

MEP DESIGN SUMMARY

PROJECT INFORMATION
 PROJECT NAME: FARMERS MARKET RESTROOM RENOVATION
 ADDRESS: 345 SOUTH MAIN STREET HARRISONBURG, VA. 22801
 PROPOSED USE: OFFICE AND PUBLIC RESTROOMS
 CITY OF HARRISONBURG
 OWNER CONTACT: ADAM WRIGHT
 PHONE: 540-560-9455
 VE PROJ. NO.: 10895-3

APPLICABLE CODES
 BUILDING CODE: VIRGINIA REHABILITATION CODE: 2012
 WORK COMPLIANCE METHOD
 MECHANICAL CODE: VIRGINIA MECHANICAL CODE: 2012
 PLUMBING CODE: NFPA 70, 2011 NATIONAL ELECTRICAL CODE
 ELECTRICAL CODE: ICC/ANSI A117.1 2009 STANDARDS ON ACCESSIBLE AND USABLE BUILDING AND FACILITIES
 ACCESSIBILITY CODE:
 GAS CODE: VIRGINIA FUEL GAS CODE: 2012

PROJECT TEAM
 PROJECT MANAGER: PHIL GENTRY
 PROJECT TEAM:
 JOHN SOLDANO - HVAC ENGINEER
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DEMOLITION LEGEND

DESIGNATIONS - DEMOLITION PLANS:
 - - - - - FIXTURES AND DEVICES SHOWN WITH DARK DASHED LINES ARE TO BE REMOVED OR RELOCATED. RETURN TO BUILDING STOCK DEVICES AND FIXTURES TO BE REMOVED.
 _____ FIXTURES AND DEVICES SHOWN WITH LIGHT SOLID LINES ARE EXISTING TO REMAIN AND REMAIN OPERABLE.

DESIGNATIONS - NEW WORK PLANS:
 _____ FIXTURES AND DEVICES SHOWN WITH DARK SOLID LINES ARE NEW OR RELOCATED.
 _____ FIXTURES AND DEVICES SHOWN WITH LIGHT SOLID LINES ARE EXISTING TO REMAIN AND REMAIN OPERABLE.

THE FOLLOWING ABBREVIATIONS APPLY TO ALL ELECTRICAL DEVICES WHERE INDICATED:
 ETR = EXISTING TO REMAIN

CIRCUIT DESCRIPTIONS - LIGHTING

LOWER CASE 'a' INDICATES ASSOCIATED LIGHT FIXTURE
 'HN1B-11'
 CIRCUIT NUMBER
 PANEL NAME
 TYPICAL ROOM
 UPPER CASE 'A' INDICATES LIGHT FIXTURE TYPE (SEE THE LIGHTING FIXTURE SCHEDULE)
 LOWER CASE 'a' INDICATES ASSOCIATED SWITCHING

NOTES: CIRCUITING WILL BE SHOWN ON THE LIGHTING PLANS WHERE A CIRCUIT PROVIDES POWER TO WHITE LIGHT OR LIFE SAFETY POWER FIXTURES THAT ARE LOCATED THROUGHOUT THE ENTIRE SPACE. CIRCUITING MAY NOT BE SHOWN WHERE A CIRCUIT PROVIDES POWER TO FIXTURES WITHIN ROOMS ADJACENT TO EACH OTHER AS SHOWN ABOVE.

- GENERAL ELECTRICAL NOTES**
- ALL WORK SHALL CONFORM TO THE REGULATIONS OF APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, ORDINANCES, AND CODES. ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST ADOPTED CODES AND OF THE AUTHORITY HAVING JURISDICTION.
 - DRAWINGS ARE CONSIDERED DIAGRAMMATIC AND INDICATE A GENERAL ARRANGEMENT OF WORK. REFER TO THE ARCHITECTURAL DRAWINGS FOR COORDINATION AND EXACT EQUIPMENT LOCATIONS.
 - VISIT THE PROJECT SITE AND INSPECT EXISTING SYSTEMS BEFORE BID IN ORDER TO ENSURE PROPER EVALUATION OF WORKING CONDITIONS AND LOCATION OF EXISTING EQUIPMENT.
 - CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND ASSOCIATED FEES AND TAXES.
 - PROVIDE ALL MATERIAL AND EQUIPMENT NOT INDICATED AS EXISTING TO REMAIN IN THE CONTRACT DOCUMENTS. ALL MATERIAL SHALL BE NEW FREE FROM DEFECTS AND UL LISTED.
 - PROVIDE ALL SCAFFOLDING, RIGGING, HOISTING, AND SERVICES NECESSARY FOR ERECTION AND DELIVERY OF ANY EQUIPMENT.
 - INSTALL ALL WORK IN A NEAT AND WORKMANLIKE MANNER. INSTALL ALL NEW WORK WITH MINIMUM INTERFERENCE TO EXISTING SYSTEMS.
 - MAINTAIN A CLEAN WORK AREA AT ALL TIMES DURING CONSTRUCTION.
 - DO NOT CUT STRUCTURAL MEMBERS OR SUPPORTS WITHOUT THE APPROVAL OF THE ARCHITECT AND STRUCTURAL ENGINEER.
 - PROVIDE A MINIMUM ONE YEAR WARRANTY TO COVER ALL MATERIALS, EQUIPMENT, AND LABOR. WARRANTY SHALL START AFTER FINAL ACCEPTANCE BY THE OWNER AND IT SHALL COVER COSTS ASSOCIATED WITH ANY REPAIRS OR REPLACEMENTS CAUSED BY DEFECTIVE WORKMANSHIP OR FAULTY MATERIALS OR EQUIPMENT.
 - TEST ALL SYSTEMS AFTER INSTALLATION. SYSTEMS SHALL OPERATE AS DESIGNED AND INTENDED.
 - PROVIDE DEDICATED NEUTRALS FOR ALL CIRCUITS.
 - ALL DEVICES SHALL BE RECESSED MOUNTED FLUSH IN THE WALL, FLOOR, OR CEILING UNLESS OTHERWISE NOTED.
 - ALL MOUNTING HEIGHTS ARE INDICATED WITHIN THE LEGENDS UNLESS OTHERWISE INDICATED ON THE FLOOR PLANS.
 - CONTRACTOR SHALL X-RAY ANY NEW PENETRATIONS INTO AN EXISTING SLAB OR MASONRY WALL PRIOR TO CORING OR TRENCHING. COORDINATE X-RAY, CORING, AND TRENCHING WITH THE OWNER.

GENERAL LEGEND

⊕ ⊙ CEILING OR WALL MOUNTED JUNCTION BOX
 ⊕ MOTOR CONNECTION
 ⊕ HEAVY DUTY SAFETY SWITCH
 ▬ PANELBOARD (FLUSH OR SURFACE MOUNTED)
 — BRANCH CIRCUIT WIRING
 — BRANCH CIRCUIT HOMERUN
 — GROUND

NOTES: ALL MOUNTING HEIGHTS SHALL BE AS INDICATED IN THE LEGENDS OR INDICATED ON THE FLOOR PLANS. HEIGHT INDICATED ON FLOOR PLANS TAKE PRECEDENCE. (HEIGHT INDICATED IS TO CENTER OF THE DEVICE ABOVE FINISHED FLOOR).
 ALL DEVICES SHALL BE RECESSED MOUNTED FLUSH IN THE WALL, CEILING, OR FLOOR UNLESS OTHERWISE NOTED.

CIRCUIT DESCRIPTIONS - POWER

PANEL NAME
 CIRCUIT NUMBER
 PANEL NAME
 CIRCUIT NUMBER
 TYPICAL ROOM
 LC1A-4

NOTES: CIRCUITING WILL BE SHOWN ON THE POWER PLANS WHERE A CIRCUIT PROVIDES POWER TO MULTIPLE ROOMS. CIRCUITING MAY NOT BE SHOWN WHERE A CIRCUIT PROVIDES POWER TO ONLY ONE ROOM AS SHOWN ABOVE.

ELECTRICAL ABBREVIATIONS

A	AMPERE	LPMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
AFC	ABOVE FINISHED CEILING	LFNC	LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT
AFF	ABOVE FINISHED FLOOR	LV	LOW VOLTAGE
AFG	ABOVE FINISHED GRADE	MAX	MAXIMUM
AHU	AIR HANDLING UNIT	MC	METAL-CLAB CABLE
AIC	AMPERE INTERRUPTING CAPACITY	MCA	MINIMUM CIRCUIT AMPACITY
AMP	AMPERE	MCB	MAIN CIRCUIT BREAKER
ARCH	ARCHITECT/ARCHITECTURAL	MCC	MOTOR CONTROL CENTER
ATS	AUTOMATIC TRANSFER SWITCH	MIN	MINIMUM
AWG	AMERICAN WIRE GAUGE	MISC	MISCELLANEOUS
BFC	BELOW FINISHED CEILING	MLO	MAIN LUG ONLY
BRK	BREAKER	MOC	MAXIMUM OVER CURRENT PROTECTION
CIRC	CIRCUIT	MTS	MANUAL TRANSFER SWITCH
CLG	CEILING	NEC	NATIONAL ELECTRIC CODE
CCTV	CLOSED CIRCUIT TELEVISION	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
CU	CONDENSING UNIT	NFSS	NON-FUSED SAFETY SWITCH
CORR	CORRIDOR	NTS	NOT TO SCALE
CT	CURRENT TRANSFORMER/COOLING TOWER	#	NUMBER
CUH	CABINET UNIT HEATER	OC	OVER CURRENT PROTECTION DEVICE
DEMO	DEMOLITION	P	POLE
DISC	DISCONNECT	PDU	POWER DISTRIBUTION UNIT
DIST	DISTRIBUTION	PF	POWER FACTOR
DS	DISCONNECT SWITCH	PF	PROVISION FOR FUTURE
DWG	DRAWING	PH	PHASE
EC	ELECTRICAL CONTRACTOR	PNL	PANEL
EF	EXHAUST FAN	PSI	POUNDS PER SQUARE INCH
EGC	EQUIPMENT GROUNDING CONDUCTOR	PVC	RIGID POLYVINYL CHLORIDE CONDUIT
ELEC	ELECTRIC/ELECTRICAL	PWR	POWER
EM	EMERGENCY	Φ	PHASE
EMT	ELECTRICAL METALLIC TUBING	RIF	RADIO INTERFERENCE FILTER
ENT	ELECTRICAL NONMETALLIC TUBING	RLA	RUNNING LOAD AMPS
EPO	EMERGENCY POWER OFF	RM	ROOM
ETR	EXISTING TO REMAIN	RMC	RIGID METAL CONDUIT
EWC	ELECTRIC WATER COOLER	RTU	ROOF TOP UNIT
EWH	ELECTRIC WATER HEATER	SPEC	SPECIFICATION
EX	EXISTING	SS	SURGE SUPPRESSION
FACP	FIRE ALARM CONTROL PANEL	SW	SWITCH
FAAP	FIRE ALARM ANNUNCIATOR PANEL	SWBD	SWITCHBOARD
FLA	FULL LOAD AMPS	SWGR	SWITCHGEAR
FSS	FUSED SAFETY SWITCH	SYS	SYSTEM
FT	FOOT	TELE	TELEPHONE
GC	GENERAL CONTRACTOR	TEMP	TEMPERATURE
GEC	GROUNDING ELECTRODE CONDUCTOR	TV	TELEVISION
GEN	GENERATOR	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
GFI	GROUND FAULT INTERRUPTER	TYP	TYPICAL
GND	GROUND	UH	UNIT HEATER
HD	HEAVY DUTY	UL	UNDERWRITERS LABORATORY
HID	HIGH INTENSITY DISCHARGE	UON	UNLESS OTHERWISE NOTED
HOA	HAND OFF AUTO	UPS	UNINTERRUPTIBLE POWER SUPPLY
HP	HORSEPOWER	V	VOLT
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING	VA	VOLT AMPERE
HZ	HERTZ	VAV	VARIABLE AIR VOLUME
IG	ISOLATED GROUND	VFD	VARIABLE FREQUENCY DRIVE
IMC	INTERMEDIATE METAL CONDUIT	W	WATT/WEATHER PROOF
JB	JUNCTION BOX	WP	WEATHERPROOF
KO	KNOCK OUT		
KVA	KILOVOLT-AMPERE		
KW	KILOWATT		

POWER AND COMMUNICATIONS LEGEND

⊕ DUPLEX RECEPTACLE (+18")
 ⊕ RECEPTACLE ON EMERGENCY POWER

PANEL NAME AND CIRCUIT NUMBER DESCRIPTIONS:
 C - MOUNTED 8" ABOVE COUNTER
 G - GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE
 K - CLOCK HANGER RECEPTACLE
 R - CORD REEL RECEPTACLE
 T - TAMPER RESISTANT RECEPTACLE
 U - RECEPTACLE WITH BUILT-IN USB CHARGER
 W - WEATHERPROOF RECEPTACLE
 MOUNTING HEIGHT

- GENERAL DEMOLITION NOTES**
- COORDINATE ALL ELECTRICAL UTILITY AND ELECTRICAL DISTRIBUTION SHUTDOWNS WITH OWNER AND ARCHITECT. ANY SHUT DOWNS NECESSARY TO ACHIEVE THE OBJECTIVE OF THIS DESIGN SHALL BE COMPLETED DURING "OFF HOURS" AND SHALL COMPLY WITH OWNER'S UTILITY SHUT DOWN POLICIES. A MINIMUM OF 72 HOURS NOTIFICATION (OR AS INDICATED IN THE SPECIFICATIONS) OF ANY POTENTIAL POWER OUTAGE IS REQUIRED.
 - CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, PATCHING AND DEMOLITION OF ALL BUILDING SYSTEMS PER THEIR MEANS-AND-METHODS AS NECESSARY TO PROVIDE THE DESIGN INDICATED. CONTRACTOR SHALL RESTORE ALL AREAS TO PREVIOUS CONDITION, OR REPLACE DAMAGED ITEMS WITH NEW ITEMS TO MATCH EXISTING.
 - CONTRACTOR SHALL COORDINATE EXISTING ELECTRICAL SYSTEM OPERATION AND DEMOLITION WITH SPECIFIC AREAS SERVED. EXISTING ELECTRICAL SYSTEMS SHALL REMAIN OPERATIONAL IF SERVING AN AREA OUTSIDE OF THE PROJECT BOUNDARY AND SHALL NOT BE REMOVED UNTIL THE ELECTRICAL SYSTEM CAN BE SERVED BY ANOTHER SOURCE.
 - INFORMATION PROVIDED ON THESE DRAWINGS HAVE BEEN TAKEN FROM DESIGN DRAWINGS AND FIELD OBSERVATIONS. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO PRICING AND COMMENCEMENT OF WORK.
 - PLANS MAY NOT REFLECT TOTAL EXTENT OF EXISTING INSTALLED CONDITIONS. WHERE EXISTING WALLS ARE DEMOLISHED, REMOVE ALL EXISTING ELECTRICAL DEVICES AND THEIR ASSOCIATED CONDUITS AND WIRING BACK TO THE NEAREST ACTIVE JUNCTION BOX OUTSIDE OF THE PROJECT LIMITS OR BACK TO THE POINT OF ORIGINATION. RE-ENERGIZE ALL EXISTING DEVICES THAT WERE INTERRUPTED DURING DEMOLITION. WHERE ENTIRE CIRCUITS ARE REMOVED, TURN THE CIRCUIT BREAKER OFF AND LABEL AS "SPARE".
 - PROVIDE FOR ANY AND ALL DEMOLITION WORK NECESSARY TO ACCOMMODATE ALL NEW CONSTRUCTION, INCLUDING ARCHITECTURAL, MECHANICAL, PLUMBING OR ELECTRICAL WORK.
 - CONTRACTOR SHALL REMOVE ALL CONDUIT AND WIRING ASSOCIATED WITH DEVICES AND EQUIPMENT TO BE REMOVED AND/OR RELOCATED UNLESS OTHERWISE NOTED. PROVIDE AND INSTALL ALL NECESSARY DEVICES, EQUIPMENT AND ASSOCIATED MATERIALS REQUIRED TO MAINTAIN SERVICE TO ALL "EXISTING TO REMAIN" DEVICES AND EQUIPMENT THAT MAY BE INTERRUPTED DURING DEMOLITION.
 - REFER TO ARCHITECTURAL PLANS FOR AREAS WHERE CEILING IS DEMOLISHED. REMOVE ALL LIGHTING FIXTURES AND ASSOCIATED CONDUIT AND WIRING FROM THESE LOCATIONS.
 - ALL LIGHTING FIXTURES DEMOLISHED SHALL BE RETURNED TO THE OWNER.

LIGHTING LEGEND

⊕ 1'x4' LIGHT FIXTURE
 ⊕ CEILING OR WALL MOUNTED EXIT LIGHT (NUMBER OF FACES AND DIRECTIONAL ARROWS AS INDICATED ON THE FLOOR PLANS)
 ⊕ EMERGENCY LIGHT FIXTURE
 ⊕ COMBINATION EXIT LIGHT AND EMERGENCY LIGHT FIXTURE
 ⊕ LIGHT FIXTURE ON EMERGENCY POWER OR PROVIDED WITH EMERGENCY BATTERY BALLAST
 ⊕ UPPER CASE 'A' INDICATES LIGHT FIXTURE TYPE (SEE THE LIGHTING FIXTURE SCHEDULE)
 LOWER CASE 'a' INDICATES ASSOCIATED SWITCHING
 ⊕ SINGLE POLE SWITCH (+48")
 ⊕ LOWER CASE 'a' INDICATES ASSOCIATED LIGHT FIXTURE(S)
 ⊕ CEILING MOUNTED LINE-VOLTAGE DUAL TECHNOLOGY OCCUPANCY SENSOR, LOWER CASE 'a' INDICATES ASSOCIATED LIGHT FIXTURE(S)

FIRE SAFETY LEGEND

⊕ WALL MOUNTED FIRE ALARM VISUAL SIGNALING DEVICE (+80" TO BOTTOM OF DEVICE OR 6" BELOW FINISHED CEILING, WHICHEVER IS LOWER)
 xx=CANDELA SETTING
 ⊕ WALL MOUNTED FIRE ALARM AUDIO/VISUAL SIGNALING DEVICE (+80" TO BOTTOM OF DEVICE OR 6" BELOW FINISHED CEILING, WHICHEVER IS LOWER)
 xx=CANDELA SETTING
 ⊕ FIRE ALARM PULL STATION (+48")
 ⊕ CEILING MOUNTED SMOKE DETECTOR

DRAWING LIST

E0.01	ELECTRICAL LEGENDS, ABBREVIATIONS, AND NOTES
E0.02	ELECTRICAL SPECIFICATIONS
E0.03	ELECTRICAL SCHEDULES
E1.01	ELECTRICAL PLAN
E4.01	ELECTRICAL DETAILS

CONSTRUCTION DOCUMENTS

REVISIONS:
 DATE: 05-17-2016
 PROJECT NO: 10895-3
 EXP./CLIENT NO: N/A
 SCALE: NTS

ELECTRICAL LEGEND, ABBREVIATIONS, AND NOTES

SHEET NO.: **E0.01**

ELECTRICAL SPECIFICATIONS

1. GENERAL:

1.A. VOLTAGE CHARACTERISTICS:

1.A.1. OPERATING VOLTAGE CHARACTERISTICS SHALL BE 277/480V AND/OR 120/208V, 1Ø AND/OR 3Ø, 3 WIRE AND/OR 4 WIRE, WITH A GROUNDED NEUTRAL, AND 60 HERTZ. VERIFY EXACT REQUIREMENTS WITH ALL EQUIPMENT.

1.B. COORDINATION:

1.B.1. COORDINATE ARRANGEMENT, MOUNTING, AND SUPPORT OF ELECTRICAL EQUIPMENT TO ALLOW MAXIMUM POSSIBLE HEADROOM UNLESS SPECIFIC MOUNTING HEIGHTS THAT REDUCE HEADROOM ARE INDICATED, TO PROVIDE EASE OF DISCONNECTING THE EQUIPMENT WITH MINIMUM INTERFERENCE TO OTHER INSTALLATIONS, TO ALLOW RIGHT OF WAY FOR PIPING, DUCTWORK, AND OTHER SYSTEMS REQUIRING SLOPE AND RIGHT OF WAY INSTALLATION, AND SO CONNECTING RACEWAYS, CABLES, WIRWAYS, CABLE TRAYS, AND BUSWAYS WILL BE CLEAR OF OBSTRUCTIONS AND OF THE WORKING AND ACCESS SPACE OF OTHER EQUIPMENT.

1.B.2. COORDINATE INSTALLATION OF REQUIRED SUPPORTING DEVICES AND SET SLEEVES IN CAST-IN-PLACE CONCRETE, MASONRY WALLS, AND OTHER STRUCTURAL COMPONENTS AS THEY ARE CONSTRUCTED.

1.B.3. PROVIDE AND COORDINATE THE LOCATION OF ACCESS PANELS AND DOORS FOR ELECTRICAL ITEMS THAT ARE BEHIND FINISHED SURFACES OR OTHERWISE CONCEALED.

2. CONDUCTORS, RACEWAYS, AND BOXES:

2.A. CONDUCTORS:

2.A.1. ALL CONDUCTORS SHALL BE COPPER. CONDUCTORS SHALL BE SOLID FOR #10AWG AND SMALLER AND STRANDED FOR #8AWG AND LARGER. MINIMUM CONDUCTOR SIZE SHALL BE #12AWG.

2.A.2. CONDUCTOR INSULATION SHALL BE THHN-THWN.

2.A.3. CONDUCTORS FOR FEEDERS AND BRANCH CIRCUITS SHALL BE SINGLE CONDUCTORS IN A RACEWAY.

2.A.4. CONDUCTORS AT DEVICES AND EQUIPMENT SHALL BE PROVIDED WITH ADEQUATE SLACK TO MAKE FINAL CONNECTIONS.

2.A.5. BRANCH CIRCUITS THAT ARE OVER 100 FEET IN LENGTH FROM THE PANEL TO THE FIRST OUTLET SHALL HAVE THE CONDUCTORS ONE SIZE LARGER THAN INDICATED IN THE PANEL SCHEDULE.

2.A.6. THE QUANTITY OF CONDUCTORS MAY NOT BE INDICATED FOR ALL CIRCUITS. PROVIDE ALL CONDUCTORS AS REQUIRED FOR THE PROPER FUNCTION OF THE SYSTEM WHETHER INDICATED IN THE PANEL SCHEDULE OR NOT.

2.B. RACEWAYS:

2.B.1. RACEWAYS FOR INTERIOR APPLICATIONS SHALL BE ELECTRICAL METALLIC TUBING (EMT) WITH A MINIMUM SIZE OF 3/4" UNLESS OTHERWISE NOTED OR AS REQUIRED BY THE SPACE.

2.B.2. RACEWAYS FOR EXTERIOR APPLICATIONS SHALL BE PVC SCHEDULE 40 WITH A MINIMUM SIZE OF 1" UNLESS OTHERWISE NOTED OR AS REQUIRED BY THE SPACE.

2.B.3. EXPOSED RACEWAYS OR RACEWAYS SUBJECT TO PHYSICAL DAMAGE SHALL BE RIGID STEEL CONDUIT.

2.B.4. CONCEAL ALL RACEWAYS IN FINISHED WALLS, CEILINGS, AND FLOORS UNLESS OTHERWISE NOTED.

2.B.5. ANY EXPOSED RACEWAY SHALL BE RUN PARALLEL WITH OR AT RIGHT ANGLES TO THE BUILDING STRUCTURE, WALLS, OR PARTITIONS.

2.B.6. RACEWAY SUPPORTS SHALL BE STEEL HANGERS, CLAMPS, AND ASSOCIATED FITTINGS DESIGNED FOR TYPES AND SIZES OF RACEWAY TO BE SUPPORTED. SECURE ALL SUPPORTS TO THE BUILDING STRUCTURE. INSTALL AND SPACE SUPPORTS FOR RACEWAYS AS REQUIRED BY THE NEC UNLESS OTHERWISE NOTED.

2.B.7. EMT CONDUIT FITTINGS SHALL BE STEEL SET-SCREW.

2.B.8. MAINTAIN INDICATED FIRE RATING OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT RACEWAY PENETRATIONS. INSTALL SLEEVES AND SEAL WITH APPROPRIATE FIRESTOP MATERIALS TO MAINTAIN THE EXISTING RATING OF THE ASSEMBLY.

2.B.9. USE A MAXIMUM OF 72 INCHES OF TYPE HFC FLEXIBLE CONDUIT FOR FINAL CONNECTIONS TO LIGHT FIXTURES, EQUIPMENT SUBJECT TO VIBRATION OR MOVEMENT, MOTORS, AND TRANSFORMERS.

2.B.10. INSTALL A PULL STRING IN ALL EMPTY RACEWAYS.

2.B.11. CUT RACEWAY ENDS SQUARE AND REAM SMOOTH. DRAW UP RACEWAY ENDS TIGHT WITH THE CONDUIT CONNECTORS AND COUPLINGS.

2.B.12. WHERE RACEWAYS PENETRATE AN EXTERIOR WALL OR THE ROOF AND GO FROM AN INTERIOR SPACE TO AN EXTERIOR SPACE THOSE RACEWAYS SHALL BE SEALED TO PREVENT THE CIRCULATION OF WARM AIR TO A COLDER SECTION OF THE RACEWAY.

2.C. BOXES:

2.C.1. OUTLET BOXES SHALL BE RECESSED MOUNTED UNLESS OTHERWISE NOTED.

2.C.2. OUTLET BOXES SHALL BE CODE GAUGE STEEL AND OF THE SIZE INDICATED AS THE DRAWINGS OR AS REQUIRED FOR THE SPECIFIC CONDITIONS.

2.C.3. JUNCTION AND PULL BOXES SHALL GENERALLY BE LOCATED IN UNFINISHED SPACES AND ABOVE THE CEILING. PROVIDE PULL BOXES WHERE REQUIRED BY THE NEC AND WHEREVER NECESSARY TO FACILITATE THE PULLING OF CONDUCTORS. COVERS OF JUNCTION AND PULL BOXES SHALL BE ACCESSIBLE.

2.C.4. SET ALL BOXES SQUARE AND TRUE WITH ALL BUILDING FINISHES.

3. GROUNDING AND BONDING:

3.A. CONDUCTORS:

3.A.1. BOTH INSULATED AND BARE CONDUCTORS SHALL BE COPPER. INSULATION FOR INSULATED GROUNDING CONDUCTORS SHALL BE GREEN IN COLOR. CONDUCTORS SHALL BE SOLID FOR #8AWG AND SMALLER AND STRANDED FOR #6AWG AND LARGER.

3.A.2. INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTORS WITH ALL FEEDERS AND BRANCH CIRCUITS. EQUIPMENT GROUNDING CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE OVERCURRENT PROTECTIVE DEVICE SERVING THAT FEEDER OR BRANCH CIRCUIT.

3.B. MISCELLANEOUS:

3.B.1. GROUNDING BUS SHALL BE COPPER. BUS SHALL BE RECTANGULAR WITH A 1/4 BY 2 INCH CROSS SECTION UNLESS OTHERWISE NOTED.

3.B.2. GROUND RODS SHALL BE COPPER-CLAD AND 3/4 INCH BY 10 FEET IN SIZE UNLESS OTHERWISE NOTED.

4. IDENTIFICATION:

4.A. CONDUCTORS:

4.A.1. ALL CONDUCTORS 600V OR LESS SHALL BE IDENTIFIED FOR PHASE AND VOLTAGE LEVEL BY FOLLOWING COLORS UNLESS THE EXISTING FACILITIES IDENTIFICATION COLORS ARE DIFFERENT IN WHICH THOSE TAKE PRECEDENCE:

	PHASE A	PHASE B	PHASE C	NEUTRAL	GROUND
208/120V	BLACK	RED	BLUE	WHITE	GREEN
480/277V	BROWN	ORANGE	YELLOW	GRAY	GREEN

4.B. RACEWAYS AND JUNCTION BOXES:

4.B.1. RACEWAYS FOR CIRCUITS 600V OR LESS SHALL BE IDENTIFIED BY THE FOLLOWING COLORS UNLESS THE EXISTING FACILITIES IDENTIFICATION COLORS ARE DIFFERENT IN WHICH THOSE TAKE PRECEDENCE:

NORMAL POWER	SILVER
LIFE SAFETY POWER	YELLOW
CRITICAL POWER	ORANGE
EQUIPMENT POWER	GREEN
FIRE ALARM	RED

4.B.2. JUNCTION AND PULL BOX COVERS SHALL BE IDENTIFIED WITH PERMANENT MARKER IN LEGIBLE WRITING INDICATING THE SYSTEM VOLTAGE, BRANCH OF POWER, PANEL NAME, AND CIRCUIT NUMBER IF APPLICABLE.

4.C. EQUIPMENT:

4.C.1. EQUIPMENT SHALL BE IDENTIFIED WITH AN ENGRAVED, SELF-ADHESIVE LABEL INDICATING THE EQUIPMENT NAME, AMPERAGE, VOLTAGE, PHASE, BRANCH THE EQUIPMENT IS ON, WHERE THE EQUIPMENT IS FED FROM, AND THE FACILITY PHASING COLORS.

4.C.2. EQUIPMENT TO BE LABELED SHALL INCLUDE BUT NOT BE LIMITED TO: PANELBOARDS, TRANSFORMERS, SWITCHGEAR, SWITCHBOARDS, SUBSTATIONS, MOTOR CONTROL CENTERS, ENCLOSED SWITCHES, ENCLOSED BREAKERS, TRANSFER SWITCHES, UPS EQUIPMENT, AND GENERATORS.

5. EQUIPMENT:

5.A. PANELBOARDS:

5.A.1. ENCLOSURES SHALL BE FLUSH AND/OR SURFACE MOUNTED CABINETS AS INDICATED ON THE FLOOR PLANS.

5.A.2. ENCLOSURES SHALL BE NEMA 1 FOR INDOOR DRY AND CLEAN LOCATIONS, NEMA 3R FOR OUTDOOR LOCATIONS, AND NEMA 4X STAINLESS STEEL FOR KITCHEN AREAS.

5.A.3. ENCLOSURES, PANELS, AND TRIM SHALL BE STEEL.

5.A.4. PHASE, NEUTRAL, AND GROUND BUSES SHALL BE COPPER.

5.A.5. CONDUCTOR CONNECTORS SHALL BE MECHANICAL TYPE LUGS SUITABLE FOR COPPER CONDUCTORS.

5.A.6. PANELBOARDS SHALL HAVE A FULLY RATED SHORT-CIRCUIT CURRENT RATING.

5.A.7. PANELBOARD CIRCUIT BREAKERS SHALL BE MOLDED CASE, THERMAL-MAGNETIC, BOLT-ON TYPE CIRCUIT BREAKERS.

5.A.8. PROVIDE A TYPED DIRECTORY CARD INSIDE EACH PANELBOARD DOOR.

5.A.9. PANELBOARDS SHALL BE MANUFACTURED BY SQUARE D OR GE. PANELBOARDS SHALL MATCH THE EXISTING BASE BUILDING DISTRIBUTION EQUIPMENT MANUFACTURER.

5.B. TRANSFORMERS:

5.B.1. TRANSFORMERS SHALL BE VENTILATED DRY-TYPE TRANSFORMERS.

5.B.2. TRANSFORMERS SHALL BE PROVIDED WITH A COPPER COIL.

5.B.3. TRANSFORMERS SHALL BE PROVIDED WITH TWO (2) 2-1/2" TAPS ABOVE AND FOUR (4) 2-1/2" TAPS BELOW NORMAL FULL CAPACITY.

5.B.4. TRANSFORMERS SHALL BE PROVIDED WITH A 220°C INSULATION SYSTEM WITH A MAXIMUM RISE OF 150°C ABOVE A 40°C AMBIENT TEMPERATURE.

5.B.5. TRANSFORMERS SHALL BE ENERGY EFFICIENT AND COMPLY WITH NEMA TP 1 AND NEMA TP 2 STANDARDS.

5.B.6. TRANSFORMERS SHALL HAVE LOW SOUND LEVELS AND COMPLY WITH NEMA ST 20.

5.B.7. TRANSFORMERS SHALL BE PROVIDED WITH ELECTROSTATIC SHIELDING AND FUNGUS PROOFING.

5.B.8. TRANSFORMERS SHALL BE MANUFACTURED BY SQUARE D, GE, OR POWERSMITHS. TRANSFORMERS SHALL MATCH THE EXISTING BASE BUILDING DISTRIBUTION EQUIPMENT MANUFACTURER.

5.C. ENCLOSED SWITCHES AND CIRCUIT BREAKERS:

5.C.1. ENCLOSED SWITCHES SHALL BE HEAVY DUTY, SINGLE THROW, AND HORSEPOWER RATED WITH A LOCKABLE HANDLE THAT IS INTERLOCKED WITH THE COVER IN THE CLOSED POSITION.

5.C.2. ENCLOSED CIRCUIT BREAKERS SHALL BE MOLDED CASE, THERMAL-MAGNETIC TYPE CIRCUIT BREAKERS.

5.C.3. CONDUCTOR CONNECTORS SHALL BE MECHANICAL TYPE LUGS SUITABLE FOR COPPER CONDUCTORS.

5.C.4. ENCLOSED SWITCHES AND CIRCUIT BREAKERS SHALL BE PROVIDED WITH EQUIPMENT GROUND AND NEUTRAL BARS AS REQUIRED.

5.C.5. ENCLOSURES SHALL BE NEMA 1 FOR INDOOR DRY AND CLEAN LOCATIONS, NEMA 3R FOR OUTDOOR LOCATIONS, AND NEMA 4X STAINLESS STEEL FOR KITCHEN AREAS.

5.C.6. ENCLOSED SWITCHES AND CIRCUIT BREAKERS SHALL BE MANUFACTURED BY SQUARE D OR GE. ENCLOSED SWITCHES AND CIRCUIT BREAKERS SHALL MATCH THE EXISTING BASE BUILDING DISTRIBUTION EQUIPMENT MANUFACTURER.

5.D. FUSES:

5.D.1. FUSES FOR FEEDERS SHALL BE CLASS RK1 TIME DELAY CARTRIDGE TYPE FUSES.

5.D.2. FUSES FOR MOTOR BRANCH CIRCUITS AND ALL OTHER BRANCH CIRCUITS SHALL BE CLASS RK5 TIME DELAY CARTRIDGE TYPE FUSES.

5.D.3. FUSES SHALL BE MANUFACTURED BY COOPER BUSSMANN, FERRAZ SHAWMUT, OR LITTLEFUSE.

5.E. MISCELLANEOUS:

5.E.1. EQUIPMENT SHALL BE PROVIDED WITH TERMINATION CONNECTIONS RATED AT 75°C.

5.E.2. ELECTRICAL EQUIPMENT SHALL BE FIELD MARKED WITH A WARNING LABEL TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS.

5.E.3. DRAWINGS INDICATE MAXIMUM DIMENSIONS FOR EQUIPMENT INCLUDING CLEARANCES BETWEEN EQUIPMENT AND ADJACENT SURFACES AND OTHER ITEMS. COMPLY WITH INDICATED MAXIMUM DIMENSIONS.

5.E.4. MAINTAIN REQUIRED WORKSPACE CLEARANCES AND REQUIRED CLEARANCES FOR EQUIPMENT ACCESS DOORS AND PANELS.

6. WIRING DEVICES:

6.A. GENERAL:

6.A.1. ALL DEVICES SHALL BE MANUFACTURED BY COOPER, HUBBELL, LEVITON, OR PASS & SEYMOUR.

6.A.2. WIRING DEVICES CONNECTED TO NORMAL POWER SHALL BE IVORY IN COLOR UNLESS OTHERWISE INDICATED BY THE ARCHITECT OR OWNER. WIRING DEVICES CONNECTED TO EMERGENCY POWER SHALL BE RED IN COLOR.

6.A.3. DEVICES COVERPLATES SHALL BE BRUSHED STAINLESS STEEL UNLESS OTHERWISE INDICATED BY THE ARCHITECT OR OWNER. DEVICE COVERPLATES SHALL BE ENGRAVED WITH THE PANEL NAME AND CIRCUIT NUMBER.

6.A.4. ALL WIRING DEVICES SHALL BE CAPABLE OF BEING GANGED TOGETHER WHERE SHOWN ON THE FLOOR PLANS.

6.A.5. KEEP DEVICE BOXES FREE OF PLASTER, DRYWALL JOINT COMPOUND, MORTAR, CEMENT, CONCRETE, DUST, PAINT, AND OTHER MATERIAL THAT MAY CONTAMINATE THE RACEWAY SYSTEM, CONDUCTORS, AND CABLES.

6.A.6. INSTALL DEVICE BOXES IN BRICK OR BLOCK WALLS SO THAT THE COVER PLATE DOES NOT CROSS A JOINT UNLESS THE JOINT IS TROWELED FLUSH WITH THE FACE OF THE WALL.

6.A.7. INSTALL WIRING DEVICES AFTER ALL WALL PREPARATION, INCLUDING PAINTING, IS COMPLETE.

6.B. RECEPTACLES:

6.B.1. RECEPTACLES SHALL BE 20A, 125V GROUNDING TYPE.

6.B.2. RECEPTACLES SHALL BE HOSPITAL GRADE.

6.B.3. SPECIAL NEMA RECEPTACLES SPECIFICATION SHALL BE SPECIFICATION GRADE SIMPLEX OUTLETS.

6.B.4. INSTALL GROUND PIN OF VERTICALLY MOUNTED RECEPTACLES UP, AND ON HORIZONTALLY MOUNTED RECEPTACLES TO THE RIGHT.

6.C. SWITCHES:

6.C.1. SWITCHES SHALL BE 20A, AND EITHER 120V OR 277V GROUNDING TYPE.

6.C.2. SWITCHES SHALL BE SPECIFICATION GRADE.

6.C.3. DIMMER SWITCHES SHALL BE CONTINUOUSLY ADJUSTABLE TOGGLE SWITCH TYPE DIMMING SWITCHES. WHEN USED FOR FLUORESCENT AND LED LAMPS DIMMER SWITCHES SHALL BE COMPATIBLE WITH THE SUPPLIED BALLASTS AND DRIVERS.

6.C.4. COORDINATE THE LIGHT SWITCH LOCATIONS WITH DOOR SWINGS. SWITCHES SHALL BE INSTALLED ON THE LATCH SIDE OF THE DOOR AS CLOSE TO THE FRAME AS POSSIBLE.

6.D. OCCUPANCY SENSORS:

6.D.1. WALL MOUNTED DUAL TECHNOLOGY AUTOMATIC WALL SWITCH OCCUPANCY SENSORS SHALL BE WATTSTOPPER #DSW-301.

6.D.2. CEILING MOUNTED LINE-VOLTAGE DUAL TECHNOLOGY OCCUPANCY SENSORS SHALL BE WATTSTOPPER #DT-355.

6.D.3. CEILING MOUNTED LOW-VOLTAGE DUAL TECHNOLOGY OCCUPANCY SENSORS SHALL BE WATTSTOPPER #DT-305. PROVIDE WATTSTOPPER POWER PACK #BZ-150 FOR USE WITH THE LOW-VOLTAGE OCCUPANCY SENSORS.

7. LIGHTING:

7.A. FIXTURES:

7.A.1. PROVIDE A COMPLETE SYSTEM OF LIGHTING FIXTURES, ACCESSORIES, AND SUPPORTS AS SPECIFIED IN THE LIGHTING FIXTURE SCHEDULE AND AS SHOWN ON THE DRAWINGS.

7.A.2. COORDINATE THE LIGHTING FIXTURE LAYOUT WITH THE ARCHITECTURAL REFLECTED CEILING PLAN. ALL LIGHTING FIXTURES MOUNTED IN LAY-IN CEILING TILES SHALL BE LOCATED IN THE CENTER OF THE TILE UNLESS OTHERWISE DIRECTED BY THE ENGINEER OR ARCHITECT. SET LIGHT FIXTURES LEVEL, PLUMB, AND SQUARE WITH CEILINGS AND WALLS.

7.A.3. LIGHTING FIXTURES SUPPORT WIRES SHALL BE 12 GAUGE ZINC-COATED STEEL.

7.B. LAMPS:

7.B.1. PROVIDE RAPID-START LOW MERCURY LAMPS FOR ALL LIGHT FIXTURES.

7.B.2. LAMPS SHALL HAVE A MINIMUM COLOR TEMPERATURE OF 3500K UNLESS OTHERWISE SPECIFIED IN THE LIGHTING FIXTURE SCHEDULE.

7.C. BALLASTS:

7.C.1. BALLASTS FOR T5, T8, AND CFL LAMPS SHALL BE ELECTRONIC PROGRAMMED RAPID-START BALLASTS WITH A THD OF LESS THAN 10 PERCENT.

7.C.2. PROVIDE ELECTRONIC BALLASTS FOR DIMMER CONTROLLED LIGHTING FIXTURES THAT ARE COMPATIBLE WITH THE SUPPLIED DIMMER SWITCH.

7.C.3. PROVIDE OF ELECTRONIC BALLASTS FOR ALL EXTERIOR LIGHT FIXTURES.

8. LOW VOLTAGE SYSTEMS:

8.A. TELECOMMUNICATIONS

8.A.1. PROVIDE A RECESSED BOX WITH A 3/4" EMPTY CONDUIT WITH PULL STRING STUBBED INTO THE ACCESSIBLE CEILING SPACE FOR ALL TELECOMMUNICATIONS OUTLETS.

8.A.2. CONCEAL ALL TELECOMMUNICATION RACEWAYS AND WIRING IN FINISHED WALLS, CEILINGS, AND FLOORS UNLESS OTHERWISE NOTED.

9. FIRE ALARMS:

9.A. PART ONE:

9.A.1. "PROVIDE" MEANS FURNISH AND INSTALL. CONTRACTOR IS RESPONSIBLE FOR A COMPLETE AND OPERATING SYSTEM. DIFFERENCES AND/OR CONFLICTS BETWEEN CONTRACT DRAWING AND SPECIFICATION & SHOP DRAWINGS, SHALL BE CALLED TO THE BUILDERS ATTENTION. IF DIFFERENCES AND/OR CONFLICTS ARE NOT NOTED TO BUILDERS PRIOR TO CONTRACT, BUILDER SHALL DETERMINE GOVERNING CONDITION AND SUB-CONTRACTOR SHALL PERFORM WORK AT NO ADDITIONAL COST.

9.B. PART TWO - SUMMARY:

9.B.1. SYSTEM DESCRIPTION: NONCODED, UL-CERTIFIED ADDRESSABLE SYSTEM; MULTIPLEXED SIGNAL TRANSMISSION, DEDICATED TO FIRE ALARM SERVICE ONLY.

9.B.2. QUALITY ASSURANCE:
9.B.2.1. QUALITY STANDARD: NFPA 72
9.B.2.2. THE INSTALLER SHALL BE NICET CERTIFIED AS A FIRE ALARM TECHNICIAN.

9.B.3. SYSTEMS OPERATIONAL DESCRIPTION:

A. SIGNAL INITIATION FROM:
1. MANUAL STATIONS
2. HEAT DETECTORS
3. FLAME DETECTORS
4. SMOKE DETECTORS
5. DUCT SMOKE DETECTORS
6. VERIFIED AUTOMATIC ALARM OPERATION OF SMOKE DETECTORS.
7. AUTOMATIC SPRINKLER SYSTEM WATER FLOW.
8. HEAT DETECTORS IN ELEVATOR SHAFT AND PIT.
9. FIRE-EXTINGUISHING SYSTEM OPERATION.
10. FIRE STANDPIPE SYSTEM WATER FLOW.

B. SIGNAL INITIATES THE FOLLOWING ACTIONS:
1. CONTINUOUSLY OPERATE ALARM NOTIFICATION APPLIANCES.
2. IDENTIFY ALARM AT THE FIRE ALARM CONTROL UNIT.
3. TRANSMIT AN ALARM SIGNAL TO THE REMOTE ALARM RECEIVING STATION.
4. UNLOCK ELECTRIC DOOR LOCKS IN DESIGNATED EGRESS PATHS.
5. RELEASE FIRE AND SMOKE DOORS HELD OPEN BY MAGNETIC DOOR HOLDERS.
6. ACTIVATE ALARM COMMUNICATION SYSTEM.
7. SWITCH HEATING, VENTILATING, AND AIR CONDITIONING EQUIPMENT CONTROLS TO FIRE-ALARM MODE.
8. ACTIVATE SMOKE-CONTROL SYSTEM (SMOKE MANAGEMENT) AT FIREFIGHTER SMOKE CONTROL SYSTEM PANEL.
9. CLOSE SMOKE DAMPERS IN AIR DUCTS FOR DESIGNATED AIR CONDITIONING SYSTEMS.
10. RECORD EVENTS IN THE SYSTEM MEMORY.

C. SUPERVISORY SIGNAL INITIATION BY:

1. VALVE SUPERVISORY SWITCH.
2. LOW AIR-PRESSURE SWITCH OF A DRY-PIPE SPRINKLER SYSTEM.
3. ELEVATOR SHUNT-TRIP SUPERVISION.

D. TROUBLE SIGNAL INITIATION BY:

1. OPEN CIRCUITS, SHORTS, AND GROUNDS, IN DESIGNATED CIRCUITS.
2. OPENING, TAMPERING WITH, OR REMOVING ALARM-INITIATING AND SUPERVISORY SIGNAL-INITIATING DEVICES.
3. LOSS OF PRIMARY POWER AT FIRE-ALARM CONTROL UNIT.
4. GROUND OR A SINGLE BREAK IN FIRE-ALARM CONTROL UNIT INTERNAL CIRCUITS.
5. ABNORMAL AC VOLTAGE AT THE FIRE-ALARM CONTROL UNIT.
6. BREAK IN STANDBY BATTERY CIRCUIT.
7. FAILURE OF BATTERY CHARGING.
8. ABNORMAL POSITION OF ANY SWITCH AT THE FIRE-ALARM CONTROL UNIT OR ANNUNCIATOR.
9. LOW AIR-PRESSURE SWITCH OPERATION ON A DRY-PIPE OR PREACTION SPRINKLER SYSTEM.

E. SYSTEM TROUBLE AND SUPERVISORY SIGNAL ACTIONS: INITIATE NOTIFICATION APPLIANCE AND ANNUNCIATE AT FIRE-ALARM CONTROL UNIT.

2.4 PRODUCTS

A. FIRE-ALARM CONTROL UNIT: MODULAR, POWER-LIMITED DESIGN WITH ELECTRONIC MODULES, ADDRESSABLE INITIATION DEVICES.
B. MANUAL FIRE ALARM BOXES: DOUBLE ACTION
C. SYSTEM SMOKE DETECTORS: BASE MOUNTED, SELF-RESTORING, WITH INTEGRAL VISUAL-INDICATING LIGHT.
D. NOTIFICATION APPLIANCES:
1. CHIMES: HIGH LEVEL OUTPUT.
2. HORNS: ELECTRIC-VIBRATING-POLARIZED TYPE, 24-V DC.
3. VISUAL ALARM DEVICES: NEON STROBE LIGHTS.
E. REMOTE ANNUNCIATOR: ALPHANUMERIC DISPLAY SAME AS FIRE-ALARM CONTROL UNIT.
F. DIGITAL ALARM COMMUNICATOR TRANSMITTER: FOR TRANSMISSION OF FIRE-ALARM, SUPERVISORY, AND TROUBLE SIGNALS TO A REMOTE ALARM RECEIVING STATION OR ANOTHER REMOTE LOCATION BY MEANS OF TELEPHONE LINES.
2.5 TESTING: BY FIRE ALARM CONTRACTOR.

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CONSTRUCTION
DOCUMENTS

REVISIONS:

DATE: 05-17-2016

PROJECT NO: 10895-3

EXP./CLIENT NO: N/A

SCALE: XX

**ELECTRICAL
SPECIFICATIONS**

SHEET NO.:

E0.02

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DATE: 05-17-2016

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EXP./CLIENT NO: N/A

SCALE: XX

ELECTRICAL SCHEDULES

SHEET NO.:

E0.03

PANEL SCHEDULE (EXISTING)

PANEL ID: PANEL 3C
 LOCATION: ELECTRIC ROOM
 FED FROM: EXISTING
 MOUNTING: SURFACE
 ENCLOSURE: NEMA-1

VOLTAGE: 208/120V
 PHASE: 3 PHASE, 4 WIRE
 MAINS: NONE
 MAIN BUS: 400A
 AIC: 10,000

BRANCH: NORMAL
 BUS TYPE: COPPER
 NEUTRAL: 100%
 ISOLATED GND BUS: NO
 FEED THROUGH LUGS: NO

Circuit	Load Description	Load (VA)	Wire Size	Grd Size	Cond	Amps	Pole	A	B	C	Pole	Amps	Cond	Grd Size	Wire Size	Load (VA)	Load Description	Circuit
1	MEN & WOMEN TOILET LIGHTS	200	12	12	3/4	20	1	300				1	20	3/4	12	100	OFFICE/CORRIDOR LIGHTS	2
3	EXTERIOR LIGHT	100	12	12	3/4	20	1	300			1	20	3/4	12	12	200	DRINKING FOUNTAINS	4
5	OFFICE RECEPTACLES	130	12	12	3/4	20	1		630		1	20	3/4	12	12	500	CORRIDOR RECEPT.	6
7	WATER HEATER	18000	6	8	1	65	3	18230			1	20	3/4	10	10	230	MENS TOILET HEAT	8
9		18000	6	-	-	-	-	18230			1	20	3/4	10	10	230	WOMENS TOILET HEAT	10
11		18000	6	-	-	-	-	18500			1	20	3/4	12	12	500	INTAKE & EXHAUST FANS	12
13	CORRIDOR HEAT	150	12	12	3/4	20	1	1350			1	15	3/4	12	12	1200	MINI-SPLIT SYSTEM	14
15	MEN'S TOILET HAND DRYER #1	1725	12	12	3/4	20	1	1725			1	-	-	-	-	-		16
17	MEN'S TOILET HAND DRYER #2	1725	12	12	3/4	20	1		3450		1	20	3/4	12	12	1725	WOMEN'S TOILET HAND DRY. #1	18
19	SPARE		-	-	-	20	1	1725			1	20	3/4	12	12	1725	WOMEN'S TOILET HAND DRY. #2	20
21	SPARE		-	-	-	20	1	0			1	20	-	-	-	-	SPARE	22
23	SPARE		-	-	-	20	1	0			1	20	-	-	-	-	SPARE	24
25	SPARE		-	-	-	20	1	0			1	20	-	-	-	-	SPARE	26
27	SPARE		-	-	-	20	1	0			1	20	-	-	-	-	SPARE	28
29	SPARE		-	-	-	20	1	0			1	20	-	-	-	-	SPARE	30
31	SPARE		-	-	-	20	1	0			1	20	-	-	-	-	SPARE	32
33	SPARE		-	-	-	20	1	0			1	20	-	-	-	-	SPARE	34
35	SPARE		-	-	-	20	1	0			1	20	-	-	-	-	SPARE	36
37	SPARE		-	-	-	20	1	0			1	20	-	-	-	-	SPARE	38
39	SPARE		-	-	-	20	1	0			1	20	-	-	-	-	SPARE	40
41	SPARE		-	-	-	20	1	0			1	20	-	-	-	-	SPARE	42

BASIS OF DESIGN: SQUARE-D NQOB (208/120V) AND SQUARE-D NF (480/277V)
 ◆ HACR BREAKER

	CONNECTED LOAD (VA)			DEMAND FACTOR	DEMAND LOAD (VA)		
	A	B	C		A	B	C
LIGHTING:	300	100	0	1.25	375	125	0
RECEPTACLES (TOTAL):	0	200	630	0.00	0	0	0
RECEPTACLES (1ST 10 KVA):	0	200	630	1.00	0	200	630
RECEPTACLES (REMAINDER):	0	0	0	0.50	0	0	0
LARGEST MOTOR LOAD:	0	0	0	1.25	0	0	0
REMAINING HVAC LOADS:	21305	19955	21950	1.00	21305	19955	21950
MISCELLANEOUS:	0	0	0	1.00	0	0	0
KITCHEN EQUIPMENT:	0	0	0	1.00	0	0	0
SUBTOTAL:	21605	20255	22580		21680	20280	22580
TOTAL CONNECTED LOAD:	64.4 KVA			TOTAL DEMAND LOAD:	64.5 KVA		
TOTAL CONNECTED AMP, PHASE:	180.0	168.8	188.2 A	TOTAL DEMAND AMP, PHASE:	180.7	169.0	188.2 A

LIGHTING FIXTURE SCHEDULE

MARK	MANUFACTURER	CATALOG #	DESCRIPTION	MOUNTING	NO.	LAMPS		REMARKS
						TYPE	VOLTAGE	
A1	LITHONIA LIGHTING	STL4-20L-EZ1-LP840	1FT X 4FT SURFACE	SURFACE	9	LED INCLUDED WITH FIXTURE	120/277	WHITE FINISH W/ ACRYLIC LENS
A2	LITHONIA LIGHTING	W-2-32-MVOLT-AE	4FT VANITY	SURFACE	4	32 WATT T8 LAMP	120/277	WHITE FINISH W/ ACRYLIC LENS
A3	LITHONIA LIGHTING	REAL6C-D6MMW-ESL-1500L-35K-.955C-120-LP6LN-PFMW	6 INCH DOWNLIGHT	RECESSED	1	LED INCLUDED WITH FIXTURE	120	MATTE WHITE PLASTIC FLANGE RING
E1	LITHONIA LIGHTING	EU2-LED-M12	EMERGENCY LIGHT	SURFACE	3	LED INCLUDED WITH FIXTURE	120/277	WHITE PLASTIC HOUSING
W1	LITHONIA LIGHTING	TWR1-LED-2-50K-MVOLT-PE	EXTERIOR WALL LUMINAIRE	SURFACE	1	LED INCLUDED WITH FIXTURE	120/277	DARK BRONZE FINISH
X1	LITHONIA LIGHTING	ECR-LED-M6	EXIT SIGN	SURFACE	1	LED INCLUDED WITH FIXTURE	120/277	EXIT SIGN WITH EMERGENCY EGRESS LIGHTS

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CONSTRUCTION DOCUMENTS

REVISIONS:

DATE: 05-17-2016

PROJECT NO: 10895-3

EXP./CLIENT NO: N/A

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

ELECTRICAL PLAN

SHEET NO.:

E1.01

GENERAL NOTES

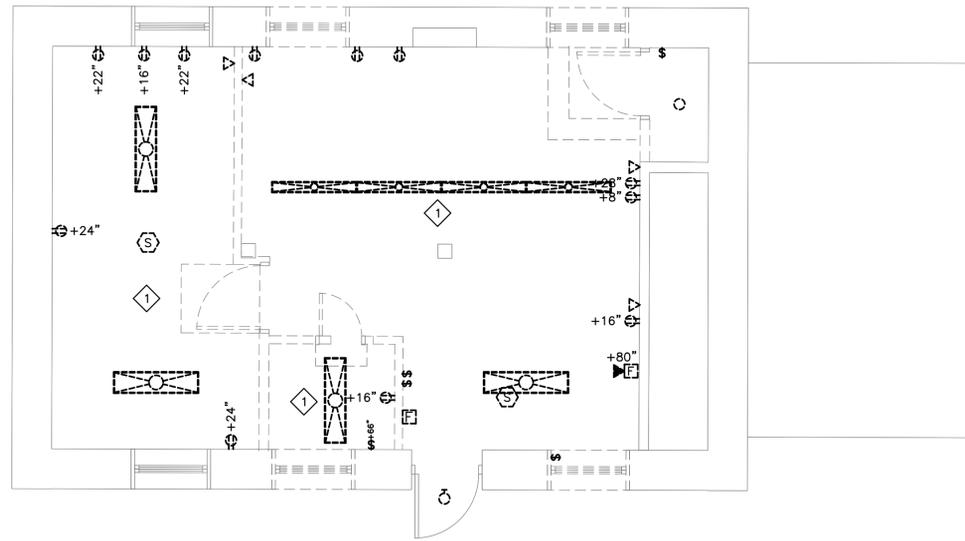
- COORDINATE EXISTING PANEL TO BE UTILIZED WITH OWNER. PANEL SCHEDULE AND CIRCUITS ARE SHOWN FOR DESIGN PURPOSES.

DEMOLITION NOTES

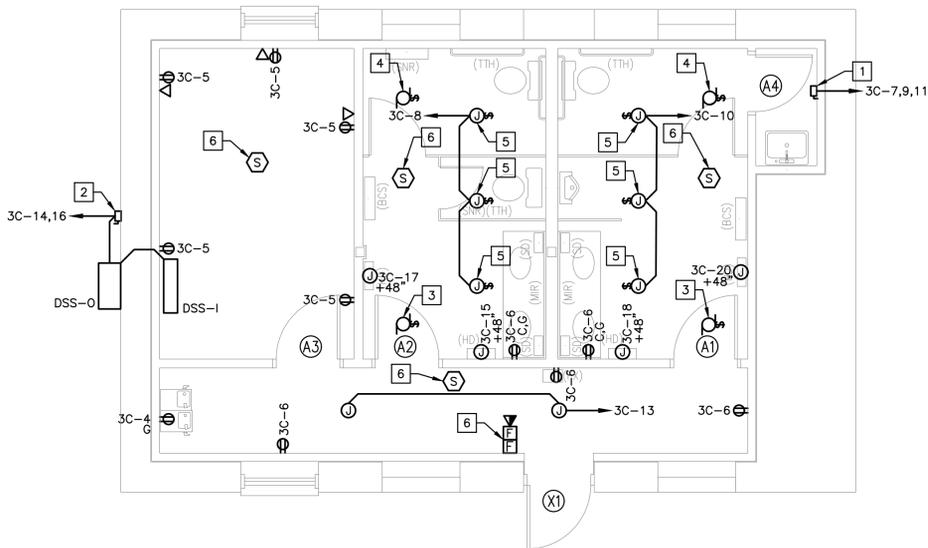
- REMOVE ALL EXISTING ELECTRICAL AND DATA DEVICES WITHIN RENOVATION AREA.

CONSTRUCTION NOTES

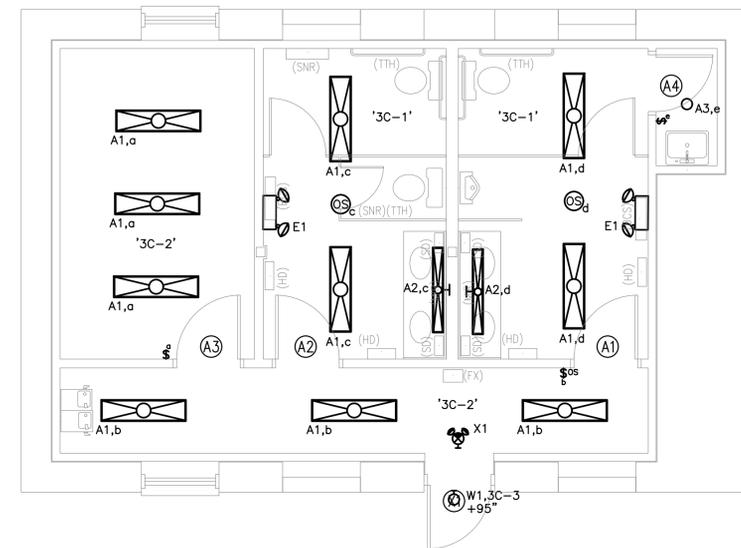
- DISCONNECT: 100A, 240V, 3Ø FOR WATER HEATER.
- DISCONNECT: 30A, 240V, 1Ø FOR MINI-SPLIT UNIT.
- INTAKE FAN: 0.06HP, 0.43A, 115V, 1Ø WIRED TO ROOM OCCUPANCY SENSOR. PROVIDE TOGGLE SWITCH DISCONNECT AT EACH FAN.
- EXHAUST FAN: 0.06HP, 0.43A, 115V, 1Ø WIRED TO ROOM OCCUPANCY SENSOR. PROVIDE TOGGLE SWITCH DISCONNECT AT EACH FAN.
- INSTALL JUNCTION BOX TO SERVE RADIANT HEATING PANEL. PROVIDE TOGGLE SWITCH DISCONNECT AT EACH RADIANT HEATING PANEL.
- CONNECT NEW SMOKE DETECTORS, PULL STATION, AND STROBE INTO EXISTING FIRE ALARM SYSTEM.



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

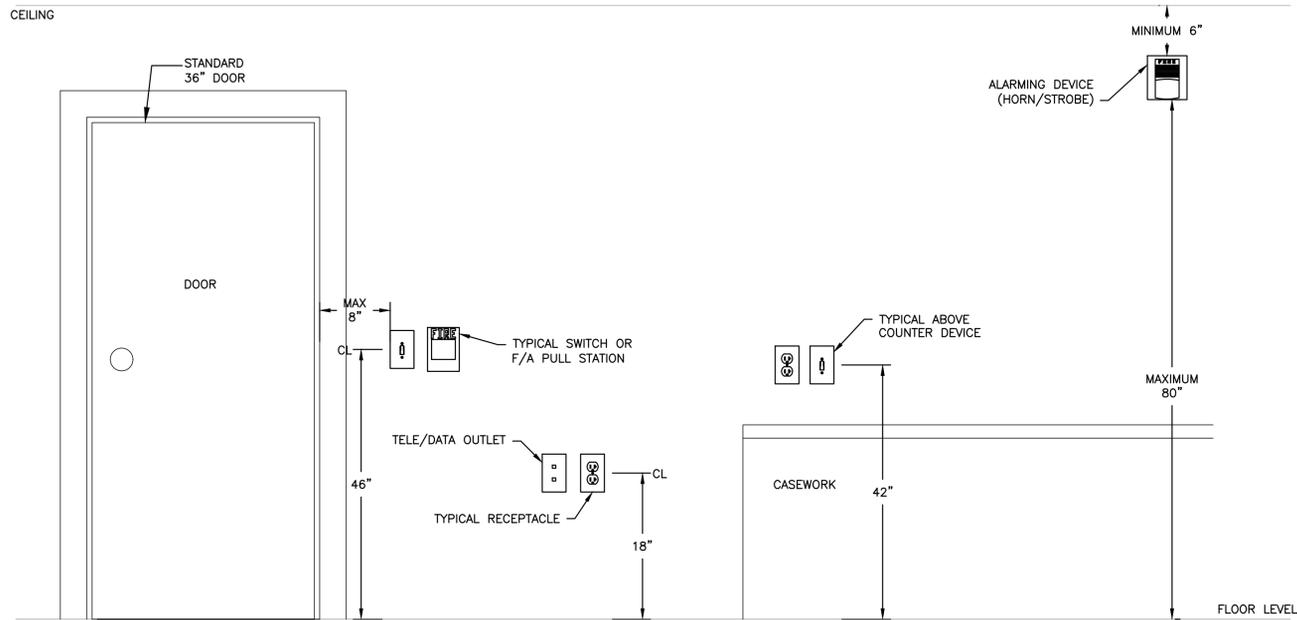


ELECTRICAL POWER PLAN
 SCALE: 1/4" = 1'-0"



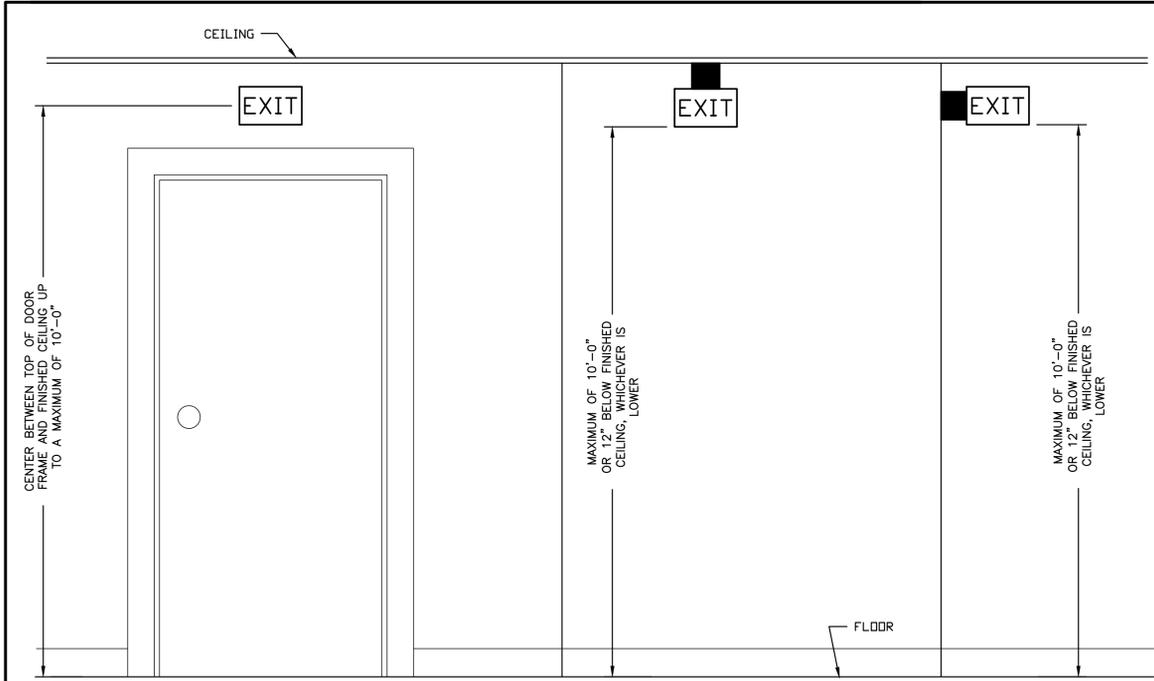
ELECTRICAL LIGHTING PLAN
 SCALE: 1/4" = 1'-0"





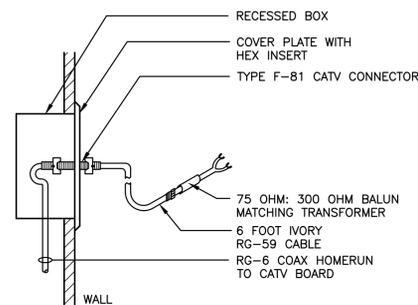
NOTE:
COORDINATE ALL DEVICE MOUNTING LOCATIONS WITH WALL FINISHES, ARCHITECTURAL ELEMENTS, AND CASEWORK ELEVATION BEFORE INSTALLATION. IN RENOVATION PROJECTS, DEVICE HEIGHTS SHALL MATCH THE BUILDING STANDARD IF CODE ALLOWS.

ELECTRICAL DEVICE MOUNTING HEIGHT DETAIL
NOT TO SCALE

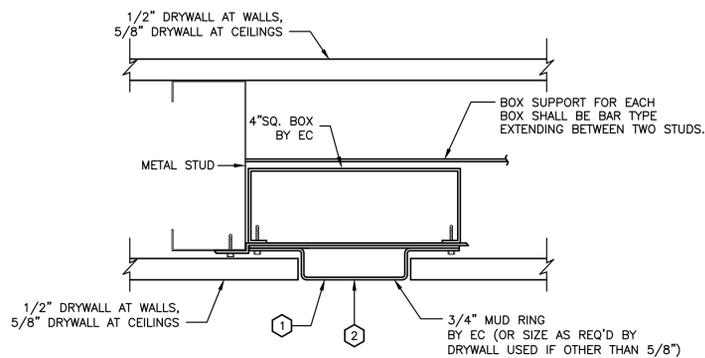


NOTES:
1. ABSOLUTE MINIMUM MOUNTING HEIGHT OF EXIT SIGNS SHALL BE 88 INCHES TO BOTTOM OF SIGN.

EXIT SIGN MOUNTING DETAIL
NOT TO SCALE

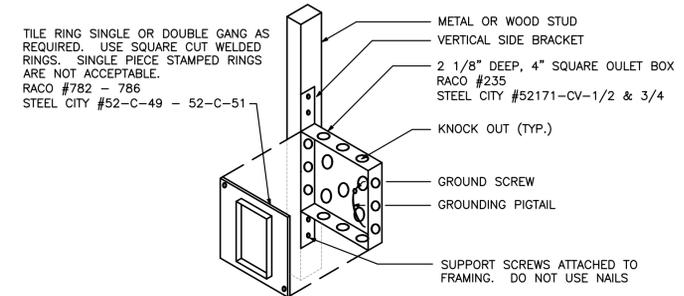


CATV OUTLET DETAIL
NOT TO SCALE



- PLAN VIEW**
- ① USE MUD RING 1/8" DEEPER THAN DRYWALL THICKNESS TO ASSURE MUD RING IS FLUSH WITH FACE OF DRYWALL. EC IS RESPONSIBLE FOR MUD RING FLUSH WITH DRYWALL AND SHALL BE RESPONSIBLE TO PAY DRYWALL CONTRACTOR TO REDO DRYWALL WALLS IF OUTLET BOX INSTALLATION IS NOT CORRECT AND MUD RING IS NOT FLUSH.
 - ② PROVIDE CADDY 'RC' CLIP FOR ALL OUTLET BOXES.

DRYWALL OUTLET BOX INSTALLATION DETAIL
NOT TO SCALE



FLUSH OUTLET BOX DETAIL IN METAL OR WOOD FRAMING
NOT TO SCALE
1 TO 2 GANG

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CONSTRUCTION DOCUMENTS

REVISIONS:

DATE: 05-17-2016

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SCALE: XX

ELECTRICAL DETAILS

SHEET NO.:

E4.01