PANEL SHALL BE #10 AWG. CONTRACTOR SHALL PROVIDE ANY BELOW FLOOR JUNCTION OR PULL BOXES (ACCESSIBLE) AS NECESSARY TO PULL OR TERMINATE WIRING."

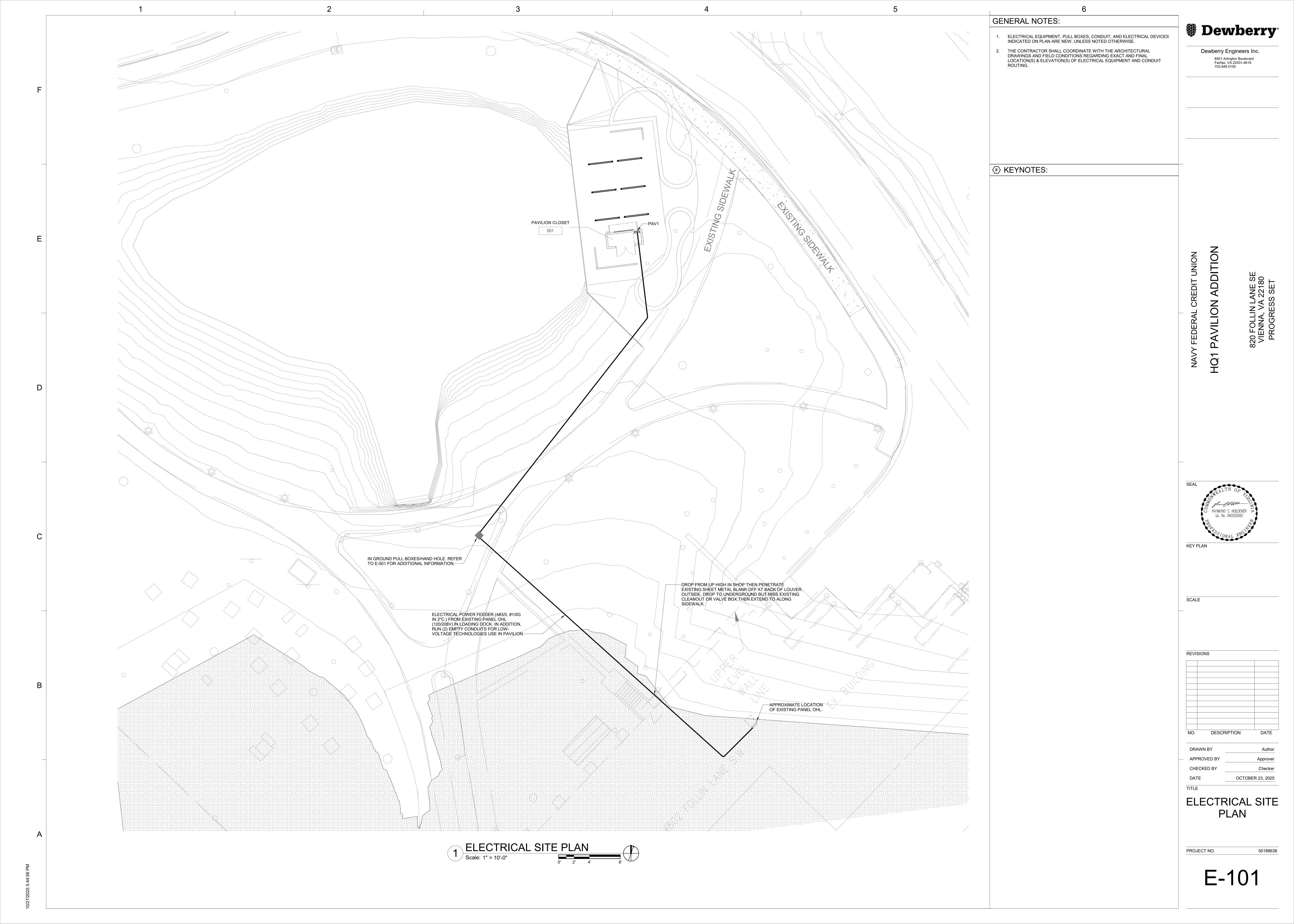
- ALL NEW LIGHTING FIXTURES AND LAMPS INCLUDING LAMP COLOR SHALL MATCH EXISTING BUILDING STANDARD. IT WILL BE THE CONTRACTORS RESPONSIBILITY TO CONFIRM LIGHTING FIXTURE BUILDING STANDARDS PRIOR TO PURCHASE OF ANY FIXTURES AND LAMPS. CONTRACTOR SHALI COORDINATE WITH ARCHITECT AND BUILDING OWNER ANY FIXTURES OR LAMPS INDICATED ON THE CONTRACT DOCUMENTS WHICH MAY DIFFER FROM BUILDING STANDARD FOR ACCEPTABILITY PRIOR TO ORDER. ALL LIGHTING FIXTURES WITHIN THE TENANT RENOVATION SHALL BE CLEANED AND COMPLETELY RELAMPED AT THE TIME OF FINAL ACCEPTANCE. PROVIDE THE PROPER FIXTURE TYPE FOR THE TYPE OF CEILING OR WALL CONSTRUCTION IN WHICH THE FIXTURE IS TO BE INSTALLED. REGARDLESS OF FIXTURE NUMBERS GIVEN IN THE FIXTURE SCHEDULE, THE FIXTURES SUPPLIED SHALL HAVE THE PROPER TRIM, FRAMES, MOUNTING DEVICES, CONFIGURATION AND ACCESSORIES NECESSARY TO BE PROPERLY INSTALLED IN THE BUILDING CONSTRUCTION. CATALOG NUMBERS OF FIXTURES IN THE FIXTURE SCHEDULE ARE TO ESTABLISH A TYPE OF FIXTURE AND NOT TO DETERMINE A METHOD OF MOUNTING. THE LIGHTING FIXTURES SHALL BE SUPPORTED BY A TIE WIRE FROM EACH CORNER TO THE STRUCTURE ABOVE OR AS REQUIRED BY THE LOCAL AUTHORITY. ALL BALLASTS LOCATED IN FIXTURES EXPOSED TO FREEZING TEMPERATURES SHALL BE RATED FOR ZERO-DEGREE OPERATION. ALL BALLASTS SHALL BE ELECTRONIC, ENERGY SAVING, LESS THAN 20% THD, HIGH POWER FACTOR, "A" SOUND RATED, TYPE "P", CREST FACTOR 1.7, AUTOMATIC RESET TYPE, RATED FOR THE LAMP IT OPERATES AND MANUFACTURED BY GE, ADVANCE, MAGNETEK, LUTRON, OR MOTOROLA. LIGHTING FIXTURES, REMOTE BALLASTS, REMOTE TRANSFORMERS, AND ACCESSORIES, WHETHER INDICATED IN THE LIGHTING FIXTURE SCHEDULE OR NOT AND LOCATED IN A DAMP OR WET LOCATION AS DEFINED BY THE NEC, SHALL BE UL LISTED FOR DAMP OR WET LOCATION ACCORDINGLY. CONTRACTOR SHALL PROVIDE EQUIVALENT LOW HEIGHT LIGHTING FIXTURES OR RELOCATE EXISTING LIGHTING FIXTURES AS DIRECTED WHERE INADEQUATE PLENUM SPACE EXISTS DUE TO SITE CONDITIONS. WHERE STATIC LIGHTING FIXTURES ARE NOT SPECIFIED ALL RECESSED 2'X2', 2'X4', 1'X4' OR SIMILAR FLUORESCENT LIGHTING FIXTURES SHALL BE RETURN AIR (OR AIR HANDLING UNIT) AND HEAT EXTRACT TYPE WITH AIR CONTROL DAMPER BLADES, CLOSURES, OR STRIPS TO ENABLE OR DISABLE THE RETURN AIR FUNCTION BY MANUALLY OPENING OR CLOSING THE DAMPERS/STRIPS/CLOSURES IN THE FIELD. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR ON WHICH FIXTURES TO CLOSE AND WHICH FIXTURES TO OPEN THE DAMPERS/STRIPS /CLOSURES THROUGHOUT THE PROJECT. TYPICALLY ALL FIXTURES WITHIN ENCLOSED PERIMETER OFFICES OR WITHIN 15 FEET OF THE PERIMETER WALL FOR OPEN OFFICE AREAS SHALL HAVE THEIR DAMPERS/STRIPS/CLOSURES CLOSED TO DISABLE THE RETURN AIR FUNCTION WHEN COMBINATION SUPPLY AND RETURN AIR SLOT DIFFUSERS ARE USED ALONG THE PERIMETER WALL. CONNECT (2#10,3/4") ALL EMERGENCY EGRESS, STANDBY AND EXIT
- LIGHTING TO A STANDBY POWER CIRCUIT IN ACCORDANCE WITH APPLICABLE CODE. THE STANDBY POWER CIRCUIT SHALL BE A CIRCUIT AVAILABLE NEAREST THE RESPECTIVE TENANT FLOOR DESIGNATED FOR TENANT USE. THE STANDBY POWER CIRCUIT SHALL HAVE ADEQUATE CAPACITY FOR THE INTENDED TENANT LOAD. THE STANDBY CIRCUIT SHALL BE A CIRCUIT PROVIDED UNDER THE BASE BUILDING INTENDED FOR TENANT USE UNLESS OTHERWISE INDICATED. THE EXISTING BASE BUILDING STAIRWELL LIGHTING STANDBY POWER CIRCUITS SHALL NOT BE USED FOR TENANT CIRCUITING. CONTRACTOR SHALL CONFIRM STANDBY POWER SOURCE WITH ARCHITECT, ENGINEER, AND BUILDING OWNER PRIOR TO MAKING CONNECTION(S). THESE REQUIREMENTS SHALL BE IN ADDITION TO WHAT IS SHOWN ON THE TENANT ELECTRICAL DRAWINGS. CONTRACTOR SHALL CONFIRM THE TOTAL CONNECTED AMPERAGE DOES NOT EXCEED 16 AMPERES.
- NEW AND EXISTING INDOOR (NON DWELLING UNIT) FLUORESCENT LIGHTING FIXTURES UTILIZING DOUBLE ENDED LAMPS AND BALLASTS WITHIN THE AREA OF WORK SHALL INCLUDE REQUIRED NEC BALLAST DISCONNECT INTERNAL TO FIXTURE AND BE ACCESSIBLE TO QUALIFIED PERSONS. DISCONNECT SHALL BE UL LISTED WITH TWO MATING FINGER SAFE HALVES DISCONNECTING SIMULTANEOUSLY ALL BALLAST SUPPLY CONDUCTORS INCLUDING THE GROUND.
- RECESSED DOWNLIGHT TYPE LIGHTING FIXTURES INSTALLED IN CEILINGS SHALL BE SUPPORTED BY MEANS OF HANGER BARS EXTENDING ACROSS THE MAIN CEILING SUPPORT MEMBERS SUPPORTED BY WIRES AT ALL FOUR CORNERS. TROFFER TYPE LIGHTING FIXTURES SHALL BE SUPPORTED BY WIRES AT ALL FOUR CORNERS. THE FOUR WIRES SHALL BE INDEPENDENT TO THE STRUCTURE ABOVE. ALL OTHER TYPE LIGHTING FIXTURES IN CEILINGS SHALL HAVE THE OUTLET BOX RIGIDLY SUPPORTED FROM THE BUILDING STRUCTURAL SYSTEM. EACH FIXTURE SHALL BE SUPPORTED INDEPENDENTLY OF THE CEILING GRID/CONSTRUCTION AND ALL OTHER MEP EQUIPMENT BY SUPPORT WIRES CONNECTED TO THE BUILDING STRUCTURE. PROVIDE REMOVABLE CLIPS TO SECURELY FASTEN LIGHTING FIXTURES IN PLACE TO THE CEILING CONSTRUCTION; HOWEVER, THE SUPPORT SHALL BE VIA THE TIE WIRES. IN ADDITION TO ABOVE SUPPORT METHODS, ALL LOCAL CODE AUTHORITY REQUIREMENTS SHALL BE ADHERED TO. SUPPORT MEANS AND METHODS SHALLL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND THE LOCAL CODE AUTHORITY SEISMIC REQUIREMENTS.
- LIGHTING FIXTURES IN AREAS WHERE THERE IS EXPOSED FOOD, CLEAN EQUIPMENT, UTENSILS, LINENS, OR UNWRAPPED SINGLE SERVICE AND SINGLE USE ARTICLES SHALL BE LENSED OR PROVIDED WITH SHATTER RESISTANT LAMPS IN COMPLIANCE WITH THE MOST CURRENT FDA FOOD CODE AND OTHER ADOPTED CODES.
- 6. THE CONTRACTOR SHALL VERIFY THAT ALL DOOR SWINGS ARE CORRECT BEFORE INSTALLING LIGHT SWITCH OUTLETS.
- ELECTRICAL CONTRACTOR SHALL PROVIDE A TENANT LIGHTING OVERRIDE CONTROLLER (READILY ACCESSIBLE MANUALLY OPERATED ON/OFF SWITCH) WITH REQUIRED INTERFACE WIRING AND CONDUIT TO LIGHTING CONTROL SYSTEM (RELAY PANELS). CONTRACTOR SHALL WIRE THESE OVERRIDE CONTROLLERS INTO SYSTEM AS SWITCH INPUTS AND REPROGRAM SYSTEM TO CONTROL RESPECTIVE AREA'S LIGHTING CIRCUITS; ALLOW RESPECTIVE LIGHT CIRCUITS TO REMAIN ON FOR NO MORE THAN 2 HOURS WHEN INITIATED. PROVIDE LIGHTING OVERRIDE SWITCH FOR EVERY 5000 SQUARE FEET OF TENANT SPACE.
- WHERE DIMMING IS INDICATED, CONTRACTOR SHALL PROVIDE AND CONFIRM COMPATIBILITY BETWEEN THE RESPECTIVE LIGHT'S DIMMING BALLAST, LAMP TYPE, AND DIMMER, PROVIDE THE NECESSARY QUANTITY OF CONDUCTORS BETWEEN COMPONENTS AND ACCESSORIES FOR A COMPLETE DIMMING SYSTEM.

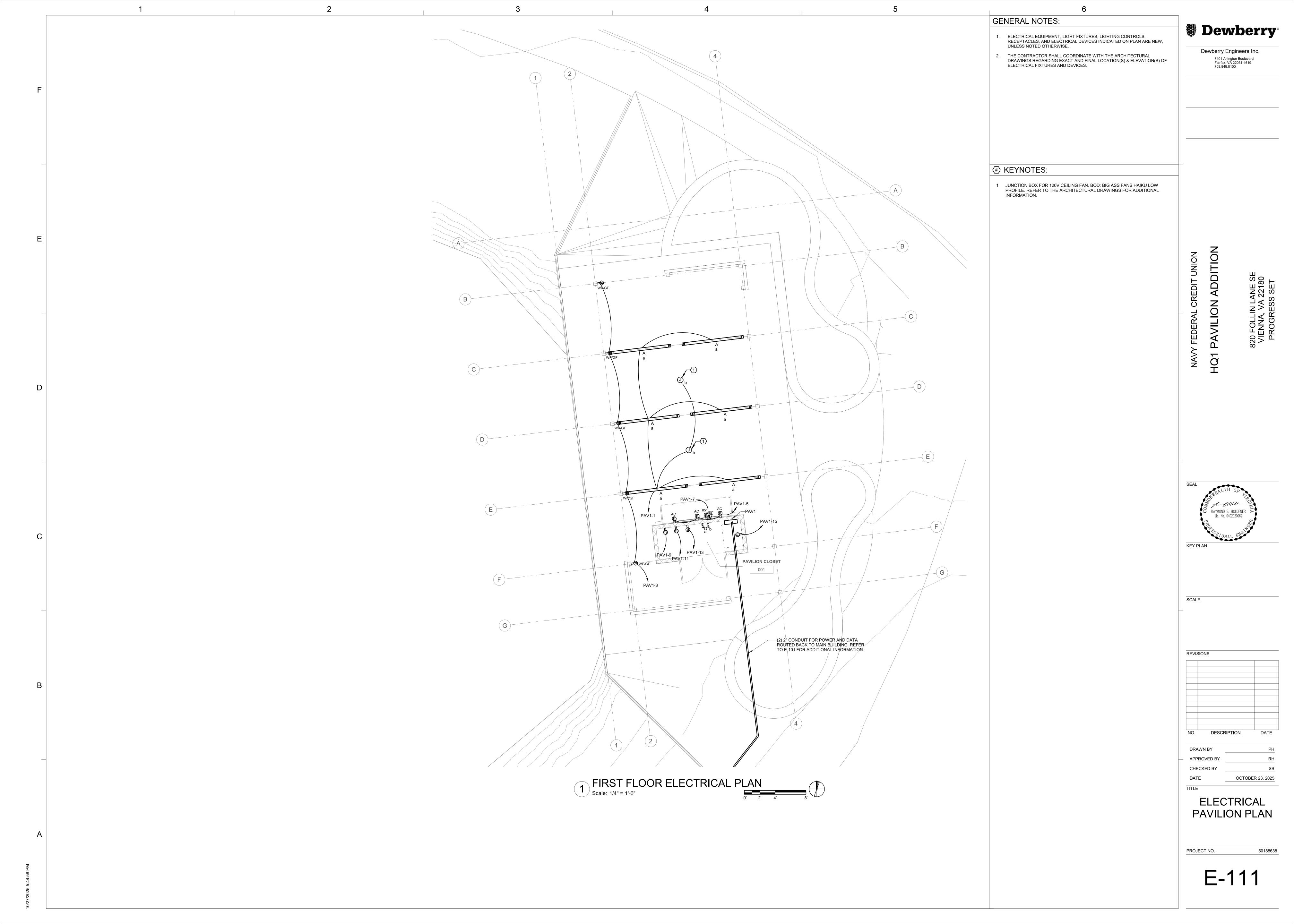
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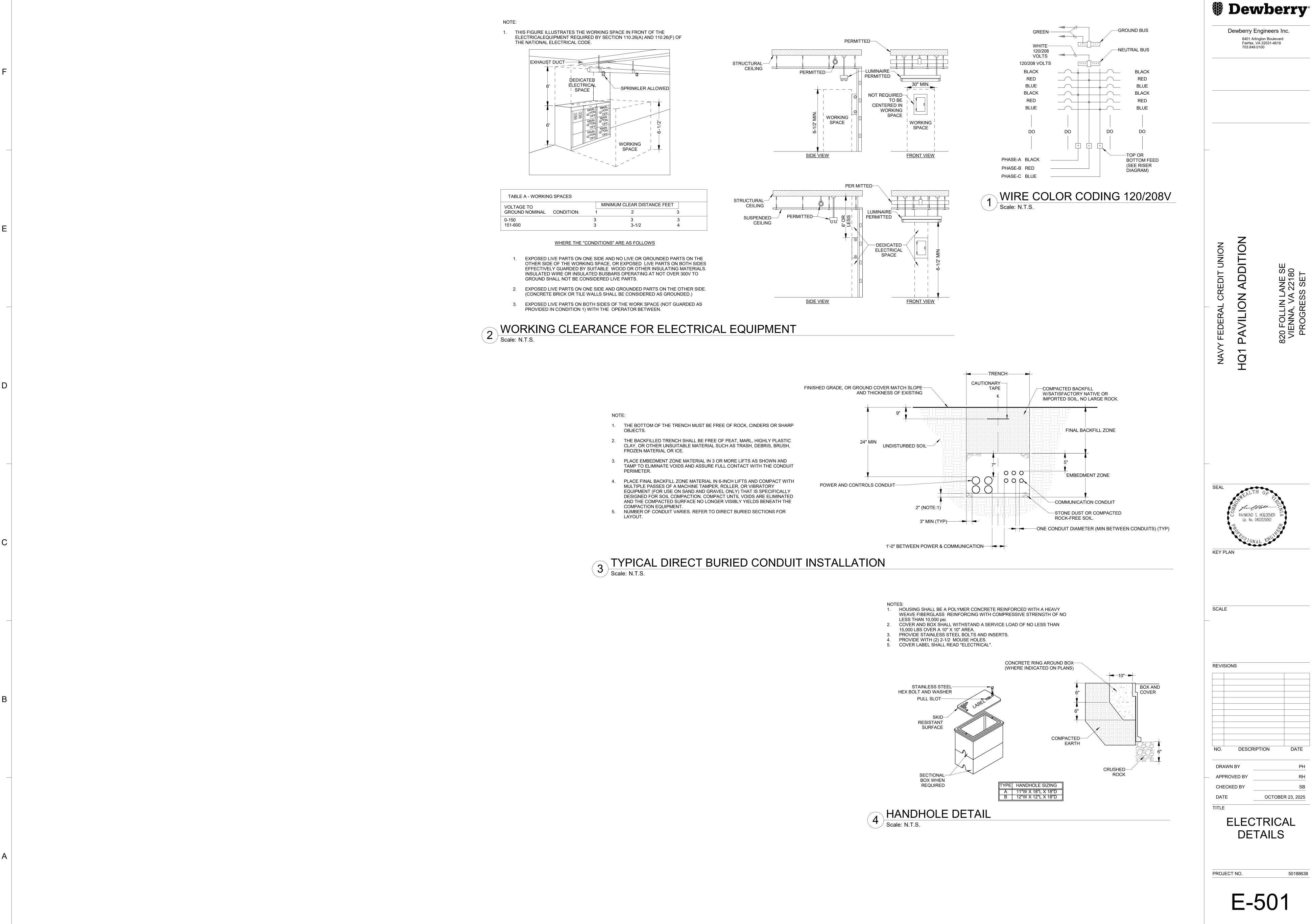
KEY PLAN

REVISIONS

DRAWN BY APPROVED BY CHECKED BY







LED LIGHTING FIXTURE SCHEDULE GENERAL NOTES:
1. CONTRACTOR SHALL COORDINATE FIXTURE MOUNTING STYLE (GRID VERSUS GYP BOARD) WITH ARCHITECTURAL CEILING PLANS AND PROVIDE REQUIRED MOUNTING ACCESSORIES.
2. CONTRACTOR SHALL COORDINATE MOUNTING HEIGHT FOR WALL-MOUNTED FIXTURES WITH ARCHITECTURAL ELEVATIONS PRIOR TO ANY ROUGH-IN.
3. ALL RECESSED DOWNLIGHTS WHERE INSTALLED IN ACOUSTICAL CEILING TILE SHALL BE PROVIDED WITH 24" GRID BAR HANGERS.
4. ALL INDUSTRIAL FIXTURES WHERE INSTALLED IN MECHANICAL SPACES SHALL BE COORDINATED WITH ALL TRADES TO AVOID CONFLICTS WITH MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT, PIPING, DUCTWORK, ETC. LIGHT SOURCE SYSTEM LOAD (W) TYPE DESCRIPTION MANUFACTURER MODEL LUMEN VOLTAGE NOTES OUTPUT COLOR CRI (min) TYPE SUSPENDED STRIP LIGHT A LIGHT LIN-3-WP-8'-LS-35-80CRI-U-HE-P#-W-D 4176 3500 80 0-10V 120 V 40.00 W

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	A.I.C. RATING: SUPPLY FROM: LOCATION:	OHL	LOSET (001	100	OA M.C	.B.			 7-208Y/120V 3F 100 A BUS
NOTES:										

CNDT SIZE	WIRE SIZE	SERVING		CKT BKR	CKT NO.	A	В	С	A	В	С	CKT NO.	CK BK	-	SERVING	WIRE SIZE	CNDT SIZE
3/4"	2#10	LIGHTING & FANS	1	20 A	1	0.28			0.00			2	20 A	1	SPARE		
	I	G.P. RECEPTACLES	1	20 A	3		0.90			0.00		4	20 A	1	SPARE		
I	I	COUNTER RECEPTACLES	1	20 A	5			0.54			0.00	6	20 A	1	SPARE		
I	I	TV RECEPTACLE	1	20 A	7	0.18			0.00			8	20 A	1	SPARE		
	I	FOOD SERVICE CART	1	20 A	9		1.72			0.00		10	20 A	1	SPARE		
	I	FOOD SERVICE CART	1	20 A	11			0.55			0.00	12	20 A	1	SPARE		
	I	FOOD SERVICE CART	1	20 A	13	1.72			0.00			14	20 A	1	SPARE		
V	V	AV RACK RECEPTACLE	1	20 A	15		0.18			0.00		16	20 A	1	SPARE		
		SPARE	1	20 A	17			0.00			0.00	18	20 A	1	SPARE		
		SPARE	1	20 A	19	0.00			0.00			20	20 A	1	SPARE		
-		SPARE	1	20 A	21		0.00			0.00		22	20 A	1	SPARE		
		SPARE	1	20 A	23			0.00			0.00	24	20 A	1	SPARE		
				•		2.17	kVA	2.80	kVA	1.09	kVA						
						19	Α	25	iΑ	9	Α						

Load Classification	Connected Load	Demand Factor	Demand Load	Panel Totals		
LIGHTING	240 VA	125.00%	300 VA			
NON-CONTINUOUS	40 VA	100.00%	40 VA	Total Connected Load:	6.05 kVA	
RECEPTACLE	5784 VA	100.00%	5784 VA	Total Demand Load:	6.11 kVA	
				Total Connected Amps:	17 A	
				Total Demand Amps:	17 A	

Dewberry

Dewberry Engineers Inc.

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Fairfax, VA 22031-4619
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AVILION ADDITION

HQ1

SEAL

RAYMOND S. HOLDENER

Lic. No. 0402020062

REPORTS

KEY PLAN

SCALE

REVISIONS

NO. DESCRIPTION DATE

DRAWN BY
APPROVED BY
CHECKED BY
DATE
OCTOBER 23, 2025

SCHEDULES AND DIAGRAMS

PROJECT NO.

E-601

4:57 PM