LIGHTING SYMBOLS

THE FOLLOWING ABBREVIATIONS ARE APPLICABLE TO ALL LIGHTING FIXTURES UNLESS OTHERWISE NOTED. REFER TO ARCHITECTURAL DRAWING A-200.00 FOR TYPE, MANUFACTURER, MODEL NUMBER, AND REMARKS FOR ARCHITECTURAL / FRONT-OF-HOUSE LIGHTING FIXTURES AND EXIT SIGNS.

A = FIXTURE TYPE
a = SWITCH DESIGNATION; FIXTURES CONTROLLED BY SWITCH 'a'
EM = DENOTES LIGHTING FIXTURE CONNECTED TO EMERGENCY BACKUP GENERATOR (THE CIRCUIT TAG SHOWING THE PANEL NAME MAY ALSO BE USED TO INDICATE LIGHT FIXTURES CONNECTED TO THE EMERGENCY BACKUP GENERATOR.)
NL = UNSWITCHED LIGHT FIXTURE

EM/NL A a	WALL-MOUNTED LED LIGHT FIXTURE
EM/NL A a	2' x 4' RECESSED CEILING-MOUNTED LED LIGHT FIXTURE
EM/NL A a	2' x 2' RECESSED CEILING-MOUNTED LED LIGHT FIXTURE
EM/NL A a	LINEAR RECESSED CEILING-MOUNTED LED LIGHT FIXTURE
EM/NL A a	RECESSED CEILING-MOUNTED DOWNLIGHT LED LIGHT FIXTURE
EM/NL A a	RECESSED CEILING-MOUNTED WALL WASHER / ACCENT LIGHT LED LIGHT FIXTURE
EM/NL A a	LED STRIP LIGHT FIXTURE
X	CEILING MOUNTED EXIT SIGN; TYPE 'X' - DIRECTIONAL ARROWS WHERE INDICATED - SHADED AREAS INDICATE ILLUMINATED FACE(S) UPON WHICH "EXIT" APPEARS
X	WALL MOUNTED EXIT SIGN; TYPE 'X' - DIRECTIONAL ARROWS WHERE INDICATED - SHADED AREAS INDICATE ILLUMINATED FACE(S) UPON WHICH "EXIT" APPEARS
A	EMERGENCY BATTERY PACK LIGHT UNIT

LIGHTING CONTROLS SYMBOLS

THE FOLLOWING ABBREVIATIONS ARE APPLICABLE TO ALL LIGHTING CONTROL DEVICES UNLESS OTHERWISE NOTED. ARCHITECT TO SELECT COLOR FOR ALL WALL SWITCHES.
a = SWITCH DESIGNATION; CONTROLS LIGHT FIXTURES ON ZONE 'a'
a,b = SWITCH DESIGNATION; CONTROLS LIGHT FIXTURES ON ZONES 'a' AND 'b'

S^{3}_{a}	SINGLE POLE WALL SWITCH. 2 = TWO POLE 3 = THREE-WAY 4 = FOUR-WAY K = KEY OPERATED T = TIME SWITCH P = PILOT LIGHT MC = MOMENTARY CONTACT SWITCH
S^{a}_{M}	DECORATOR MANUAL 'ON' / AUTOMATIC 'OFF' WALL SWITCH. LUTRON CATALOG #
S^{a}_{D}	WALL-MOUNTED DECORATOR DIMMER SWITCH. LUTRON CATALOG #
$S^{a}_{3,D}$	WALL-MOUNTED DECORATOR DIMMER SWITCH FOR THREE-WAY DIMMING. LUTRON CATALOG #MA-PRO-XX (DIMMER), #MA-R-XX (COMPANION DIMMER)
S^{a}_{B}	1-BUTTON WALLSTATION WITH MANUAL 'ON' / MANUAL 'OFF'. LUTRON CATALOG #
S^{a}_{VS}	WALL-MOUNTED DUAL TECHNOLOGY VACANCY SENSOR, MANUAL 'ON' / AUTOMATIC 'OFF', WITH BUILT-IN MOMENTARY CONTACT SWITCH. LUTRON CATALOG #
S^{a}_{OS}	WALL-MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR, AUTOMATIC 'ON' / AUTOMATIC 'OFF', WITH BUILT-IN OVERRIDE SWITCH. LUTRON CATALOG #
OS a	CEILING-MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR. LUTRON CATALOG #
OS a	CEILING-MOUNTED DUAL TECHNOLOGY OCCUPANCY AND DAYLIGHT SENSOR. LUTRON CATALOG #
VS a	CEILING-MOUNTED DUAL TECHNOLOGY VACANCY SENSOR. LUTRON CATALOG #
DL a	SURFACE-MOUNTED DAYLIGHT SENSOR FOR CONTROL OF EXTERIOR LIGHTING.
$S^{a}_{VS/D}$	WALL-MOUNTED DUAL TECHNOLOGY VACANCY SENSOR, MANUAL 'ON' / AUTOMATIC 'OFF', WITH BUILT-IN DECORATOR DIMMER SWITCH. LUTRON CATALOG #
S^{a}_{CCT}	WALL-MOUNTED 0-10V CORRELATED COLOR TEMPERATURE SLIDE CONTROLLER. LUTRON CATALOG #
PW a,b	PRESET WALLSTATION ASSOCIATED WITH LUTRON ROOM CONTROLLER. REFER TO DETAILS ON DRAWING E-702.00 FOR BUTTON CONFIGURATION AND ADDITIONAL INFORMATION.

NURSE CALL SYMBOLS

FOR NURSE CALL SYSTEM DEVICES: UNLESS OTHERWISE NOTED, PROVIDE BACKBOX WITH 1" CONDUIT TERMINATED IN A 90 DEG. BEND 6" INTO NEAREST ACCESSIBLE CEILING. PROVIDE DRAG WIRE AND BUSHING.

PS	EMERGENCY STAFF ASSISTANCE STATION AND EMERGENCY CALL STATION. INSTALL 1-1/4"C EMPTY CONDUIT STUB-UP ABOVE HUNG CEILING.
SA	NURSE CALL STAFF ASSISTANCE STATION
PC	NURSE CALL LAVATORY PULL CORD STATION WITH AUDIO
D	NURSE CALL DUTY STATION
DOME	NURSE CALL DOMELESS CORRIDOR CONTROLLER
1 a C	NURSE CALL CORRIDOR DOME LIGHT a = ZONE ANNUNCIATED C = CEILING-MOUNTED
2 a,b C	NURSE CALL CORRIDOR ZONE LIGHT a,b = ZONES ANNUNCIATED C = CEILING-MOUNTED
MS	NURSE CALL MASTER STATION
PSS	NURSE CALL PILLOW SPEAKER CONNECTION RECEPTACLE (FURNISHED BY LUTRON CONTROLS AS PART OF THE HOT STRETCHER HOLDING LIGHTING CONTROLS PACKAGE. REFER TO DETAILS ON DRAWING E-702.00 FOR ADDITIONAL INFORMATION.)
JS	NURSE CALL PATIENT BED CONNECTION RECEPTACLE
NC	NURSE CALL HEAD END EQUIPMENT CABINET
CB	CODE CALL CODE BLUE. INSTALL 1-1/4"C EMPTY CONDUIT STUB-UP ABOVE HUNG CEILING.

VOICE/DATA SYMBOLS

FOR ALL LOW-VOLTAGE SYSTEMS DEVICES: UNLESS OTHERWISE NOTED, PROVIDE BACKBOX WITH 1" CONDUIT TERMINATED IN A 90 DEG. BEND 6" INTO NEAREST ACCESSIBLE CEILING. PROVIDE DRAG WIRE AND BUSHING.

	WALL-MOUNTED VOICE & DATA OUTLET
	WALL-MOUNTED DATA OUTLET
	CEILING-MOUNTED DATA OUTLET
	WIRELESS ACCESS POINT
	TELEVISION OUTLET
AV	AUDIO/VISUAL OUTLET

PANELBOARD SYMBOLS

	RECESSED (FLUSH) MOUNTED PANELBOARD
	SURFACE MOUNTED PANELBOARD
	DISTRIBUTION PANELBOARD

CONDUIT SYSTEM SYMBOLS

	CONDUIT TURNING UP
	CONDUIT TURNING DOWN
DP-3A #2 3#12,1#12G -3/4"C	POWER CIRCUIT HOMERUN TO PANELBOARD - DESIGNATION DENOTES PANELBOARD, CIRCUIT NUMBERS, NUMBER OF WIRES, WIRE SIZE, AND CONDUIT SIZE.
LP-3A #1,2,3	BRANCH CIRCUIT HOMERUN TO PANELBOARD - ARROWS DENOTE NUMBER OF CIRCUITS. DESIGNATION DENOTES PANELBOARD AND CIRCUIT NUMBERS.
	WIRING TROUGH

WIRING DEVICES SYMBOLS

D GFI	WALL-MOUNTED DUPLEX RECEPTACLE, HOSPITAL GRADE, 20A, 125V, 2P, 3W, GROUNDED. NEMA CONFIGURATION 5-20R GFI = GROUND FAULT CIRCUIT INTERRUPTER TYPE D = COMBINATION DUPLEX RECEPTACLE WITH (2) TYPE 'A' USB CHARGING PORTS
	WALL-MOUNTED QUADRUPLEX (TWO DUPLEX) RECEPTACLE, HOSPITAL GRADE, 20A, 125V, 2P, 3W, GROUNDED. NEMA CONFIGURATION 5-20R.
	WALL-MOUNTED SINGLE RECEPTACLE, HOSPITAL GRADE, 20A, 125V, 2P, 3W, GROUNDED, NEMA CONFIGURATION 5-20R.
A	WALL-MOUNTED SINGLE RECEPTACLE, HOSPITAL GRADE, SPECIAL PURPOSE A = 20A, 250V, 2P, 3W, SELF-GROUNDING, NEMA CONFIGURATION 6-20R.
F	FLOOR-MOUNTED QUADRUPLEX (TWO DUPLEX) RECEPTACLE, HOSPITAL GRADE, 20A, 125V, 2P, 3W, GROUNDED. NEMA CONFIGURATION 5-20R.
C	CEILING MOUNTED DUPLEX RECEPTACLE, HOSPITAL GRADE, 20A, 125V, 2P, 3W, GROUNDED. NEMA CONFIGURATION 5-20R.
SP	SUMP PUMP. CONTRACTOR SHALL PROVIDE GFI RECEPTACLE. COORDINATE WITH PLUMBING CONTRACTOR.
RF	WALL-MOUNTED DUPLEX RECEPTACLE, HOSPITAL GRADE, 20A, 125V, 2P, 3W, GROUNDED. NEMA CONFIGURATION 5-20R. ROUTED THROUGH RF FILTER.

POWER SYMBOLS

6 M F	MOTOR WITH JUNCTION BOX AND LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT FOR FINAL EQUIPMENT CONNECTION (5 FOOT MAXIMUM LENGTH) NUMERAL DENOTES HORSEPOWER 'F' - DENOTES FRACTIONAL HORSEPOWER LESS THAN 1/2 HP. 'M' - DENOTES MOTOR OF UNSPECIFIED HORSEPOWER
60A 100A/3P	FUSED DISCONNECT SWITCH, VOLTAGE RATING AS REQUIRED 60A - FUSE AMPS 100A/3P - SWITCH AMPS / # OF POLES
100A/3P	UNFUSED DISCONNECT SWITCH, VOLTAGE RATING AS REQUIRED. RATING SAME AS UPSTREAM BRANCH CIRCUIT PROTECTIVE DEVICE. 100A/3P - SWITCH AMPS / # OF POLES
I	STARTER / MOTOR CONTROLLER 1 - NEMA STARTER SIZE
30A/3P 1	COMBINATION STARTER / MOTOR CONTROLLER AND UNFUSED DISCONNECT SWITCH 30A/3P - SWITCH AMPS / # OF POLES 1 - NEMA STARTER SIZE
30A/3P 20A 1	COMBINATION STARTER / MOTOR CONTROLLER AND FUSED DISCONNECT SWITCH 30A/3P - SWITCH AMPS / # OF POLES 20A - FUSE AMPS 1 - NEMA STARTER SIZE
CB 100A/3P 60A 225AT	ENCLOSED CIRCUIT BREAKER 100A/3P - FRAME AMPS / # OF POLES 60A, 225AT - TRIP AMPS
	WALL-MOUNTED GROUND BAR. (SEE E-602 FOR DETAIL)
J	CEILING-MOUNTED JUNCTION BOX WITH LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT FOR FINAL EQUIPMENT CONNECTION (5 FOOT MAXIMUM LENGTH)
WJ	WALL-MOUNTED JUNCTION BOX WITH LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT FOR FINAL EQUIPMENT CONNECTION (5 FOOT MAXIMUM LENGTH)
J	FLOOR-MOUNTED JUNCTION BOX WITH LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT FOR FINAL EQUIPMENT CONNECTION (5 FOOT MAXIMUM LENGTH)
WJ	WALL-MOUNTED JUNCTION BOX WITH LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT FOR FINAL EQUIPMENT CONNECTION (5 FOOT MAXIMUM LENGTH) FOR WAVE PLATE.
S^{3P}_{K}	DISCONNECT SWITCH - TOGGLE TYPE, MOTOR RATED WITH THERMAL OVERLOAD PROTECTION - 20A, SINGLE POLE, U.O.N. 2P = TWO POLE 3P = THREE POLE K = KEY OPERATED P = PILOT LIGHT
S_{F}	EMERGENCY EXHAUST FAN SWITCH.
EO	SYSTEM EMERGENCY OFF.
EPO	SHUNT TRIP (EMERGENCY POWER OFF) - LARGE MUSHROOM-HEAD BUTTON ON REMOTE CONTROL STATION WITH CONTACTS TO OPERATE SHUNT TRIP FEATURE OF ENCLOSED CIRCUIT BREAKER. IF UPS IS UTILIZED, EPO SWITCH WILL RUN 2 SETS OF COMMUNICATION WIRES TO THE INPUT BREAKER FOR THE UPS AND TO THE UPS ITSELF.
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR / SURGE PROTECTION DEVICE
M	ELECTRICITY METER
460V 500 kVA 120/208V T 500 kVA	POWER TRANSFORMER VOLTAGES, WINDINGS, AND SIZE AS INDICATED

AUXILIARY SYSTEMS

TV	WALL-MOUNTED TELEVISION CABLE OUTLET IN A DOUBLE GANG BOX WITH A SINGLE GANG REDUCER PLATE AND 1" EMPTY CONDUIT WITH DRAG WIRE STUBBED 6" ABOVE THE NEAREST ACCESSIBLE HUNG CEILING AND TERMINATED WITH BUSHING.

ELECTRICAL ABBREVIATIONS

ABBREVIATION	DESCRIPTION
1P	SINGLE POLE
2P	TWO POLE
3P	THREE POLE
A	AMPERES
AC	ABOVE CENTER
AFF	ABOVE FINISHED FLOOR
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AV, A/V	AUDIO-VISUAL
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
BMS	BUILDING MANAGEMENT SYSTEM
C	CONDUIT
CAB	CABINET
CAV	CONSTANT AIR VOLUME
CL	CLOSET
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT(S)	CIRCUIT(S)
CM	CONSTRUCTION MANAGER
COMM	COMMUNICATION
CONN	CONNECTED
CONT	CONTINUATION
CP	CONDENSATE PUMP
CT	CURRENT TRANSFORMER
CU	COPPER
CUH	CABINET UNIT HEATER
D	DEMOLISH
DB	DECIBEL
DEG	DEGREE
DIA	DIAMETER
DP	DISTRIBUTION PANEL
DISC, DS	DISCONNECT SWITCH
DWG	DRAWING
°C	DEGREES CELSIUS
°F	DEGREES FAHRENHEIT
(E), EX, E	EXISTING TO REMAIN
EA	EACH
EC	EMPTY CONDUIT, ELECTRICAL CONTRACTOR
ELEV	ELEVATOR
EM, EMER	EMERGENCY
EPO	EMERGENCY POWER OFF
EQUIP	EQUIPMENT
(ER)	EXISTING TO BE REMOVED
(ERR)	EXISTING TO BE REMOVED AND RELOCATED
ERC	ELECTRIC REHEAT COIL
EWC	ELECTRIC WATER COOLER
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FBO	FURNISHED BY OTHER DIVISION OF WORK
FCC	FIRE COMMAND CENTER
FCU	FAN COIL UNIT
FL	FLOOR
FLA	FULL LOAD AMPERES
FLUOR	FLUORESCENT
FSD	FIRE/SMOKE DAMPER
FT	FEET / FOOT
G, GRD/GND	GROUND
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GFI, GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HC	HUNG CEILING
HD	HAND DRYER
HID	HIGH INTENSITY DISCHARGE
HP	HORSEPOWER
HV	HIGH VOLTAGE
HZ	HERTZ
ID	INSIDE DIAMETER
IG	ISOLATED GROUND
JB	JUNCTION BOX
KCMIL	THOUSAND CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KW	KILOWATTS
KWH	KILOWATT HOURS
LAN	LOCAL AREA NETWORK
LIM	LINE ISOLATION MOITOR
LTG	LIGHTING
MAP	MEDICAL GAS MASTER ALARM PANEL
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MC, MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MD	MOTORIZED DAMPER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MER	MECHANICAL EQUIPMENT ROOM
MFS	MAIN FUSED SWITCH
MH	MANHOLE
MIN	MINIMUM
ML, MLO	MAIN LUGS ONLY
MOPD, MOCP	MAXIMUM OVERCURRENT PROTECTION DEVICE
MTD	MOUNTED
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
N	NEUTRAL
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE (NFPA 70)
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
P	POLE(S)
PA	PUBLIC ADDRESS SYSTEM
PB	PULL BOX
PC	PERSONAL COMPUTER
PH	PHASE
PM	POWER MONITOR
PNL	PANEL
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER
PWR	POWER
ø	PHASE
(RE)	RELOCATED EXISTING (RELOCATED EXISTING DEVICE AT NEW LOCATION)
RECEPT, RCPT	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
RM	ROOM
(RRO)	REMOVE AND RETURN TO OWNER
SD	SMOKE DAMPER, SMOKE DETECTOR
SO	SOUTH
SP	SPARE
SPD	SURGE PROTECTIVE DEVICE
SPST	SINGLE POLE SINGLE THROW
STD	STANDARD
SW	SWITCH
SWGR	SWITCHGEAR
SYM	SYMMETRICAL
SYS	SYSTEM
TBD	TO BE DETERMINED
TEL	TELEPHONE
TEMP	TEMPERATURE
TP	TAMPER-RESISTANT
TRANS, XFMR	TRANSFORMER
TS, VS	TAMPER SWITCH (VALVE SUPERVISORY SWITCH)
TV	TELEVISION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UH	UNIT HEATER
UNF	UNFUSED
U.O.N.	UNLESS OTHERWISE NOTED
UTP	UNSHIELDED TWISTED-PAIR
V	VOLT, VOLTAGE
VA	VOLT AMPERE
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLTMETER
VP	VAPORPROOF
W	WATT, WIRE
WP	WEATHER-RESISTANT (NEMA 3R ENCLOSURE, U.O.N.)
WT	WATERTIGHT
XP	EXPLOSION-RESISTANT

ELECTRICAL DRAWING LIST

THIS PLAN IS APPROVED ONLY FOR WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON, OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

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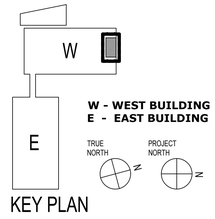


KEY PLAN

NO.	DESCRIPTION	DATE
1	CD SUBMISSION	6-18-21
	REVISIONS/ISSUES	

SHEET TITLE:
ELECTRICAL COVER SHEET

SEAL:

DATE: 7/23/2020
CON/REF No.
CONTRACT No.
SCALE: As indicated
PROJECT No. 12384
CHECKED: Checker
DRAWN: MC

SHEET NO.
E-001.00

DWG **OF**

1. ACODES AND STANDARDS

A. ALL WORK SHALL BE SYSTEMATICALLY, CAREFULLY AND NEATLY PERFORMED AND SHALL CONFORM TO THE FOLLOWING STANDARDS:

a. ALL WORK SHALL CONFORM TO ALL REQUIREMENTS OF THE BUILDING CODE OF THE STATE OF NEW YORK, AND ALL AUTHORITIES HAVING JURISDICTION.
b. NATIONAL ELECTRICAL CODE- NFPA 70.
c. UNDERWRITERS' LABORATORIES, INC.
d. OSHA, AND ALL AGENCIES HAVING JURISDICTION.
e. STANDARDS FOR BUILDING ALTERATIONS AND CONSTRUCTION.

2. WORK SCOPE

A. THE SCOPE OF WORK SHALL CONSIST OF THE FOLLOWING:

a. FURNISHING, INSTALLING AND CONNECTING ALL PANELBOARDS, FEEDERS, POWER OUTLETS, LIGHT FIXTURES, SWITCHES, CONTROLS, CONDUITS, AND WIRING.
b. FURNISHING AND INSTALLING NEW TELEPHONE/COMMUNICATION OUTLETS AND RACEWAY.
c. FURNISHING AND INSTALLING NEW CIRCUIT BREAKERS.
d. OTHER WORK SHOWN ON DRAWING AND INDICATED IN SPECIFICATIONS.

B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND APPROVALS AND SHALL PAY ALL ASSOCIATED COSTS AND FEES.

C. VERIFY ALL EXISTING CONDITIONS IN THE FIELD AND INCLUDE IN THE BID PRICE ALL WORK REQUIRED TO ACCOMMODATE THE EXISTING INSTALLATION.

D. ELECTRICAL CONNECTIONS TO EQUIPMENT, MOTORS, ETC FURNISHED BY THE OWNER AND/OR OTHER TRADES.

3. SUBMITTALS

A. SUBMIT THE FOLLOWING INFORMATION AS APPLICABLE AND AS REQUIRED FOR ALL WORK SPECIFIED UNDER THIS DIVISION:

a. MANUFACTURERS' PRODUCT DATA SHEETS AND SAMPLES WHERE REQUIRED.
b. SHOP DRAWINGS INCLUDING DIMENSIONED EQUIPMENT LAYOUTS.
c. POINT-TO-POINT WIRING DIAGRAMS AND SEQUENCES OF OPERATION.
d. REPRODUCIBLE DRAWINGS, PDF, OR AUTOCAD FILES.
e. OPERATION AND MAINTENANCE MANUALS.
f. CERTIFIED FACTORY AND FIELD TEST REPORTS.
g. MANUFACTURERS' CERTIFICATIONS, WARRANTIES AND SPARE PARTS.

B. SUBSTITUTIONS TO SPECIFIED ITEMS MUST COMPLY WITH ALL SPECIFICATION REQUIREMENTS AND WILL ONLY BE PERMITTED WHERE SUBMITTED AND APPROVED IN WRITING.

4. AS-BUILT DRAWINGS AND MAINTENANCE MANUALS

A. CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS INDICATING ANY DEVIATION FROM THE ORIGINAL ELECTRICAL DESIGN. THE REVISED DRAWING SHALL BE STAMPED "AS-BUILT" WITH THE DATE AND CONTRACTOR'S SIGNATURE. ONE (1) SET OF PRINTS AND A COMPACT DISK CONTAINING AUTOCAD FILES SHALL BE DELIVERED TO THE ENGINEER BEFORE FINAL PAYMENT IS MADE. AFTER REVIEW AND APPROVAL OF AS-BUILT CONTRACTOR SHALL DELIVER COMPACT DISK TO THE OWNER. CONTRACTOR SHALL PROVIDE THREE (3) PRINTS AND A COMPACT DISK OF AS-BUILT DRAWINGS TO THE BUILDING MANAGER UPON COMPLETION OF WORK.

B. FURNISH TO THE ARCHITECT THREE (3) BOUND AND INDEXED COPIES OF OPERATIONS AND MAINTENANCE DATA MANUALS FOR THE INSTALLATION. THE MANUAL SHALL PROVIDE COMPREHENSIVE DETAILED INFORMATION ON THE APPROVED INSTALLATION, OPERATION AND USE, MAINTENANCE AND PARTS LIST.

5. QUALITY ASSURANCE

A. MATERIALS, EQUIPMENT AND INSTALLATION SHALL CONFORM TO THE LATEST EDITION OF ALL APPLICABLE CODES AND THE REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION, INCLUDING THE NEW YORK STATE BUILDING CODE AND ELECTRICAL CODE, OSHA AND BUILDING MANAGEMENT. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE BUILDING STANDARDS AND THE REQUIREMENTS OF THE LOCAL UTILITY COMPANY.

B. MATERIALS, EQUIPMENT AND INSTALLATION SHALL CONFORM TO THE LATEST EDITION OF THE APPLICABLE REFERENCE STANDARDS PUBLISHED BY THE NFPA, UL, ANSI, IEEE AND NEMA.

C. THE CONTRACTOR SHALL HAVE COMPLETED AT LEAST TWO PROJECTS OF SIZE AND COMPLEXITY SIMILAR TO THOSE REQUIRED UNDER THIS CONTRACT. ALL WORKMEN SHALL BE SKILLED IN THEIR RESPECTIVE TRADE.

D. ALL WORK SHALL BE WARRANTED IN WRITING TO BE FREE FROM DEFECTS IN MATERIALS AND/OR WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE OWNER. WARRANTY SHALL INCLUDE ALL COSTS OF PARTS, LABOR, TRAVEL AND LIVING EXPENSES REQUIRED TO REPAIR OR REPLACE DEFECTIVE ITEMS.

6. INSPECTION

A. ALL STAGES OF THE INSTALLATION WILL BE INSPECTED BY THE OWNER AND/OR OWNERS REPRESENTATIVE FOR COMPLIANCE WITH THE REQUIREMENTS OF THE CONTRACT DRAWINGS AND SPECIFICATIONS. ANY PORTION OF THE CONSTRUCTION NOT MEETING THOSE REQUIREMENTS TO THE SATISFACTION OF THE ENGINEER SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER.

B. PROVIDE PROPER EQUIPMENT AND REASONABLE ASSISTANCE AS THE OWNER AND/OR OWNERS REPRESENTATIVE MAY REQUIRE TO FACILITATE ACCESS AND INSPECTION AT THE CONSTRUCTION SITE.

7. BASIC MATERIAL AND METHODS

A. COORDINATE ALL WORK WITH THE WORK OF OTHER TRADES PRIOR TO INSTALLATION. ASSIST IN THE PREPARATION OF COORDINATION DRAWINGS AS REQUIRED BY THE GENERAL CONDITIONS.

B. ALL SHUTDOWN OF BUILDING POWER, FIRE ALARM AND SIGNAL SYSTEMS SHALL BE COORDINATED WITH BUILDING OPERATING PERSONNEL. WORK TO ACCOMMODATE OFF-HOUR SHUTDOWNS SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.

C. CUT AND PATCH NON STRUCTURAL SURFACES AS REQUIRED. REPAIRS SHALL MATCH ORIGINAL FINISH, PENETRATIONS OF FIRE RATED PARTITIONS SHALL BE SEALED WITH APPROVED MATERIAL TO PROVIDE THE SAME RATING AS THE PARTITION. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE RATED PARTITIONS.

D. PROVIDE EXPANSION FITTINGS WHERE RACEWAYS CROSS BUILDING EXPANSION JOINTS.

E. EQUIPMENT, DEVICES AND ENCLOSURES SHALL BE RATED NEMA 1 FOR INTERIOR LOCATIONS, NEMA 3R FOR DAMP LOCATIONS AND NEMA 4 FOR WET LOCATIONS.

F. PROVIDE 4" HIGH SEALED CONCRETE HOUSEKEEPING PADS BELOW ALL FLOOR MOUNTED EQUIPMENT AND AROUND ALL CONDUITS PENETRATING FLOORS OF MECHANICAL EQUIPMENT ROOMS.

8. DELIVERY, STORAGE AND HANDLING

A. ALL EQUIPMENT SHALL BE DELIVERED IN MANUFACTURER'S ORIGINAL PROTECTIVE PACKAGING AND STORED IN A CLEAN, DRY PLACE PROTECTED FROM WEATHER, FUMES, WATER, DUST AND PHYSICAL DAMAGE. TOUCH UP DAMAGED FINISHES TO MATCH THE ORIGINAL FINISH.

9. SUMMARY

A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES REQUIRED FOR COMPLETE INSTALLATION OF ALL WORK INDICATED ON THE DRAWINGS OR SPECIFIED HEREIN.

B. OBTAIN ALL PERMITS AND APPROVALS REQUIRED BY AUTHORITIES HAVING JURISDICTION AND PAY THE ASSOCIATED PRINTING AND FILING COSTS.

C. VERIFY EXISTING CONDITIONS IN FIELD AND INCLUDE IN THE BID PRICE ALL WORK REQUIRED TO ACCOMMODATE THE EXISTING INSTALLATION.

D. PROVIDE TEMPORARY LIGHT AND POWER SYSTEM (AS PART OF THE CONTRACT) ADEQUATE FOR THE REQUIREMENTS OF ALL TRADES DURING CONSTRUCTION. TEMPORARY SYSTEM SHALL BE DISCONNECTED AND REMOVED WHEN PERMANENT SERVICE IS IN OPERATION.

10. SPECIAL INSPECTIONS

A. MATERIAL AND EQUIPMENT DESIGNATED FOR "SPECIAL INSPECTION" UNDER THE PROVISIONS OF THE NEW YORK STATE BUILDING CODE SHALL BE INSPECTED, TESTED, AND WITNESSED BY, OR UNDER THE SUPERVISION OF AN ACCREDITED SPECIAL INSPECTOR, EMPLOYED BY THE OWNER, WHO SHALL BE RESPONSIBLE FOR FILING PROPERLY EXECUTED BUILDING DEPARTMENT TR-1 FORM. CONTRACTORS SHALL PROVIDE ALL REQUESTED ASSISTANCE TO THE SPECIAL INSPECTOR, INCLUDING MATERIAL AND LABOR, TO COMPLETE THE SPECIAL INSPECTION PROCESS.

11. RACEWAYS

A. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL CONFORM TO UL 6. FITTINGS SHALL BE THREADED.

B. ELECTRICAL METALLIC TUBING (EMT) SHALL CONFORM TO UL 797. FITTINGS SHALL BE STEEL GLAND AND RING COMPRESSION TYPE.

C. FLEXIBLE METALLIC CONDUIT SHALL CONFORM TO UL 1. LIQUID TIGHT FLEXIBLE METAL CONDUIT SHALL CONFORM TO UL 360.

D. ALL CONDUIT FITTINGS AND CONNECTORS SHALL BE STEEL OR MALLEABLE IRON WITH INSULATED THROATS. DIE-FORMED ZINC OR MALLEABLE IRON FITTINGS ARE NOT ACCEPTABLE. BUSHINGS SHALL BE PROVIDED AT ALL CONDUIT TERMINATIONS. BUSHINGS LARGER THAN 1" SHALL BE GROUNDING TYPE. PVC BUSHINGS MAY BE UTILIZED ONLY FOR 3/4" BRANCH CIRCUIT CONDUITS TERMINATING AT PANELBOARDS.

E. MINIMUM RACEWAY SIZE SHALL BE 3/4". RACEWAYS SHALL BE RUN PARALLEL TO BUILDING STRUCTURAL LINES. RACEWAYS SHALL NOT BE RUN HORIZONTALLY BELOW 8'-0" AFF IN PARTITIONS. ALL EMPTY RACEWAYS SHALL BE FURNISHED WITH A 200LB TEST NYLON DRAG LINE.

F. ALL WIRING BETWEEN JUNCTION BOXES AND FOR CIRCUIT HOMERUNS BETWEEN FIRST OUTLET SERVED BY THE BRANCH CIRCUIT AND THE PANELBOARD SHALL BE RUN IN EMT OR RGS AS REQUIRED.

G. RACEWAY UTILIZATION SHALL BE AS FOLLOWS:

a. RIGID GALVANIZED STEEL (RGS) - IN CONCRETE SLABS; EXPOSED IN ALL
b. MECHANICAL EQUIPMENT ROOMS; FIRE ALARM SYSTEMS.
c. ELECTRICAL METALLIC TUBING (EMT) - INTERIOR CONCEALED AND
d. EXPOSED LOCATIONS; EXPOSED IN MECHANICAL ROOMS ABOVE 8'-0" AFF;
e. INTERIOR COMMUNICATIONS WIRING.
f. FLEXIBLE METALLIC CONDUIT - FINAL CONNECTIONS TO TRANSFORMERS (MAXIMUM LENGTH 3'-0") AND LIGHTING FIXTURES IN INTERIOR LOCATIONS (MIN. LENGTH 18", MAXIMUM LENGTH 6'-0"); WHERE ACCEPTABLE TO ENGINEER.
g. LIQUID TIGHT FLEXIBLE CONDUIT - FINAL CONNECTIONS TO MOTORS AND
h. MECHANICAL EQUIPMENT.
i. METAL CLAD CABLE (MC) - FINAL CONNECTIONS ONLY FROM JUNCTION BOXES ABOVE CEILINGS TO RECEPTACLES (MAXIMUM LENGTH 20'-0"). NOT TO BE USED FOR HOMERUNS OR FEEDERS TO MECHANICAL EQUIPMENT.

H. ALL CONDUIT AND TUBING SHALL BE CUT SQUARE AND REAMED AT THE ENDS.

I. CONDUIT AND TUBING RUNS SHALL BE MECHANICALLY AND ELECTRICALLY CONTINUOUS FROM SERVICE STARTING TO ALL OUTLETS AND EQUIPMENT. CONDUIT SHALL ENTER AND BE SECURELY CONNECTED TO A CABINET, JUNCTION BOX, PULLBOX OR OUTLET BOX BY MEANS OF LOCKNUTS ON THE OUTSIDE AND INSIDE AND AN INSULATED BUSHING ON THE INSIDE. IN TUBING OR FLEXIBLE METAL CONDUIT THE ONE COMPRESSION LOCKNUT SHALL BE MADE WRENCH-TIGHT. ALL LOCKNUTS SHALL BE THE BONDING TYPE WITH SHARP EDGES FOR DIGGING INTO THE METAL WALL OF AN ENCLOSURE AND SHALL BE INSTALLED IN A MANNER THAT WILL ASSURE A LOCKING AND ELECTRICALLY CONTINUOUS INSTALLATION. LOCKNUTS AND BUSHINGS ARE NOT REQUIRED WHERE CONDUITS ARE SCREWED INTO TAPPED CONNECTIONS.

J. ALL VERTICAL RUNS OF CONDUIT OR TUBING TERMINATING IN THE BOTTOMS OF WALL BOXES OR CABINETS, OR SIMILAR LOCATIONS, SHALL BE PROTECTED FROM THE ENTRANCE OF FOREIGN MATERIAL PRIOR TO THE INSTALLATION OF CONDUCTORS.

K. UNLESS OTHERWISE SPECIFIED, ALL CONDUIT AND TUBING SHALL BE INSTALLED CONCEALED. IN GENERAL, ALL CONDUIT AND TUBING SHALL BE RUN IN HUNG CEILINGS AND FURRED SPACES WHERE THEY EXIST. WHERE CONDUIT IS RUN EXPOSED IT SHALL BE SECURELY SUPPORTED WITH ZINC COATED MALLEABLE IRON CONDUIT STRAPS OR OTHER APPROVED MEANS. ALL CONDUITS SHALL BE SUPPORTED FROM STRUCTURAL MEMBERS.

L. EVERY CONDUIT SYSTEM SHALL BE INSTALLED COMPLETE BEFORE ANY CONDUCTORS ARE DRAWN IN. WIRE PULLING LUBRICANTS, WHEN UTILIZED, SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF UNDERWRITERS' LABORATORIES, INC., APPLICABLE TO THE SPECIFIC CONDUCTOR OR CABLE INSULATION AND RACEWAY MATERIAL.

M. WHERE REQUIRED BY THE ENGINEER, EXTRA DEEP OR EXTRA SHALLOW OUTLET BOXES SHALL BE USED TO FACILITATE THE INSTALLATION OF THE CONDUIT SYSTEM.

12. BOXES

A. OUTLET, PULL AND JUNCTION BOXES SHALL BE FABRICATED FROM STEEL AND CONFORM TO UL 50, UL 514 AND NEMA OS1. BOXES FOR INTERIOR LOCATIONS SHALL BE CODE GAUGE, GALVANIZED SHEET STEEL. BOXES FOR MECHANICAL ROOMS SHALL BE CAST STEEL WITH GASKETED COVERS.

B. BOXES SHALL CONTAIN SUITABLE KNOCKOUTS. BARRIERS SHALL BE FURNISHED AS REQUIRED BY CODE AND TO SEPARATE SWITCHES FOR 277 VOLT CIRCUITS ON DIFFERENT PHASES.

C. BOXES SHALL BE SIZED AS REQUIRED BY CODE FOR NUMBER AND GAUGE OF CONDUCTORS THEREIN, EXCEPT WHERE NOTED TO BE LARGER, THE MINIMUM BOX SHALL BE 4" SQUARE BY 1-1/2" DEEP. COVERS GREATER THAN 50LB SHALL BE DIVIDED INTO MULTIPLE SECTIONS.

D. WIREWAYS AND AUXILIARY GUTTERS SHALL BE TWO-PIECE STEEL CONSTRUCTION WITH ANSI 61 GRAY ENAMEL FINISH. COVERS SHALL BE COMBINATION HINGED AND SCREW-ON TYPE. HOUSINGS SHALL HAVE REGULARLY SPACED KNOCKOUTS FOR CONDUIT ENTRY. WIREWAYS SHALL BE MANUFACTURED BY SQUARE D OR APPROVED EQUAL. PROVIDE ALL END PIECES, CONNECTORS AND REQUIRED ACCESSORIES.

13. FASTENERS

A. PROVIDE INSERTS, EXPANSION SHIELD LUGS, ANCHORS, BOLTS WITH NUTS AND WASHERS, SHIMS OR ANY OTHER TYPE OF FASTENING DEVICES REQUIRED TO FASTEN PANELS OR OTHER EQUIPMENT TO FLOORS, WALLS OR CEILINGS. UNLESS OTHERWISE SPECIFIED HEREIN OR SHOWN ON THE CONTRACT DRAWINGS, ALL FASTENERS SHALL BE HOT-DIPPED GALVANIZED, OF SIZES AND TYPES RECOMMENDED BY THE EQUIPMENT MANUFACTURER AND AS APPROVED BY THE ENGINEER.

14. WIRES, CABLES, SPLICES AND TERMINATIONS

A. POWER AND CONTROL WIRING SHALL BE COPPER, MINIMUM 98% CONDUCTIVITY, WITH TYPE THHN/THWN INSULATION RATED 600 VOLTS. MINIMUM WIRE SIZE SHALL BE #12 AWG. CONDUCTORS SHALL BE SOLID FOR WIRE SIZED #10 AWG AND SMALLER AND STRANDED FOR WIRE SIZES #8 AWG AND LARGER.

B. METAL CLAD CABLE SHALL BE HOSPITAL GRADE, 90°C RATED CODE TYPE HCF WITH TWO (2) GROUNDING CONDUCTORS; A SEPARATE FULL-SIZED GREEN INSULATED GROUND COPPER CONDUCTOR AND AN ARMOR BONDED FULL-SIZED ALUMINUM GROUND CONDUCTOR IN ACCORDANCE WITH UL 4. JACKET SHALL BE GALVANIZED STEEL ARMOR.

C. CONDUCTORS SHALL BE COLOR CODED AS FOLLOWS:

208/120V	PHASE	480/277V
BLACK	A	BROWN
RED	B	ORANGE
BLUE	C	YELLOW
WHITE	NEUTRAL	GRAY OR WHITE WITH TRACER GREEN
GROUND	GREEN	WHITE WITH TRACER NEUTRAL FOR GFI CIRCUIT

D. CONDUCTOR SIZES SHALL BE INCREASED WHERE REQUIRED BY CODE AND/OR THE ENGINEER TO COMPENSATE FOR VOLTAGE DROP AND HIGH AMBIENT TEMPERATURE.

E. COMMUNICATIONS CABLING RUN EXPOSED IN AIR HANDLING PLENUMS SHALL BE TYPE CMP PLENUM RATED.

F. SPLICES FOR WIRE SIZES #10 AWG AND SMALLER SHALL BE MADE WITH SPRING CONNECTORS AND TAPE. SPLICES FOR WIRE SIZES #8 AWG AND LARGER SHALL BE HYDRAULIC COMPRESSION TYPE WITH PRE-MOLDED COVER AND TAPE.

G. TERMINATIONS OF POWER AND CONTROL WIRING SHALL BE COMPRESSION TYPE, WITH TWO-HOLE LUGS FOR WIRE SIZES #8 AWG AND LARGER. MECHANICAL LUGS MAY ONLY BE UTILIZED FOR TERMINATIONS AT BRANCH CIRCUIT PANELBOARDS.

15. WIRING DEVICES

A. WIRING DEVICES SHALL BE MANUFACTURED BY HUBBELL, LEVITON, PASS & SEYMOUR OR APPROVED EQUAL.

B. WIRING DEVICES SHALL BE HOSPITAL GRADE WITH NEMA CONFIGURATIONS AS INDICATED ON THE DRAWINGS.

C. EMERGENCY RECEPTACLES SHALL MATCH THE COLOR THROUGH THE FACILITY OR OTHERWISE BE MODEL #

D. NORMAL RECEPTACLES COLOR SHALL SHALL BE AS SELECTED BY THE ARCHITECT.

E. PEDIATRIC CARE AREA RECEPTACLES SHALL BE TAMPER RESISTANT.

F. MODEL HUBBELL INC. HBL 8300 SG00SGA, LEVITON TBR 20, PASS & SEYMOUR/LEGRAND TR 63H

G. PILOT LIGHT SWITCHES SHALL BE FURNISHED WITH LIGHTED HANDLE OR SEPARATE GLASS JEWEL INDICATING LIGHT WIRED TO BE ILLUMINATED WHEN THE SWITCH IS ON.

H. FACEPLATES SHALL BE NON-MAGNETIC STAINLESS STEEL WITH BRUSHED FINISH UNLESS SPECIFIED BY THE ARCHITECT. EMERGENCY CIRCUIT RECEPTACLE FACEPLATES SHALL BE RED AND SHALL IDENTIFIED THE PANEL AND CIRCUIT NUMBER SUPPLYING THEM. FACEPLATES SHALL BE FURNISHED FOR ALL COMMUNICATIONS OUTLETS AND SHALL BE CONFIGURED TO SUIT THE SYSTEM SUPPLIERS' REQUIREMENTS.

I. DEVICES MOUNTED ADJACENT TO EACH OTHER SHALL BE FURNISHED WITH A COMMON FACEPLATE AND BE GANGED IN ONE BOX.

J. WALL MOUNTED DIMMER SWITCHES SHALL BE LUTRON "NOVA-T" SERIES OR APPROVED EQUAL. SWITCHES SHALL BE RATED FOR EITHER INCANDESCENT, ELECTRONIC OR MAGNETIC LOW VOLTAGE AND/OR FLUORESCENT DIMMING BALLASTS. COORDINATE SWITCH TYPE WITH LIGHT FIXTURES BEING CONTROLLED. MULTIPLE SWITCHES SHALL BE ALIGNED AND BUTTED TOGETHER WITH MULTI-GANG OUTLET BOX.

K. PILOT LIGHT SWITCHES SHALL BE FURNISHED WITH LIGHTED HANDLE OR SEPARATE GLASS JEWEL INDICATING LIGHT WIRED TO BE ILLUMINATED WHEN THE SWITCH IS ON.

L. FACEPLATES SHALL BE NON-MAGNETIC STAINLESS STEEL WITH BRUSHED FINISH UNLESS SPECIFIED BY THE ARCHITECT.

M. FACEPLATES SHALL BE FURNISHED FOR ALL COMMUNICATIONS OUTLETS AND SHALL BE CONFIGURED TO SUIT THE SYSTEM SUPPLIERS' REQUIREMENTS.

a. DEVICES MOUNTED ADJACENT TO EACH OTHER SHALL BE FURNISHED WITH A COMMON FACEPLATE AND BE GANGED IN ONE BOX.
b. WALL MOUNTED DIMMER SWITCHES SHALL BE LUTRON "NOVA-T" SERIES OR APPROVED EQUAL. SWITCHES SHALL BE RATED FOR EITHER INCANDESCENT, ELECTRONIC OR MAGNETIC LOW VOLTAGE AND/OR FLUORESCENT DIMMING BALLASTS. COORDINATE SWITCH TYPE WITH LIGHT FIXTURES BEING CONTROLLED. MULTIPLE SWITCHES SHALL BE ALIGNED AND BUTTED TOGETHER WITH MULTI-GANG OUTLET BOX.
c. CONTRACTOR SHALL UTILIZE THE FLOOR CELL WHEREVER POSSIBLE. PROVIDE SOURCE 1 FITTING CONFIGURATION TO MATCH FLOOR PLAN. WHEN FLOOR CELL CANNOT BE UTILIZED CONTRACTOR SHALL PROVIDE AND INSTALL POKE-THRU FITTING WIREMOLD MODEL RC-4 WITH COM75 ADAPTOR, AND ASSOCIATED CONDUIT(S). COORDINATE CORING WITH BUILDING MANAGEMENT. TRENCHING OF THE SLAB IS NOT ALLOWED. PROVIDE POWER AND TELECOMMUNICATION OUTLETS AS INDICATED ON PLANS.
d. CONTRACTOR SHALL PROVIDE AND INSTALL POKE-THRU FITTING WIREMOLD MODEL RC-4 WITH COM75 ADAPTOR, AND ASSOCIATED CONDUIT(S). COORDINATE CORING WITH BUILDING MANAGEMENT. TRENCHING OF THE SLAB IS NOT ALLOWED. PROVIDE POWER AND TELECOMMUNICATION OUTLETS AS INDICATED ON PLANS.
e. CONTRACTOR SHALL PROVIDE AND INSTALL FLOOR BOX WIREMOLD MODEL OMNI 880 SERIES, AND ASSOCIATED CONDUIT(S). COORDINATE TRENCHING OF THE SLAB WITH STRUCTURAL ENGINEER, ARCHITECT, AND BUILDING MANAGEMENT. PROVIDE POWER AND TELECOMMUNICATION OUTLETS AS INDICATED ON PLANS.
f. WALL MOUNTED DIGITAL PROGRAMMABLE TIMER SWITCH FOR AUTOMATIC CONTROL OF LIGHTING WITH MANUAL OVERRIDE PROVISIONS SHALL BE BY PASS & SEYMOUR MODEL R724 OR APPROVED EQUAL.
g. ALL DEVICES SHALL BE MOUNTED AT LOCATIONS AND HEIGHTS AS INDICATED ON ARCHITECTURAL DRAWINGS.
h. WHERE NEW, EXISTING OR NEW AND EXISTING SWITCHES ARE MOUNTED AT SAME LOCATION, MOUNT SWITCHES BEHIND COMMON FACEPLATE.
i. DOOR CHIME SHALL BE HARD-WIRED, 'NUTONE' MODEL LA14WH OR APPROVED EQUAL. PUSHBUTTON SHALL BE HARD-WIRED, 'NUTONE' MODEL P867AB OR APPROVED EQUAL.

16. BRANCH CIRCUIT PANELBOARDS

A. BRANCH CIRCUIT PANELBOARDS SHALL BE 480/277V AND/OR 208/120V, 3Ø, 4-WIRE CONFIGURATION WITH COPPER BUS BARS. NEUTRAL BUS AND SEPARATE GROUND BUS BONDED TO PANEL ENCLOSURE. PROVIDE 200% NEUTRAL AND ISOLATED GROUND BUS WHERE INDICATED ON DRAWINGS. CABLE LUGS SHALL BE MECHANICAL TYPE. PANELBOARDS SHALL BE MANUFACTURED BY SCHNEIDER ELECTRIC/SQUARE D, GENERAL ELECTRIC, SIEMENS, OR CUTLER-HAMMER.

B. CIRCUIT BREAKERS SHALL BE MOLDED CASE, BOLT-IN-PLACE WITH THERMAL-MAGNETIC TRIP ELEMENT. MINIMUM INTERRUPTING RATINGS SHALL BE 22,000 AIC FOR 208/120V AND 65,000 AIC FOR 480/277V. CIRCUIT BREAKERS FOR UNSWITCHED LIGHTING CIRCUITS SHALL BE RATED FOR SWITCHING DUTY. MAIN CIRCUIT BREAKERS SHALL BE MOUNTED SEPARATELY FROM BRANCH BREAKERS AT TOP OR BOTTOM.

C. PANELBOARD ENCLOSURES SHALL BE GALVANIZED CODE GAUGE STEEL. TRIMS SHALL BE SURFACE TYPE IN UNFINISHED SPACES AND FLUSH TYPE IN FINISHED SPACES, WITH ANSI 61 GRAY ENAMEL FINISH. DOORS SHALL BE DOOR IN DOOR TYPE CONSTRUCTION AND SHALL BE LOCKABLE AND ALL LOCKS SHALL BE KEYED ALIKE. FURNISH ONE KEY FOR EACH PANEL.

D. PANELS SHALL HAVE A MINIMUM OF 4" GUTTER SPACE ON BOTH SIDES.

E. FURNISH AND INSTALL TYPEWRITTEN DIRECTORIES FOR EACH PANELBOARD, NEW AND EXISTING, INDICATING DEVICES SERVED.

F. PANELS NOT MOUNTED ON STRUCTURAL WALLS SHALL BE SUPPORTED FROM THE FLOOR INDEPENDENTLY OF WALL CONSTRUCTION BUT LATERALLY SECURED TO WALL FLUSH MOUNTED PANELBOARDS SHALL BE PROVIDED WITH (3) 1" EMPTY CONDUITS TERMINATED ABOVE THE FINISHED CEILING.

G. PANELS MOUNTED ON MASONRY WALLS SHALL BE SHIMMED WITH WASHERS TO PROVIDE A 1/2" SPACE BETWEEN PANELBOARD AND WALL.

17. ~~DISTRIBUTION PANELBOARDS (CIRCUIT BREAKERS) (NOT USED)~~

18. ~~DISTRIBUTION PANELBOARDS (FUSED SWITCHES)~~ (NOT USED)

19. SAFETY SWITCHES

A. SAFETY DISCONNECT SWITCHES SHALL BE 250V OR 600V AS REQUIRED, HEAVY DUTY, HORSEPOWER RATED, QUICK-MAKE, QUICK-BREAK DESIGN IN NEMA 1 ENCLOSURE. ENCLOSURES EXPOSED TO WET OR RAIN CONDITIONS SHALL BE IN NEMA 3R ENCLOSURE.

B. PROVIDE INTERLOCKS TO PREVENT OPENING THE COVER WITH THE SWITCH IN THE "ON" POSITION OR CLOSING OF THE SWITCH WITH THE DOOR OPEN, EXCEPT THAT THE INTERLOCK SHALL BE DEFEATABLE BY A QUALIFIED PERSON FOR INSPECTION OF THE CONTACTS OF MECHANISM.

C. PROVIDE FOR PADLOCKING HANDLE IN THE OFF POSITION.

D. PROVIDE NEUTRAL ASSEMBLY WHERE SCHEDULED.

E. SWITCHES SHALL BE CAPABLE OF WITHSTANDING THE AVAILABLE FAULT OR LET THROUGH CURRENT BEFORE THE FUSE OPERATES WITHOUT DAMAGE OR CHANGE IN RATING. THE SHORT CIRCUIT INTERRUPTING RATING OF THE FUSE SWITCH COMBINATION SHALL BE 100,000 RMS SYMMETRICAL AMPERES AND 12 TIMES THE CONTINUOUS CURRENT RATING WHEN UNFUSED AT RATED VOLTAGE.

F. FUSE CLIPS SHALL BE OF THE REJECTION TYPE, SHALL ACCOMMODATE DUAL ELEMENT, CURRENT LIMITING FUSES ONLY AND SHALL BE SIZED TO ACCEPT FUSES OF THE PROPER AMPERE RATING.

G. PROVIDE GROUND LUG IN EACH SWITCH.

20. FUSES

A. FUSES SHALL BE UL LISTED, TIME DELAY, CURRENT LIMITING AND HAVE AN INTERRUPTING CAPASTATE OF AT LEAST 200,000 AMPERES RMS SYMMETRICAL.
B. THE TIME-CURRENT CHARACTERISTICS AND RATINGS SHALL BE SUCH THAT POSITIVE SELECTIVE COORDINATION IS ASSURED.
C. FUSE VOLTAGE RATINGS SHALL BE 600V OR 250V AS REQUIRED.
D. CLASS RK1 (TIME DELAY) FUSES, REJECTION TYPE.

a. BUSSMANN TYPE LPN-RK (250V) OR TYPE LPS-RK (600V)
b. FERRAZ-SHAWMUT A2D (250V) OR A6D (600V)
c. LITTELFUSE TYPE LLN-RK (250V) OR LLS-RK (600V)
d. CLASS L (TIME DELAY)
e. BUSSMANN TYPE KRP-C
f. LITTELFUSE TYPE KLP-C
g. FERRAZ-SHAWMUT A4BQ
h. CLASS CC (TIME DELAY) FUSES, REJECTION TYPE
i. BUSSMANN TYPE LP-CC
j. FERRAZ-SHAWMUT ATDR
k. LITTELFUSE TYPE KLDR

21. ~~MOTOR STARTERS AND CONTROLS (NOT USED)~~

22. LIGHTING FIXTURES AND EQUIPMENT

A. LIGHTING FIXTURES SHALL BE SPECIFICATION GRADE AND FURNISHED COMPLETE WITH ALL REQUIRED MOUNTING HARDWARE. FIXTURES SPECIFIED IN THE LIGHTING FIXTURE SCHEDULE ESTABLISH THE PERFORMANCE REQUIREMENTS. SUBSTITUTIONS MUST MEET OR EXCEED THE PERFORMANCE OF THE SPECIFIED FIXTURE.

B. SUBMIT SCALED LAYOUT DRAWINGS FOR CONTINUOUS FIXTURES. SUBMIT SAMPLES WHEN REQUIRED BY THE LIGHTING FIXTURE SCHEDULE OR WHEN REQUESTED FOR SUBSTITUTIONS.

C. LAMPS SHALL BE OF THE TYPES SPECIFIED IN THE LIGHTING FIXTURE SCHEDULE. ALL LAMPS OF ANY ONE TYPE SHALL BE THE PRODUCT OF ONE MANUFACTURER. FURNISH 10% SPARE LAMPS OF EACH TYPE SPECIFIED.

D. BALLASTS SHALL BE CBM CERTIFIED, UL CLASS P, ELECTRONIC, RAPID START, HIGH POWER FACTOR, ENERGY EFFICIENT TYPE, NEMA SOUND RATING A OR BETTER AND COMPATIBLE WITH THE LAMPS FURNISHED. ELECTRONIC BALLASTS SHALL BE FULLY SOLID STATE, HIGH FREQUENCY WITH RFI PROTECTION. THREE AND FOUR LAMP FIXTURES SHALL UTILIZE ONE AND TWO LAMP BALLASTS.

E. CONTRACTOR SHALL ENSURE COMPATIBILITY BETWEEN FIXTURE TRIMS AND CEILING SYSTEMS. FIXTURES RECESSED IN ACCESSIBLE CEILINGS SHALL BE FURNISHED WITH SEISMIC RESTRAINTS. FIXTURES RECESSED IN NON-ACCESSIBLE CEILINGS SHALL BE DESIGNED FOR BALLAST OR TRANSFORMER ACCESS THROUGH THE FIXTURE OPENING.

F. TANDEM WIRING FOR MULTI-LAMP BALLASTS SHALL BE USED. TANDEM WIRING FOR MULTI-LAMP BALLASTS BETWEEN FIXTURES SHALL BE ACCEPTED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS TO MINIMIZE THE AMOUNT OF BALLASTS REQUIRED. FOR A 3 LAMP BALLAST, THE BALLAST SHALL BE HOUSED IN THE CENTRALLY LOCATED FIXTURE TO THE LAMPS SERVED. THE FOLLOWING ARE EXEMPT FROM TANDEM WIRING:

a. SURFACE MOUNTED OR PENDANT MOUNTED FIXTURES THAT ARE NOT CONTINUOUS.
b. RECESSED FIXTURES THAT ARE SPACED MORE THAN 10'-0" ON CENTER.
c. FIXTURES THAT ARE ON EMERGENCY CIRCUITS.

23. LIGHTING CONTROLS

A. SENSORS AND SWITCH CONTROL SYSTEMS SHALL BE MANUFACTURED BY COOPER CONTROLS. SENSOR SWITCH OR APPROVED EQUAL. SYSTEM SHALL CONSIST OF THE FOLLOWING:

a. CEILING MOUNTED OCCUPANCY SENSOR - EATON CONTROLS MODEL #OAC-DT-1000-R.
b. CEILING MOUNTED VACANCY SENSOR - EATON CONTROLS MODEL #VAC-DT-1000-R.
c. WALL MOUNTED OVERRIDE SWITCH FOR CEILING MOUNTED OCCUPANCY/VACANCY SENSORS - EATON EATON MODEL #2MDS-W.
d. WALL MOUNTED OCCUPANCY SENSOR SWITCH - COOPER CONTROLS MODEL #ONW-P-0451-MV.
e. WALL MOUNTED VACANCY SENSOR SWITCH - COOPER CONTROLS MODEL #VNW-D-1001-MV-W.
f. WALL MOUNTED DIGITAL SWITCH - EAT

ELECTRICAL GENERAL NOTES

FIRE-RATED WIRING

1. SOME WIRES AND CABLE PROVISIONS INSIDE OF THE BUILDING SHALL MEET ONE OF THE FOLLOWING REQUIREMENTS TO ACHIEVE A 2-HOUR FIRE RATING:
   - A. BE PROTECTED BY AN ENCLOSURE WITH 2-HOUR FIRE-RATED CONSTRUCTION.
     - a. FEEDERS OF THE LIFE SAFETY BRANCH SHALL BE PROVIDED WITH DEDICATED ENCLOSURES.
   - B. BE ENCASED IN A MINIMUM OF 2 INCHES OF CONCRETE.
   - C. BE A 2-HOUR RATED LISTED CABLE SYSTEM (FOR EXAMPLE, RHW-2 CABLE, MI CABLE) INSTALLED PER MANUFACTURER REQUIREMENTS.

2. THE WIRES AND CABLES THAT SHALL MEET THE REQUIREMENTS IDENTIFIED IN FIRE-RATED WIRING NOTE 1 ABOVE ARE AS FOLLOWS:
   - A. LIFE SAFETY BRANCH FEEDERS THAT ARE NOT INSTALLED IN SPACES OR AREAS THAT ARE FULLY PROTECTED BY A SPRINKLER SYSTEM OR DRY-TYPE SYSTEM, E.G. FEEDERS THAT ARE INSTALLED ABOVE A HUNG CEILING.
   - B. FIRE PUMP NORMAL AND EMERGENCY FEEDERS AND CONTROL WIRING
     - a. EXCEPTION: SUPPLY CONDUCTORS LOCATED IN THE ELECTRICAL EQUIPMENT ROOM WHERE THEY ORIGINATE, OR LOCATED IN THE FIRE PUMP ROOM.
     - b. EXCEPTION: SUPPLY CONDUCTORS LOCATED OUTDOORS.
   - C. SMOKEPROOF ENCLOSURE VENTILATION SYSTEM (STAIRWELL PRESSURIZATION SYSTEM) NORMAL AND EMERGENCY FEEDERS AND CONTROL WIRING
     - a. EXCEPTION: CONDUCTORS LOCATED IN ROOMS OR ENCLOSURES THAT ARE 2-HOUR FIRE-RATED.
     - b. EXCEPTION: CONDUCTORS LOCATED OUTDOORS.
   - D. GENERATOR CONTROL WIRING (INSTALLED ENTIRELY INDEPENDENT OF ALL OTHER WIRING).
     - a. EXCEPTION: CONDUCTORS LOCATED IN ROOMS OR ENCLOSURES THAT ARE 2-HOUR FIRE-RATED.
     - b. EXCEPTION: CONDUCTORS LOCATED OUTDOORS.

3. THE FINAL PROVISIONS OF 2-HOUR RATED WIRES AND CABLES SHALL BE IN FULL COMPLIANCE WITH THE REQUIREMENTS OF APPLICABLE ELECTRICAL AND BUILDING CODES AND AUTHORITIES HAVING JURISDICTION. SEE FIRE-RATED WIRING NOTES 1 AND 2 ABOVE.

ELECTRICAL BRANCH CIRCUITING NOTES

4. ALL BRANCH CIRCUIT HOME RUNS SHALL BE 2#12 & 1#12 GROUND IN 3/4" CONDUIT, UNLESS OTHERWISE NOTED, TO PANEL ON CIRCUIT INDICATED. MAXIMUM OF THREE HOME RUNS PER CONDUIT. PROVIDE A SEPARATE NEUTRAL WIRE AND A SEPARATE GROUND WIRE FOR EACH 120V AND 277V CIRCUIT SHOWN ON THE DRAWINGS (APPLICABLE FOR WIRING OF LIGHTING FIXTURES, RECEPTACLES, MEDICAL EQUIPMENT, MECHANICAL EQUIPMENT, ETC.).

5. WHERE EQUIPMENT, LIGHTING FIXTURES AND WIRING DEVICES ARE SHOWN WITH CIRCUIT NUMBERS ONLY, THE MINIMUM BRANCH CIRCUITING REQUIREMENTS SHALL BE AS FOLLOWS:
   - A. LIGHTING FIXTURES - 2 #12, #12 GRD. - 3/4" C.
   - B. RECEPTACLES - 2#12, #12 GRD. - 3/4" C.
   - C. BRANCH CIRCUIT BREAKERS (277 VOLT) - 1P, 20A
   - D. BRANCH CIRCUIT BREAKERS (120 VOLT) - 1P, 20A
   - E. HOMERUNS TO PANELBOARDS SHALL CONTAIN NO MORE THAN (3) CIRCUITS.
   - F. 208/120 VOLT 480/277 VOLT WIRING SHALL BE RUN IN SEPARATE RACEWAY SYSTEMS.
   - G. EMERGENCY SERVICES SHALL BE RUN IN SEPARATE RACEWAYS FROM ALL OTHER SYSTEMS.
   - H. WHERE LIGHTING SWITCH INDICATIONS ARE NOT SHOWN, SWITCHES SHALL BE CONNECTED TO CONTROL ALL SWITCHED FIXTURES WITHIN THE CORRESPONDING SPACE.

3. WHERE CONDUIT AND WIRING CONNECTIONS ARE NOT SHOWN ON THE PLANS, BRANCH CIRCUIT SIZES AND MAXIMUM LENGTHS SHALL BE AS FOLLOWS, TO LIMIT VOLTAGE DROP TO LESS THAN 2.0% ON THE BRANCH CIRCUIT:

A.	120V, 20A CIRCUIT	C.	208V/1-PHASE, 20A CIRCUIT
A.A.	12 AWG - 35 FEET	C.A.	12 AWG - 65 FEET
A.B.	10 AWG - 60 FEET	C.B.	10 AWG - 105 FEET
A.C.	8 AWG - 95 FEET	C.C.	8 AWG - 160 FEET
A.D.	6 AWG - 145 FEET	C.D.	6 AWG - 255 FEET
A.E.	4 AWG - 230 FEET		
B.	277V, 20A CIRCUIT	D.	480V/1-PHASE, 20A CIRCUIT
B.A.	12 AWG - 85 FEET	D.A.	12 AWG - 150 FEET
B.B.	10 AWG - 140 FEET	D.B.	10 AWG - 250 FEET
B.C.	8 AWG - 215 FEET		
B.D.	6 AWG - 340 FEET		

4. SPLICE WIRES WHICH ARE 8 AWG AND LARGER WITH 10 AWG WIRE TO PERMIT MAKING FINAL TERMINATIONS AT LOADS. SPLICES SHALL BE AS CLOSE AS POSSIBLE TO THE LOADS. PROVIDE A SEPARATE JUNCTION BOX IF REQUIRED TO PERFORM THE SPLICES.

5. PROVIDE CIRCUITRY FOR ALL "NON-STANDARD" WIRING DEVICES (OTHER THAN 20A, 120V OUTLETS) ON THE BASIS OF ONE RECEPTACLE PER CIRCUIT. OVERCURRENT DEVICE IN PANEL SIZED TO MATCH AMPERE RATING OF "NON-STANDARD" WIRING DEVICE WIRED TO THE PANEL AS REQUIRED.

6. FOR ALL NEW CIRCUIT BREAKERS BEING INSTALLED IN AN EXISTING PANEL: NEW CIRCUIT BREAKERS' TYPE, MANUFACTURER, AND AMPERE INTERRUPTING CAPACITY SHALL MATCH EXISTING CIRCUIT BREAKERS' TYPE, MANUFACTURER, AND AMPERE INTERRUPTING CAPACITY.

7. CIRCUIT NUMBERS SHOWN ON THE DRAWINGS ARE FOR REFERENCE PURPOSES ONLY. SPARES AND SPACES SHALL BE UTILIZED BY THE CONTRACTOR AS REQUIRED. EXISTING FIELD CONDITIONS SHALL PREVAIL. REUSE CIRCUITS MADE SPARE BY THE DEMOLITION WORK IN CONJUNCTION WITH THE NEW WORK.

8. REFER TO MECHANICAL DRAWINGS FOR VAV BOX LOCATIONS. CONNECT UP TO (8) VAV BOXES PER SPARE 20A/1P CIRCUIT BREAKER IN THE NEAREST EQUIPMENT BRANCH PANEL. PROVIDE MINIMUM 2#10+1#10G-3/4"C. AT EACH VAV BOX PROVIDE A TOGGLE-TYPE DISCONNECT SWITCH. AT EACH VAV BOX PROVIDE A CEILING-MOUNTED JUNCTION BOX WITH LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT FOR FINAL EQUIPMENT CONNECTION (5 FOOT MAXIMUM LENGTH).

9. REFER TO MECHANICAL DRAWINGS FOR FIRE/SMOKE DAMPER LOCATIONS. CONNECT UP TO (8) FIRE/SMOKE DAMPERS PER SPARE 20A/1P CIRCUIT BREAKER IN THE NEAREST LIFE SAFETY BRANCH PANEL. PROVIDE MINIMUM 2#10+1#10G-3/4"C. DO NOT PROVIDE TOGGLE-TYPE DISCONNECT SWITCHES AT FIRE/SMOKE DAMPERS. AT EACH FIRE/SMOKE DAMPER PROVIDE A CEILING-MOUNTED JUNCTION BOX WITH LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT FOR FINAL EQUIPMENT CONNECTION (5 FOOT MAXIMUM LENGTH).

10. REFER TO FIRE ALARM DRAWINGS AND ARCHITECTURAL DRAWINGS FOR LOCATIONS AND QUANTITIES OF MAGNETIC DOOR HOLDERS. CONNECT UP TO (8) UNITS PER SPARE 20A/1P CIRCUIT BREAKER IN THE NEAREST LIFE SAFETY BRANCH PANEL. PROVIDE MINIMUM 2#10+1#10G-3/4"C.

11. LIGHTING CIRCUITRY GROUND RULES:
    - A. BRANCH CIRCUITING SHALL BE IN ACCORDANCE WITH CONTROL SCHEMES SHOWN ON PLANS.
    - B. RELAY CONTROLLED AND DIMMER SYSTEM BRANCH CIRCUITS SHALL RUN VIA LIGHTING CONTROL EQUIPMENT AS REQUIRED.
    - C. EACH ZONE SHALL BE PROVIDED WITH AN OVERRIDE SWITCH.
    - D. IN GENERAL, 120V LIGHTING CONNECTED LOAD SHALL NOT EXCEED 1600 WATTS.
    - E. IN GENERAL, 277V LIGHTING CONNECTED LOAD SHALL NOT EXCEED 3300 WATTS.
    - F. MINIMUM SIZE OF BRANCH CIRCUIT CONDUIT SHALL BE 3/4".
    - G. MINIMUM SIZE OF BRANCH CIRCUIT WIRE SHALL BE #12 AWG.
    - H. PROVIDE 20% SPARE LIGHTING RELAYS / DIMMER MODULES.
    - I. COORDINATE FINAL LOCATIONS, QUANTITIES, MOUNTING, AND TYPES OF CONTROL DEVICES (SWITCHES, SENSORS, ETC.) WITH ARCHITECT AND LIGHTING CONSULTANT. OCCUPANCY AND VACANCY SENSORS FINAL LOCATIONS AND QUANTITIES SHALL BE PROVIDED AS REQUIRED TO MEET THE DEVICE MANUFACTURER'S RECOMMENDATIONS.
    - J. FINAL DIMMING AND LIGHTING CONTROL REQUIREMENTS SHALL BE COORDINATED WITH LIGHTING CONSULTANT, ARCHITECT, AND EQUIPMENT VENDOR.
    - K. EACH LIGHTING CIRCUIT SHALL BE PROVIDED WITH A 20A OVERCURRENT PROTECTION DEVICE LOCATED IN PANEL OR LIGHTING SYSTEM EQUIPMENT.

ELECTRICAL DEMOLITION NOTES

1. THE CONTRACTOR SHALL INCLUDE IN BID ALL COSTS ASSOCIATED WITH REMOVALS AND RELOCATIONS OF ELECTRICAL WORK AS SHOWN ON THE DRAWINGS AND AS DESCRIBED IN THE SPECIFICATIONS WITH ALLOWANCES FOR EXPECTED OR UNFORESEEN DIFFICULTIES WHEN CONCEALED WORK HAS BEEN OPENED. NO ADDITIONAL ALLOWANCE WILL BE MADE TO THE CONTRACTOR DUE TO NEGLECT OR FAILURE TO COMPLY WITH THE SPECIFIED REQUIREMENTS.

2. REFER TO ARCHITECTURAL DRAWINGS FOR THE ENTIRE SCOPE OF WORK, THE EXTENT OF THE DEMOLITION WORK IN PARTICULAR, AND ADDITIONAL INFORMATION.

3. NOTES AND GRAPHIC REPRESENTATIONS SHALL NOT LIMIT THE EXTENT OF DEMOLITION REQUIRED. CONTRACTOR SHALL VISIT THE SITE, CAREFULLY EXAMINE EXISTING CONDITIONS AND SHALL PERFORM ALL DEMOLITION REQUIRED TO ACHIEVE THE FINAL DESIGN INTENT AS REQUIRED BY THE CONTRACT DOCUMENTS. EXTENT OF ALL DEMOLITION WORK SHALL BE COORDINATED WITH THE ARCHITECT.

4. ALL WORK REQUIRED TO REMAIN IN SERVICE BUT INTERFERING WITH THE ALTERATIONS SHALL BE RELOCATED AND RECONNECTED USING MATERIALS AND STANDARDS OF THIS CONTRACT.

5. EQUIPMENT AND WIRING TO BE REMOVED SHALL BE DE-ENERGIZED PRIOR TO ANY DEMOLITION WORK. TEMPORARY LIGHTING SHALL BE PROVIDED ON THE ENTIRE FLOOR BEING DEMOLISHED UNTIL THE WORK IS COMPLETE.

6. EQUIPMENT INDICATED TO BE REMOVED SHALL BE TAKEN FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE LAWS AND ENVIRONMENTAL REGULATIONS. EQUIPMENT REQUIRED TO BE TURNED OVER TO THE OWNER SHALL BE PLACED IN A MUTUALLY ACCEPTABLE LOCATION.

7. THE WORK SHALL INCLUDE THE REMOVAL OF MATERIALS AS DIRECTED. PRIOR TO REMOVING EQUIPMENT AND MATERIALS FROM THE PROJECT SITE, THE OWNER'S MANAGER SHALL INSPECT AND ADVISE WHICH ITEMS WILL BE RESTORED.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL FROM THE PREMISES ALL DEBRIS RESULTING FROM REMOVAL OF ELECTRICAL WORK.

9. DEMOLITION AND REMOVAL WORK SHALL BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER. THE CONTRACTOR SHALL PATCH, REPAIR, FIREPROOF, OR OTHERWISE RESTORE ANY DAMAGED INTERIOR OR EXTERIOR BUILDING SURFACES (INCLUDING OPENINGS IN FLOORS OR WALLS CREATED BY REMOVAL OF CONDUITS OR WIRE) TO THEIR ORIGINAL CONDITION.

10. THIS CONTRACTOR SHALL MAINTAIN CONTINUITY OF SERVICE TO EXISTING BUILDING FIRE ALARM SYSTEM. COORDINATE WITH BUILDING MANAGER.

11. THE CONTRACTOR SHALL PERFORM DEMOLITION AND REMOVAL WORK WITH MINIMUM INTERFERENCE WITH FUNCTIONING ELECTRICAL SYSTEMS THAT ARE TO REMAIN. ALL AFFECTED SYSTEMS SHALL BE RECONNECTED AND RESTORED.

12. OUTSIDE THE SCOPE OF WORK AREAS, MAINTAIN CONTINUITY OF ALL EXISTING SERVICES (LIGHTING, POWER, DATA/TELEPHONE SYSTEMS, AUDIO-VISUAL SYSTEMS, SECURITY SYSTEMS, FIRE ALARM SYSTEM, ETC.). WHERE DEMOLITION WORK DISRUPTS EXISTING WIRING THAT IS TO REMAIN, THE CONTRACTOR SHALL INSTALL JUNCTION BOXES AND OTHER DEVICES AND PROVIDE BYPASS CONNECTIONS NECESSARY TO MAKE CIRCUITS AFFECTED CONTINUOUS AND READY FOR OPERATION. OTHERWISE, WIRING AND CONDUIT SHALL BE REMOVED BACK TO THE NEAREST ELECTRICAL JUNCTION BOX THAT IS TO REMAIN OR TO PANELBOARD.

13. THE CONTRACTOR SHALL NOT DISCONNECT OR REMOVE ANY EXIT LIGHTS, PULL STATIONS AND/OR FIRE ALARM SPEAKERS LOCATED AT STAIR ENTRANCES UNLESS OTHERWISE NOTED.

14. THE REMOVAL OF ALL FIRE ALARM, COMMUNICATIONS, DATA AND SECURITY EQUIPMENT AND ASSOCIATED CABLING SHALL BE COORDINATED WITH BUILDING OPERATING PERSONNEL. EXISTING BASE BUILDING FIRE ALARM SYSTEM SHALL REMAIN IN OPERATION DURING BOTH DEMOLITION AND CONSTRUCTION STAGES OF THIS PROJECT.

15. DEMOLITION WORK SHALL INCLUDE THE FURNISHING OF ALL MATERIAL CUTTINGS, EXTENSIONS, CONNECTIONS, REPAIRING, ADAPTING AND OTHER WORK INCIDENTAL THERETO, TOGETHER WITH SUCH TEMPORARY CONNECTIONS AS MAY BE REQUIRED.

16. THIS CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY LIGHT AND POWER TO ENSURE THE SAFETY OF PERSONNEL AND POWER REQUIREMENTS OF THE VARIOUS TRADES.

17. WHERE PRESENT WORK IS DAMAGED IN THE EXECUTION OF THIS CONTRACT, OR WHERE OPENINGS ARE LEFT DUE TO THE REMOVAL OF PIPES, EQUIPMENT OR APPARATUS, THE SAME SHALL BE REPAIRED TO CORRESPOND IN MATERIALS, QUALITY, SHAPE AND FINISH WITH THAT OF SIMILAR AND ADJOINING WORK, UNLESS OTHERWISE CALLED FOR.

18. CONTRACTOR SHALL ASSURE THAT THE LIGHTING AND POWER TO TOILETS REMAIN IN WORKING CONDITION.

19. WHERE REMOVAL OF EXISTING ELECTRICAL EQUIPMENT WILL RESULT IN OUTAGES IN AREAS NOT TO BE DEMOLISHED, THE CONTRACTOR SHALL COORDINATE IN ADVANCE AND OBTAIN THE APPROVAL OF THE BUILDING MANAGER.

20. COORDINATE WITH OWNER WHICH FIXTURES, DEVICES AND EQUIPMENT, IF ANY, ARE TO BE REMOVED, KEPT INTACT AND RETURNED TO THE OWNER. IN GENERAL, ALL DEVICES, WIRING, RACEWAYS, BOXES, SUPPORTS AND OTHER APPURTENANCES WHICH ARE TO BE REMOVED SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED. ALL EXISTING MATERIAL AND EQUIPMENT IN USABLE CONDITION, WHICH IS TO BE REMOVED UNDER THIS CONTRACT, SHALL REMAIN THE PROPERTY OF THE OWNER OR SHALL BE DISPOSED OF BY THE CONTRACTOR, AS DIRECTED BY THE OWNER.

21. CONTRACTOR IS TO DISCONNECT AND REMOVE ONLY WIRING AND RACEWAY SERVING FLOOR AREAS OF DEMOLITION. DO NOT REMOVE ANY BASE BUILDING HOMERUN CONDUITS.

22. FOR FEEDERS AND BRANCH CIRCUITS TO BE REMOVED, CONDUIT, SUPPORTS, AND WIRING SHALL BE REMOVED TO THE PANEL OF ORIGIN. WHERE EMPTY CONDUITS REMAIN, INSTALL A PULL STRING AND IDENTIFY AT BOTH ENDS.

23. FOR FEEDERS AND BRANCH CIRCUITS TO BE RE-USED, REMOVE CONDUIT AND WIRING TO LOCATIONS WHICH AVOID CONFLICTS WITH NEW WORK. INSTALL JUNCTION BOXES, TAPE OFF CONDUCTORS, AND IDENTIFY WITH PANEL AND CIRCUIT NUMBER.

24. PROVIDE ADDITIONAL SUPPORT FOR ALL EXISTING CONDUITS, LOW VOLTAGE CABLING, AND DEVICES TO REMAIN WHICH ARE AFFECTED BY DEMOLITION OF EXISTING CEILINGS AND PARTITIONS.

25. ALL EXISTING UNUSED CONDUIT AND WIRING SHALL BE DROPPED TO THE FLOOR BY THE ELECTRICIAN FOR REMOVAL FROM THE BUILDING BY THE DEMOLITION OR CONTRACTOR.

26. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ASCERTAINING THE FOLLOWING:
    - A. WHICH EXISTING CIRCUITS ARE CONNECTED TO CONSTANT CIRCUITS (NIGHT LIGHT, EXIT LIGHTS, ETC.).
    - B. WHICH EXISTING CIRCUITS ARE CONNECTED TO EXISTING EQUIPMENT TO REMAIN (TOILETS, JANITOR'S CLOSET, SERVICE ELEVATOR, LOBBY AND RECEPTACLES IN CORE CORRIDORS) AND SHALL MAINTAIN CONTINUITY OF SERVICE TO SUCH EQUIPMENT BY EITHER NEW CIRCUITRY OR EXTENSION OF EXISTING CIRCUITRY.

27. THE CONTRACTOR SHALL BE RESPONSIBLE TO TRACE AND RELOCATE ALL EXISTING FEEDERS AND BRANCH CIRCUIT WIRING WHICH PASS THROUGH THE DEMOLITION AREA THAT SERVE EXISTING OCCUPIED SPACES TO REMAIN. COORDINATE WITH BUILDING MANAGEMENT PRIOR TO ANY SHUTDOWNS OR DISRUPTIONS THAT MAY BE REQUIRED TO ACCOMPLISH THIS WORK.

28. THE CONTRACTOR SHALL REMOVE ALL ELECTRICAL OUTLETS, SWITCHES AND OTHER DEVICES, COMPLETE WITH ASSOCIATED WIRING, CONDUITS, ETC., FROM PARTITIONS THAT MUST BE REMOVED. WHERE THE REMOVAL OF THESE ITEMS DISRUPTS EXISTING WIRING THAT IS TO REMAIN, THE CONTRACTOR SHALL INSTALL JUNCTION BOXES & OTHER DEVICES AND PROVIDE BYPASS CONNECTIONS NECESSARY TO MAKE CIRCUITS AFFECTED CONTINUOUS AND READY FOR OPERATION. OTHERWISE, WIRING SHALL BE REMOVED BACK TO THE NEAREST ELECTRICAL JUNCTION BOX THAT IS TO REMAIN OR TO PANELBOARD.

29. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, CONTRACTOR SHALL DISCONNECT AND REMOVE THE FOLLOWING EXISTING EQUIPMENT AND DEVICES:
    - A. ELECTRICAL PANELS SHOWN AS BEING REMOVED WITH ASSOCIATED WIRING TROUGHS, INCOMING FEEDERS (WIRING AND CONDUIT), AND BRANCH CIRCUITS (WIRING AND CONDUIT).
    - B. ALL WALL, COLUMN, CEILING, AND FLOOR MOUNTED OR RAISED FLOOR MOUNTED (BELOW RAISED FLOOR OR INSIDE RAISED FLOOR POWER, DATA, AND TELEPHONE OUTLETS.
    - C. WIREMOLDS WITH BUILT-IN POWER, DATA AND TELEPHONE OUTLETS.
    - D. DATA/TELEPHONE STRIP CABINETS AND ASSOCIATED TERMINAL BLOCKS.
    - E. DATA/TELEPHONE CABLES, AUDIO VISUAL OUTLETS, AUDIO VISUAL CABLES, TV OUTLETS, TV CABLES, CLOCK OUTLETS.
    - F. LIGHTING FIXTURES, LIGHTING CONTROL SWITCHES, OCCUPANCY SENSORS, LIGHTING CONTROL TIMERS, LIGHTING CONTROL CONTACTORS, TOGGLE SWITCHES WITH PILOT LIGHT.
    - G. CARD READERS, ELECTRIC DOOR LOCKS, SECURITY SYSTEMS CONTROL PANELS, CCTV CAMERAS, DOOR CONTACTS, DOOR RELEASE PUSH BUTTONS, PAGING SPEAKERS.
    - H. LOCAL CIRCUIT BREAKERS, LOCAL DISCONNECT SWITCHES (INCLUDING SWITCHES SERVING HVAC, KITCHEN OR PLUMBING EQUIPMENT.
    - I. WATER DETECTION CONTROL PANELS WITH WITH ASSOCIATED WATER DETECTORS AND WIRING.
    - J. ALL POWER SUPPLIES TO EXISTING CONTROL PANELS (WIRING AND CONDUIT).
    - K. LOCAL CONTROL PANELS AND STARTERS ASSOCIATED WITH HVAC, KITCHEN AND PLUMBING EQUIPMENT.
    - L. EMERGENCY POWER OFF SWITCHES (EPO'S, BREAK GLASS SWITCHES).
    - M. KITCHEN ANSUL FIRE SUPPRESION CONTROL PANELS AND ASSOCIATED MANUAL RELEASE PULL STATIONS.
    - N. ALL FIRE ALARM RELATED DEVICES SUCH AS MANUAL PULL STATIONS, SPEAKER/STROBES, SMOKE DETECTORS, WARDEN STATIONS, FIRE/SMOKE DAMPERS, INTERFACE RELAYS, ETC.

30. COMPLETELY REMOVE ALL EXISTING ABANDONED OUTLETS, LIGHTING FIXTURES, DISCONNECT SWITCHES, CONTROL SWITCHES, JUNCTION BOXES, PULL BOXES, SPLICE BOXES, EMPTY CONDUITS, ELECTRICAL WIRING, COMMUNICATION (DATA/TELEPHONE) AND SECURITY SYSTEMS WIRING AND/OR CABLES, ETC. LOCATED WITHIN THE SCOPE OF WORK AREAS. ALL SUCH EXISTING EQUIPMENT AND DEVICES SHALL BE COMPLETELY REMOVED WITH ALL ASSOCIATED WIRING, CABLES, CONDUITS, CONDUIT SUPPORTS, PULL BOXES, SPLICE BOXES, JUNCTION BOXES, WIRING TROUGHS, CABLE TRAYS, ETC. ALL ASSOCIATED WIRING AND CONDUITS SHALL BE REMOVED BACK TO SOURCE (PANEL), UNDER THE RAISED FLOOR WHERE THE EXISTING RAISED FLOOR IS BEING REMOVED: DISCONNECT AND REMOVE ALL EXISTING ACTIVE AND ABANDONED POWER AND DATA/TELEPHONE OUTLETS, CONDUITS, JUNCTION BOXES, WIRING, CABLES, SMOKE DETECTORS, GROUNDING PLATES AND ASSOCIATED GROUNDING WIRES CONNECTED TO BUILDING STEEL AND RAISED FLOOR PEDESTALS. REMOVE ALL EXISTING PULL BOXES AND/OR SPLICE BOXES.

31. DISCONNECT AND COMPLETELY REMOVE ALL ELECTRICAL WORK ASSOCIATED WITH THE MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT BEING REMOVED BY OTHER TRADES (EXAMPLE: AC UNITS, EXHAUST FANS, PUMPS, MOTORIZED DAMPERS, VAV BOXES, HOT WATER HEATERS, DUCT HEATERS, ETC.). DISCONNECT AND REMOVE EQUIPMENT ASSOCIATED LOCAL DISCONNECT SWITCHES, LOCAL CONTROL PANELS, REMOTE CONTROL SWITCHES (AS APPLICABLE), VAV BOXES, ETC. WITH ALL ASSOCIATED WIRING AND CONDUIT BACK TO SOURCE (EXACT POWER SOURCE TO BE DETERMINED IN THE FIELD BY THIS CONTRACTOR). FOR HVAC UNITS BEING REMOVED (LARGE AC UNITS, EXHAUST FANS) ALSO DISCONNECT AND REMOVE ASSOCIATED PLENUM LIGHTING FIXTURES AND LIGHTING CONTROL SWITCHES, PLENUM RECEPTACLES, FIRE ALARM RELATED WORK SUCH AS DUCT MOUNTED SMOKE DETECTORS, COMBINATION FIRE/SMOKE DAMPERS, INTERFACE RELAYS, FIRE ALARM POWER SUPPLIES, ETC. AS APPLICABLE, WITH ALL ASSOCIATED WIRING AND CONDUIT. COORDINATE ALL FIRE ALARM RELATED DEMOLITION WORK ALSO WITH BUILDING FIRE ALARM MAINTENANCE CONTRACTOR.

32. COORDINATE THE ENTIRE DEMOLITION WORK ASSOCIATED WITH MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT WITH THE RESPECTIVE TRADE. DURING THE BIDDING PROCESS, REFER TO THE OTHER TRADES' CONTRACT DRAWINGS FOR THE FULL EXTENT OF THEIR DEMOLITION WORK AND RELATED ELECTRICAL DEMOLITION WORK. INCLUDE ALL ASSOCIATED ELECTRICAL DEMOLITION COSTS IN THE BID PRICE.

33. ALL RACEWAYS WHICH BECOME EXPOSED DURING THE ALTERATION WORK SHALL BE REMOVED AND REROUTED CONCEALED BEHIND FINISHED SURFACES.

34. IN THE PROCESS OF REMOVING WIRING DEVICES, LIGHTING FIXTURES AND OTHER ELECTRICAL EQUIPMENT AND MATERIALS, THIS CONTRACTOR SHALL EXERCISE EXTREME CAUTION TO PREVENT DAMAGE TO ARCHITECTURAL SURFACES WHICH ARE TO REMAIN. THE COST TO REPAIR OR REPLACE ANY MATERIAL DEEMED BY THE ARCHITECT TO HAVE BEEN UNDULY DAMAGED BY THIS CONTRACTOR DURING DEMOLITION OR CONSTRUCTION SHALL BE PAID BY THIS CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

35. PROVIDE BLANK COVER PLATES AT OPEN BOXES WHERE EXISTING RECEPTACLES OR ELECTRICAL DEVICES ARE REMOVED FROM ENCLOSURES. EQUIPMENT, OR SURFACES NOT INDICATED TO BE REPAIRED OR REFINISHED. ALL UNUSED OUTLET BOXES OR CAPPED FLOOR OUTLETS SHALL BE PROVIDED WITH MATCHING BLANK COVERS.

36. ALL WORK SHALL BE PROPERLY IDENTIFIED AFTER DEMOLITION. UPDATE ALL PANEL SCHEDULES TO REFLECT EQUIPMENT AND CIRCUIT REMOVALS.

37. CONTRACTOR SHALL RECYCLE ALL LIGHTING FIXTURE LAMPS AND BALLASTS TO BE REMOVED. COORDINATE WITH BUILDING MANAGEMENT.

38. THE CONTRACTOR SHALL REMOVE AND/OR RELOCATE ALL EXISTING ELECTRICAL WORK WHICH INTERFERES WITH THE NEW ARCHITECTURAL AND ELECTRICAL LAYOUTS IN FULL COORDINATION WITH THE ARCHITECT'S DEMOLITION PLANS. ALL SYSTEMS WHICH ARE NO LONGER REQUIRED TO FUNCTION SHALL BE DE-ENERGIZED AND DISCONNECTED AT THE SOURCE OF POWER SUPPLY.

39. PROVIDE REVISED, TYPED-UP DIRECTORIES FOR ALL PANELBOARDS AFFECTED BY THE DEMOLITION AND NEW WORK, TO REFLECT ALL EXISTING CONDITIONS AND BRANCH CIRCUIT WIRING CHANGES. REMOVE THE ENTIRE EXISTING PANEL DIRECTORIES AND REPLACE WITH TYPED-UP NEW PANEL DIRECTORIES AS INDICATED ABOVE.

40. PORTIONS OF FEEDER RUNS TO BE REMOVED OR ABANDONED AS A RESULT OF DEMOLITION WORK, BUT WHICH ARE REQUIRED TO REMAIN ENERGIZED, SHALL BE CUT AT CONVENIENT LOCATIONS, REROUTED AND RECONNECTED. NEW FEEDER EXTENSIONS SHALL MATCH EXISTING ONES IN ALL RESPECTS, CABLE TYPE, CONDUCTOR QUANTITIES AND SIZES, CONDUIT SIZES, ETC.

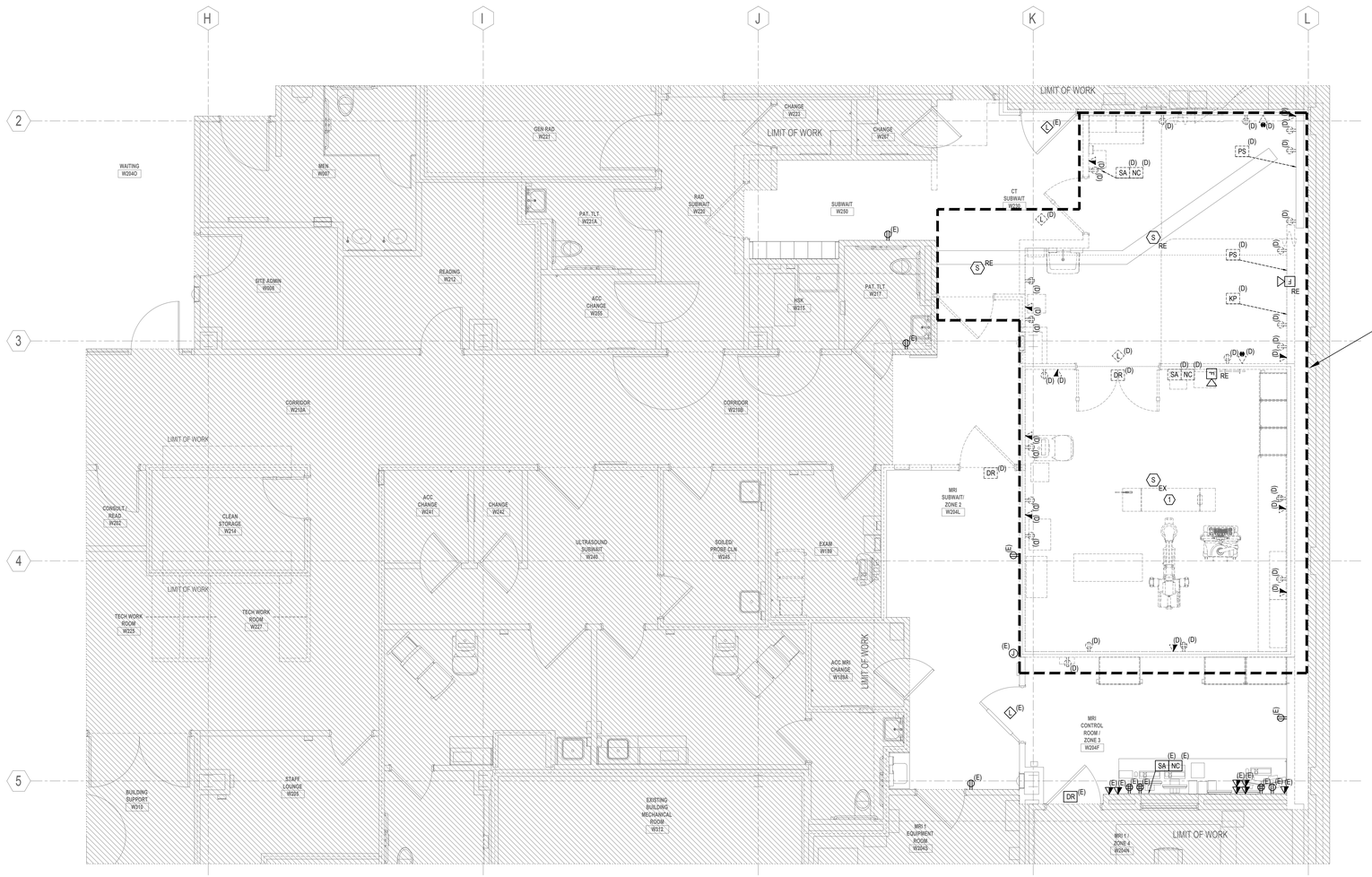
41. THE CONTRACTOR SHALL NOTIFY THE OWNER AT THE APPROPRIATE TIME OF THE PROJECTED DEMOLITION AND PHASING SCHEDULE SO THAT REMOVAL OR RELOCATION OF AFFECTED UTILITIES MAY BE CARRIED OUT IN COORDINATION WITH THE PROJECT AND OWNER'S SPECIFIC REQUIREMENTS. THE CONTRACTOR SHALL FOLLOW CLOSELY THE ARCHITECT'S OR CONSTRUCTION MANAGER'S DEMOLITION AND CONSTRUCTION PHASING SCHEDULE AND PROCEED IN THE SPECIFIED SEQUENCE. EXISTING PANELS SHOWN AS BEING REMOVED, ASSOCIATED INCOMING FEEDERS (WIRING AND CONDUIT), BRANCH CIRCUITS (WIRING AND CONDUIT), ASSOCIATED LOADS SERVED (LIGHTING FIXTURES, RECEPTACLES, VENTILATION EQUIPMENT, ETC.) AND ANY OTHER EXISTING ELECTRICAL DEVICES OR EQUIPMENT BEING REMOVED, SHALL BE DE-ENERGIZED, DISCONNECTED AND REMOVED ONLY AT THE DATES AND TIMES INDICATED BY THE DEMOLITION AND CONSTRUCTION PHASING SCHEDULE APPROVED BY THE OWNER.

42. ARRANGE TO WORK CONTINUOUSLY, INCLUDING OVERTIME, IF REQUIRED, TO ASSURE THAT SYSTEMS WILL BE SHUT DOWN ONLY DURING THE TIME ACTUALLY REQUIRED TO MAKE THE NECESSARY FINAL CONNECTIONS TO THE EXISTING SYSTEMS.

43. THE SHUTDOWN OF EXISTING BUILDING ELECTRICAL SERVICES SHALL BE COORDINATED WITH THE OWNER. SUBMIT PROPOSED POWER SHUTDOWN SCHEDULE (DATE, TIME, SHUTDOWN DURATION) FOR APPROVAL BY THE OWNER. MAKE ARRANGEMENTS AT LEAST 5 BUSINESS DAYS PRIOR TO A SHUTDOWN. IN ORDER TO MINIMIZE THE POWER SHUTDOWN DURATION, INSTALL ALL NEW ELECTRICAL EQUIPMENT AND ASSOCIATED FEEDERS AND REMOVE CERTAIN EXISTING SERVICE EQUIPMENT AS INDICATED ON THE DRAWINGS, PRIOR TO REQUIRING THE POWER SHUTDOWN. THE ACTUAL POWER SHUTDOWN WILL BE REQUIRED JUST TO MAKE THE FINAL CONNECTIONS TO NEW ELECTRICAL EQUIPMENT. COORDINATE WORK ALSO WITH UTILITY COMPANY IF POWER SHUTDOWN OF EXISTING INCOMING ELECTRICAL SERVICES IS REQUIRED, IN WHICH CASE PAY ALL FEES REQUIRED BY UTILITY COMPANY.

44. TYPICAL FOR EACH EXISTING PANEL LOCATED WITHIN THE SCOPE OF DEMOLITION WORK AREAS SHOWN AS BEING REMOVED UNLESS OTHERWISE NOTED:
    - A. REMOVE EXISTING PANEL.
    - B. REMOVE EXISTING ASSOCIATED INCOMING FEEDER (WIRING AND CONDUIT) PER RISER DIAGRAMS.
    - C. REMOVE ALL EXISTING ASSOCIATED BRANCH CIRCUITS (WIRING AND CONDUIT) UP TO THE NEAREST CEILING LOCATED WITHIN THE NOT IN SCOPE OF DEMOLITION WORK AREAS IF THE BRANCH CIRCUIT DOES NOT TERMINATE WITHIN THE SCOPE OF DEMOLITION WORK. CUT AND CAP CONDUIT INSIDE THE NOT IN SCOPE OF DEMOLITION WORK AREAS.
    - D. THE INTENT IS TO COMPLETELY REMOVE ALL EXISTING INCOMING FEEDERS (WIRING AND CONDUIT) AND ALL EXISTING BRANCH CIRCUITS (WIRING AND CONDUITS) LOCATED WITHIN THE SCOPE OF WORK AREAS.
    - E. MAINTAIN CONTINUITY OF ALL EXISTING FEEDERS AND EXISTING BRANCH CIRCUITS LOCATED OUTSIDE THE SCOPE OF WORK AREAS. THE CONTRACTOR SHALL INSTALL JUNCTION BOXES AND OTHER DEVICES AND PROVIDE BYPASS CONNECTIONS NECESSARY TO MAKE CIRCUITS AFFECTED CONTINUOUS AND READY FOR OPERATION.

45. TYPICAL FOR EACH EXISTING PANEL LOCATED OUTSIDE THE SCOPE OF DEMOLITION WORK AREAS (PANEL DE-ENERGIZED PER THIS DEMOLITION WORK): IF EXISTING ASSOCIATED BRANCH CIRCUITS (WIRING AND CONDUIT) SERVE LOADS LOCATED WITHIN THE SCOPE OF DEMOLITION WORK AREAS, ONLY REMOVE THOSE BRANCH CIRCUIT SECTIONS LOCATED WITHIN THE SCOPE OF DEMOLITION WORK AREAS. CUT AND CAP CONDUITS INSIDE



KEY NOTES	
1	DISCONNECT EXISTING IR UNIT AND REMOVE EXISTING FEEDER BACK TO SOURCE PANEL UP-1W-C3.
2	ALL RECEPTACLES, WIREMOLDS, LIGHTING FIXTURES, TELE/DATA OUTLETS AND JUNCTION BOXES IN THIS PHASE SHALL BE REMOVED U.O.N., REMOVE ASSOCIATED CONDUIT AND WIRES BACK TO SOURCE. COORDINATE ALL REMOVALS WITH THE ARCHITECTURAL DRAWINGS.
3	ALL FIRE ALARM DEVICES LOCATED IN THE SCOPE AREAS ARE EXISTING TO REMAIN U.O.N. AND SHALL BE PROTECTED DURING CONSTRUCTION.

NOTES

1. REFER TO DWG. E001.00 FOR DEMOLITION NOTES, SYMBOLS, GENERAL NOTES AND ABBREVIATIONS.
2. CONTRACTOR SHALL MAINTAIN CONTINUITY TO ALL EXISTING CIRCUITRY THAT EXTEND BEYOND THEIR CURRENT PHASE OR BEYOND THE AREA OF WORK SERVING EQUIPMENT IN AREAS NOT IN CONTRACT. CONTRACTOR SHALL PROVIDE ALL NECESSARY WIRES, CONDUIT AND JUNCTION BOXES REQUIRED TO MAINTAIN CONTINUITY.
3. CONTRACTOR IS RESPONSIBLE FOR TRACING ALL CIRCUITS, LINES IN AREA OF WORK AND LINES RUNNING TO AND FROM THE AREA OF WORK TO ADJACENT SPACES IN ORDER TO CONFIRM LOADS AND SOURCES. ONCE CONFIRMED, SUBMIT TO ENGINEER FOR REVIEW AND COORDINATION. ALL SHUTDOWNS SHALL BE ON OVERTIME AT TIMES PERMITTED BY THE OWNER. COORDINATE WITH OWNER AT LEAST TWO (2) WEEKS IN ADVANCE.
4. ALL CIRCUITS MADE AVAILABLE DURING THE EXECUTION OF THIS WORK SHALL BE LABELED "SPARE". CONTRACTOR SHALL UPDATE PANEL DIRECTORIES.

0 4 8 FEET

THIS PLAN IS APPROVED ONLY FOR WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON, OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

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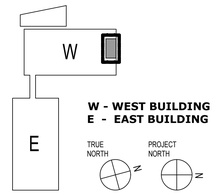


KEY PLAN

NO.	DESCRIPTION	DATE
1	CD SUBMISSION	6-18-21

REVISIONS/ISSUES

SHEET TITLE:

LEVEL 1 POWER DEMOLITION PART PLAN

SEAL:

DATE: 7/23/2020
CON/REF No.
CONTRACT No.
SCALE: As indicated
PROJECT No. 12384
CHECKED: Checker
DRAWN: MC

SHEET NO.

E-101.00

DWG OF

GENERAL NOTES:

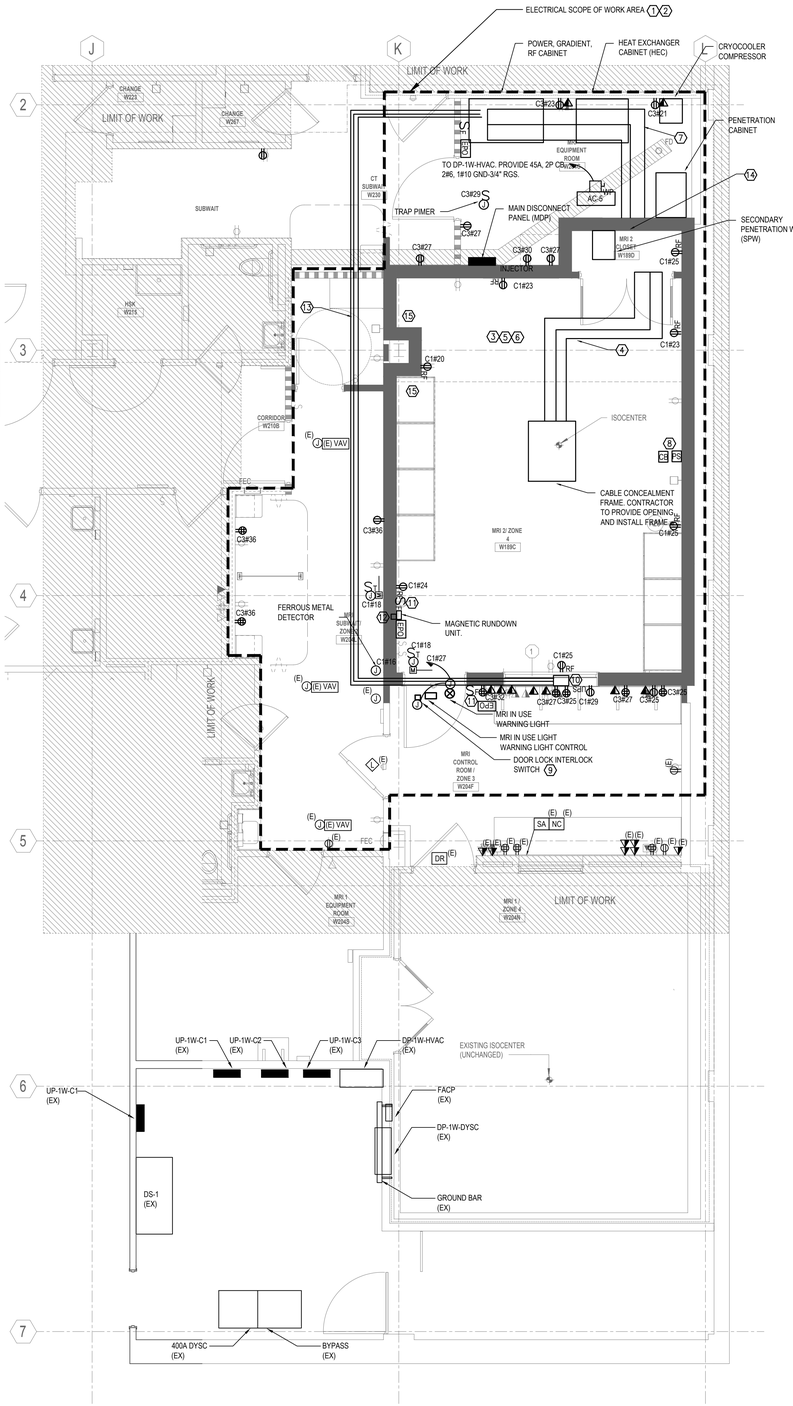
1. GE VENDORS SITE-SPECIFIC DRAWINGS SHALL BE PART OF CONSTRUCTION DOCUMENTATION SET. THE CONTRACTOR SHALL PROVIDE ALL RACEWAYS, CABLES, POWER SUPPLIES, DATA RACEWAYS, BOXES, ETC. AS REQUIRED BY THE VENDOR'S DRAWINGS.
2. REFER TO DWG. E001.00 FOR NOTES, SYMBOLS, GENERAL NOTES AND ABBREVIATIONS.
3. ALL BRANCH CIRCUIT WIRING SHALL BE CONCEALED IN WALLS AND ABOVE HUNG CEILING, U.O.N. BRANCH CIRCUIT WIRING SHALL BE MC CABLES-HCF TYPE.
4. PROVIDE DEDICATED NEUTRAL AND GROUND WIRES FOR ALL NEW RECEPTACLE CIRCUITS, U.O.N.
5. FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL JUNCTION BOXES, POWER AND TELE/DATA OUTLETS SEE ARCHITECTURAL DRAWINGS.
6. PROVIDE 1-1/4" CONDUIT WITHIN PARTITION TO 6" ABOVE FINISHED CEILING WITH DRAG LINE FOR TELE/DATA, NURSE CALL AND SECURITY SYSTEMS DEVICES. REFER TO ARCHITECTURAL DRAWINGS FOR QUANTITIES AND EXACT LOCATIONS.
7. COORDINATE WITH ALL TRADES FOR EQUIPMENT SUPPLIED BY OTHER TRADES AND COORDINATE WITH ARCHITECTURAL DRAWINGS FOR ADDITIONAL SCOPE.
8. ENSURE ALL COMPONENTS ARE PLACED SO THAT THE SHORTEST CABLE LENGTH IS SUFFICIENT. MRI CONDUIT RUNS MUST NOT EXCEED LENGTH MAXIMUM START TO FINISH LENGTH SHOWN ON GE DRAWINGS.
9. CONTRACTOR SHALL PROVIDE ALL REQUIRED PULL BOXES.
10. ALL CONDUITS MUST BE TERMINATED WITH DRAG LINE AND INSULATING BUSHINGS TO PROTECT CABLES FROM ABRASION.
11. CONTRACTOR SHALL PROVIDE AND INSTALL ALL CONDUITS, WIREWAYS, DUCT, DUCT DIVIDERS, SWITCHES, CIRCUIT BREAKERS, CABLE TRAYS AND JUNCTION BOXES REQUIRED FOR THE MRI INSTALLATION. REFER TO GE SITE SPECIFIC DRAWINGS FOR ELECTRICAL LAYOUT DIAGRAM, ELECTRICAL DETAILS AND EXACT LOCATIONS AND QUANTITY OF DEVICES.
12. PRIOR TO SUBMITTING A BID, THE CONTRACTOR SHALL OBTAIN A COPY OF THE LATEST GE SITE SPECIFIC DRAWINGS TO BE USED AS PART OF THIS CONTRACT DOCUMENT.
13. ALL RECEPTACLES IN AREA OF WORK SHALL BE HOSPITAL GRADE TAMPER RESISTANT.
14. RE-LOCATE EXISTING FIRE ALARM DEVICES AS REQUIRED TO ACCOMMODATE NEW ROOM LAYOUT. EXTEND CONDUIT AND WIRING AS REQUIRED TO FACILITATE FIRE ALARM DEVICES.
15. CIRCUIT NUMBERS ARE FOR REFERENCE ONLY.

IMAGING EQUIPMENT NOTES

UNDER GE SUPERVISION THE CONTRACTOR SHALL:

1. ROUTE ALL SYSTEM POWER THROUGH THE DISCONNECT SWITCH.
2. ENSURE THAT ROUGH-IN FOR CONDUCTORS FOR LISTED ITEMS INCLUDES 12'-0" SLACK COILED IN PULL BOX.
3. SUPPLY AND CONNECT PHASE AND GROUND POWER SUPPLY WIRES.
4. REVIEW CONNECTIONS AND EQUIPMENT FUNCTION WITH THE GE INSTALLER.
5. BUNDLE ALL WIRING IN CONDUITS SHARED BY GE CABLES.
6. PULL GE CONTROL CABLES AS SPECIFIED BY THE GE PROJECT MANAGER.
7. ALUMINUM OR SOLID WIRES ARE NOT ALLOWED.
8. ROUTE ALL CIRCUITS FOR THE MRI THROUGH RF FILTERS.
9. ALL ELECTRICAL EQUIPMENT WITHIN THE MRI AND ADJACENT AREAS SHALL BE NON-FERROUS.
10. RACEWAYS SHALL BE NON-FERROUS EMT INSIDE MRI ROOM.

PANEL LEGEND:	
UP-1W-C1	C1
UP-1W-C3	C3



KEY NOTES:

1	CONDUITS, HORIZONTAL AND VERTICAL ELECTRICAL DUCTS SHALL BE TERMINATED WITH GROUND BUSHING. CONDUITS AND ELECTRICAL DUCTWORK SHALL BE BONDED TO EQUIPMENT GROUND.
2	SEE SHEET E-401 RISER DIAGRAM
3	MRI RECEPTACLES SHALL BE HOSPITAL GRADE MRI RECEPTACLE AS MANUFACTURED BY HUBBELL CATH HBL8300 MRI. COLOR BY ARCHITECT. RECEPTACLES IN MRI ROOM SHALL BE NON-FERROUS TYPE.
4	CONTRACTOR TO PROVIDE NON-FERROUS CABLE LADDERS AND NON-FERROUS UNISTRUT CABLE SUPPORT. REFER TO GE SITE SPECIFICS FOR DIMENSIONS.
5	CONDUIT ENTERING INTO THE MRI ROOM SHALL BE NON FERROUS TYPE.
6	CONTRACTOR TO PROVIDE RF FILTERS FOR ALL NON GE WIRING IN MRI ROOM. ALL NON GE WIRING SHALL BE ROUTED THROUGH RF FILTERS.
7	CONTRACTOR TO PROVIDE CABLE LADDERS. REFER TO GE SITE SPECIFICS FOR DIMENSION.
8	COORDINATE WITH CUMC FOR ALL REQUIRED NURSE CALL. CONDUITS AND BOXES TO BE INSTALLED BY THE CONTRACTOR. DRAWINGS INDICATE NURSE CALL DEVICES FOR DESIGN INTENT. EXACT LOCATION AND QUANTITY OF DEVICES TO BE COORDINATED WITH NURSE CALL SYSTEM MANUFACTURER. PROVIDE AN ALLOWANCE FOR ADDITIONAL DEVICES FOR BIDDING PURPOSES.
9	PROVIDE DOOR INTERLOCK SAFETY SWITCH TO BE TIED INTO THE MEDICAL EQUIPMENT. PROVIDE ALL LOW VOLTAGE WIRING FROM DOOR INTERLOCK TO THE EQUIPMENT ROOM. COORDINATE EXACT LOCATIONS OF THE SWITCH WITH DOOR FROM THE PROVIDER/INSTALLER. MEDICAL EQUIPMENT PROVIDER NEEDS TO INDICATE EXACT LOCATION OF WHERE TO TERMINATE CABLES.
10	CONTRACTOR TO PROVIDE 12"X8"X6" JUNCTION BOX.
11	CONTRACTOR TO PROVIDE EMERGENCY EXHAUST FAN SWITCH. CONNECT CONTROL WIRING TO THE EXHAUST FAN. COORDINATE WITH THE EXHAUST FAN MANUFACTURER.
12	CONTRACTOR TO PROVIDE 4"X4"X2" JUNCTION BOX.
13	CONTRACTOR TO PROVIDE 2"C, 2-1/2"C & 3"C. CONDUIT TO RUN ABOVE RF SCREEN.
14	CONTRACTOR TO PROVIDE A 2" DIAMETER HOLE FOR INJECTOR CABLE UNDER THE SUPERVISION OF GE. VERIFY WITH GE BEFORE CUTTING A HOLE.
15	EXTEND FEEDERS TO NEW VAV LOCATION. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION.

CONDUIT SCHEDULE

FROM	TO	QUANTITY OF CONDUIT (#) AND CONDUIT SIZE (IN) CONTRACTOR SUPPLY AND INSTALL	CABLES	RESPONSIBILITY	EX/NEW
MAIN DISCONNECT PANEL	POWER, GRADIENT, RF CABINET	1-1/2"C	3#1/0,1#1/0G	B	NEW
	HEAT EXCHANGER CABINET	3/4"C	3#8,1#8G	B	NEW
	SYSTEM EMERGENCY OFF (EPO)	3/4"C		B	NEW
SYSTEM EMERGENCY OFF (EPO)	SECONDARY PENETRATION WALL	3/4"C	GE	A	NEW
DOOR SWITCH	POWER, GRADIENT, RF CABINET	3/4"C	GE	A	NEW
SYSTEM EMERGENCY OFF (EPO)	SECONDARY PENETRATION WALL	3/4"C	GE	A	NEW
MAGNETIC RUNDOWN UNIT	MAGNET	1"C	GE	A	NEW
	120-V 1PH POWER FROM RF FILTER	3/4"C		B	NEW
RF FILTER	120-V 1PH POWER	3/4"C		B	NEW
ROOM LIGHT	RF FILTER	3/4"C		B	NEW
CHILLER	REMOTE GRAPHIC DISPLAY	3/4"C			NEW
	FACILITY POWER	1-1/4"RGS		B	NEW
INJECTOR CONTROL UNIT	WAVEGUIDE OR RF FILTER	2-1/2"C	GE	A	NEW
INJECTOR HEAD			GE	A	NEW
INTEGRATED BATTERY CHARGING UNIT					NEW

NOTE:

EQUIPMENT SCHEDULE

EQUIPMENT	RESPONSIBILITY	REMARKS
MDP (MAIN DISCONNECT PANEL)	C	
POWER CABINET, POWER DISTRIBUTION UNIT (PDU)	C	
HEAT EXCHANGER CABINET	C	
CRYOCOOLER COMPRESSOR (CRY)	C	
SECONDARY PENETRATION WALL (SPW)	C	
PENETRATION CABINET (PEN)	C	
EMERGENCY OFF BUTTON	D	

CONDUIT RESPONSIBILITY MATRIX

SYMBOL	DESCRIPTION
A	CABLE SUPPLIED BY GE. INSTALLED BY GE.
B	CABLE SUPPLIED AND INSTALLED BY CONTRACTOR
A/B	CABLE SUPPLIED BY GE. INSTALLED BY CONTRACTOR UNDER THE SUPERVISION OF GE.

EQUIPMENT RESPONSIBILITY MATRIX

SYMBOL	DESCRIPTION
C	EQUIPMENT SUPPLIED BY GE. INSTALLED BY CONTRACTOR UNDER THE SUPERVISION OF GE.
D	EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR

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PHONE: 631.423.7960

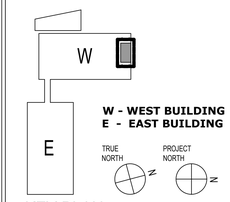
OWNER:

COLUMBIA DOCTOR'S TARRYTOWN

PROJECT:

NEW MRI

155 WHITE PLAINS ROAD
TARRYTOWN, NY 10591



KEY PLAN

NO.	DESCRIPTION	DATE
1	CD SUBMISSION	6-18-21
	REVISIONS/ISSUES	

SHEET TITLE:

LEVEL 1 POWER PART PLAN

SEAL:

DATE: 7/23/2020
CON/REF No.
CONTRACT No.
SCALE: As indicated
PROJECT No. 12384
CHECKED: Checker
DRAWN: Author

SHEET NO.

E-201.00

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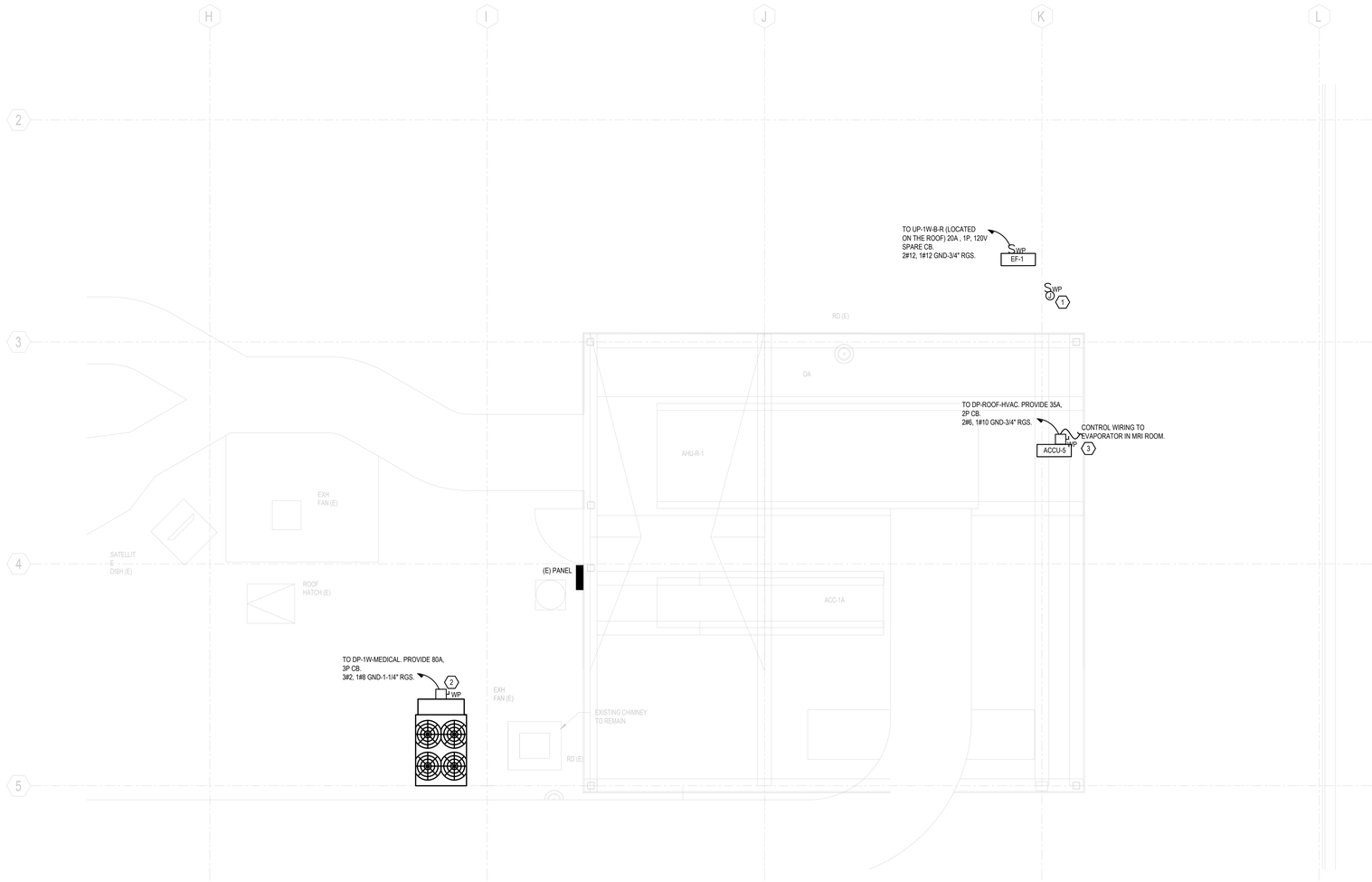

KEY NOTES	
1	CONNECT TO PANEL UP-1W-B-R 20A, 1PH CB FOR MOTORIZED DAMPER. 2#12,1#12GND-3/4 RGS.
2	FEEDER ROUTING TO FOLLOW REFRIGERANT PIPING ROUTE.
3	PROVIDE CONTROL WIRING FROM EVAPORATOR UNIT TO THE CONDENSER UNIT. COORDINATE WITH THE MANUFACTURER.

0 4 8 FEET

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PROJECT:
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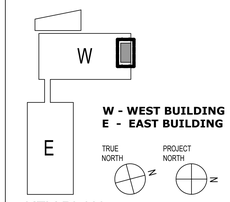

KEY PLAN

NO.	DESCRIPTION	DATE
1	CD SUBMISSION	6-18-21

REVISIONS/ISSUES

SHEET TITLE:
ROOF LEVEL POWER PART PLAN

SEAL:

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CONTRACT No.
SCALE: As indicated
PROJECT No. 12384
CHECKED: Checker
DRAWN: Author

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E-202.00

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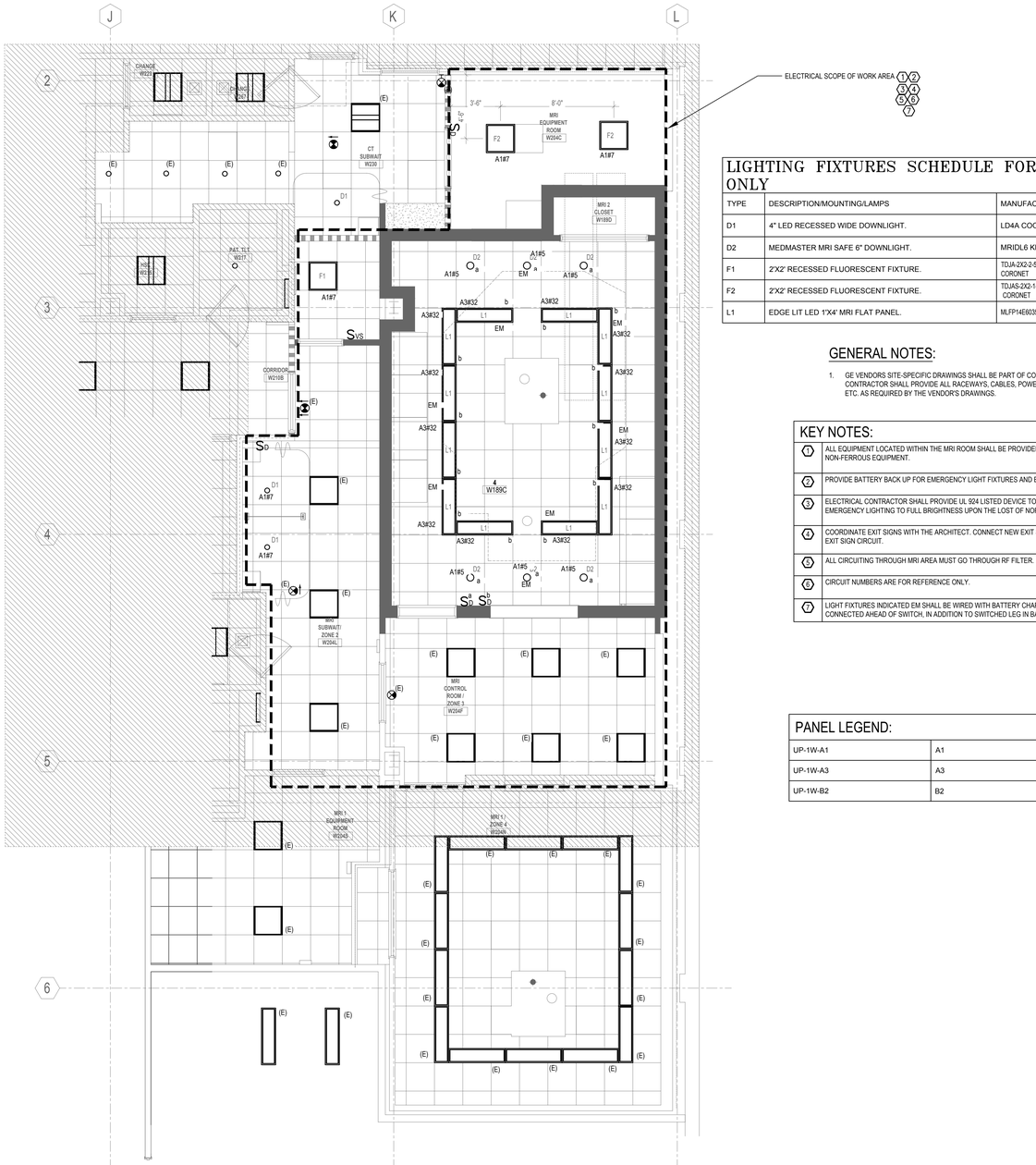

ELECTRICAL SCOPE OF WORK AREA 1 2 3 4 5 6 7

LIGHTING FIXTURES SCHEDULE FOR REFERENCE ONLY

TYPE	DESCRIPTION/MOUNTING/LAMPS	MANUFACTURER/MODEL	WATTAGE
D1	4" LED RECESSED WIDE DOWNLIGHT.	LD4A COOPER LIGHTING	31.5 W
D2	MEDMASTER MRI SAFE 6" DOWNLIGHT.	MRIDL6 KENALL	27 W
F1	2'X2' RECESSED FLUORESCENT FIXTURE.	TDJA-2X2-2-50WBX-S-UNV-WH CORONET	50 W
F2	2'X2' RECESSED FLUORESCENT FIXTURE.	TDJAS-2X2-1-50WBX-120-SC CORONET	50 W
L1	EDGE LIT LED 1'X4' MRI FLAT PANEL.	MLFP14E6035MRI maxLED	60 W

GENERAL NOTES:

1. GE VENDORS SITE-SPECIFIC DRAWINGS SHALL BE PART OF CONSTRUCTION DOCUMENTATION SET. THE CONTRACTOR SHALL PROVIDE ALL RACEWAYS, CABLES, POWER SUPPLIES, DATA RACEWAYS, BOXES, ETC. AS REQUIRED BY THE VENDOR'S DRAWINGS.

KEY NOTES:

1	ALL EQUIPMENT LOCATED WITHIN THE MRI ROOM SHALL BE PROVIDED WITH NON-FERROUS EQUIPMENT.
2	PROVIDE BATTERY BACK UP FOR EMERGENCY LIGHT FIXTURES AND EXIT SIGNS.
3	ELECTRICAL CONTRACTOR SHALL PROVIDE UL 924 LISTED DEVICE TO RETURN DIMMED EMERGENCY LIGHTING TO FULL BRIGHTNESS UPON THE LOST OF NORMAL POWER.
4	COORDINATE EXIT SIGNS WITH THE ARCHITECT. CONNECT NEW EXIT SIGNS TO EXISTING EXIT SIGN CIRCUIT.
5	ALL CIRCUITING THROUGH MRI AREA MUST GO THROUGH RF FILTER.
6	CIRCUIT NUMBERS ARE FOR REFERENCE ONLY.
7	LIGHT FIXTURES INDICATED EM SHALL BE WIRED WITH BATTERY CHARGING/SENSING WIRE CONNECTED AHEAD OF SWITCH, IN ADDITION TO SWITCHED LEG IN BASE.

PANEL LEGEND:	
UP-1W-A1	A1
UP-1W-A3	A3
UP-1W-B2	B2

0 4 8 FEET

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PROJECT:
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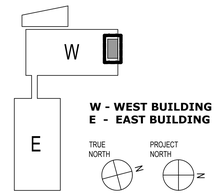

KEY PLAN

NO.	DESCRIPTION	DATE
1	CD SUBMISSION	6-18-21
	REVISIONS/ISSUES	

SHEET TITLE:
LEVEL 1 LIGHTING PART PLAN

SEAL:

DATE: 7/23/2020
CON/REF No.
CONTRACT No.
SCALE: As indicated
PROJECT No. 12384
CHECKED: Checker
DRAWN: MC

SHEET NO.
E-301.00

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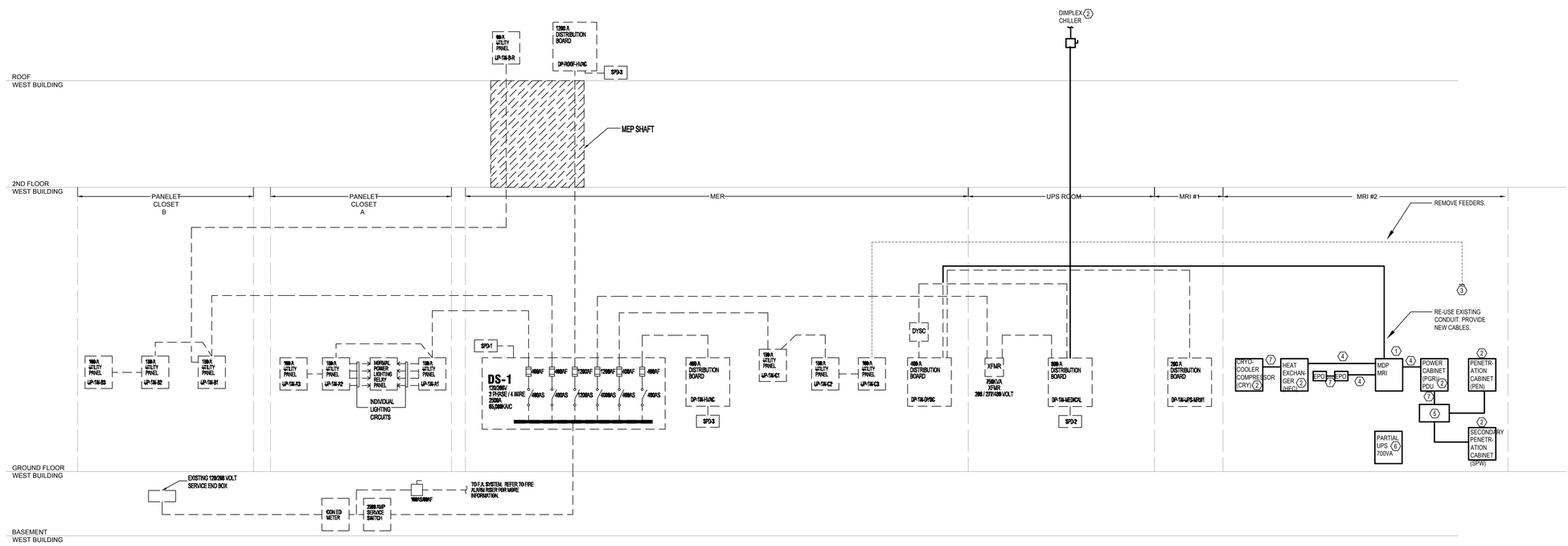

WEST BUILDING PART POWER RISER DIAGRAM

NOT TO SCALE

LEGEND:

NEW

EXISTING TO REMAIN

REMOVE

KEY NOTES:

1. MDP SUPPLIED BY GE. CONNECT MDP TO DP-1W-DYSC 200A, 3P CIRCUIT BREAKER. PROVIDE NEW CABLES 4#3/0, 1#6G. RE-USE EXISTING 2" CONDUIT. EXTEND CONDUIT TO NEW MDP.
   ADD ALTERNATE: PROVIDE NEW 2"C IF CONDUIT WAS NOT INSTALLED UNDER MAIN IMAGING PROJECT.
2. EQUIPMENT SUPPLIED BY GE.
3. REMOVE EXISTING IR UNIT BACK TO SOURCE PANEL UP-1W-C3.
4. CABLES PROVIDED BY CONTRACTOR. SEE SHEET E-201 FOR CABLE SIZES.
5. PROVIDE RF COMMON GROUND STUD. DO NOT GROUND RF ROOM TO ANY POINT OTHER THAN THE PDU.
6. 700VA, 1P, 120V PARTIAL UPS TO FEED THE OPERATOR CONSOLE.
7. CABLE PROVIDED BY GE.

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COLUMBIA DOCTOR'S TARRYTOWN

PROJECT:

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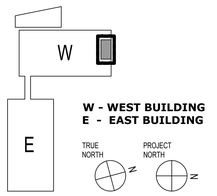

KEY PLAN

NO.	DESCRIPTION	DATE
1	CD SUBMISSION	6-18-21
	REVISIONS/ISSUES	

SHEET TITLE:

ELECTRICAL RISER DIAGRAM

SEAL:

DATE: 7/23/2020
CON/REF No.
CONTRACT No.
SCALE: As indicated
PROJECT No. 12384
CHECKED: Checker
DRAWN: MC

SHEET NO.

E-401.00

DWG OF

EXISTING PANEL

DISTRIBUTION BOARD DP-1W-DYSC

BUS AMPERAGE: 400 AMPS | VOLT: 480/277 | AIC: 65k AMPS RMS SYM | LOCATION: ELECT CLOSET 81
MAIN: 400 MCB | PHASE: 3 | 4 WIRE + GND | MOUNTING: SURFACE

Circuit Number	SERVICE	KVA Load			Total KVA		Overcurrent Device			FEEDER TAG	FEEDER SIZE
		A	B	C	Connected	Demand	Frame	Trip	Pole		
1	SPARE	0.00	0.00	0.00	0.00	0.00	EXIS.	100	3		
2	SPD	0.00	0.00	0.00	0.00	0.00	EXIS.	60	3		
3	DP-1W-UPS-MRI#1	0.00	0.00	0.00	0.00	0.00	EXIS.	200	3		
4	**DP-1W-UPS-MRI#2**	0.00	0.00	0.00	0.00	0.00	EXIS.	200	3		
5	DP-1W-RAD#1	0.00	0.00	0.00	0.00	0.00	EXIS.	100	3		
6	DP-1W-RAD#2	0.00	0.00	0.00	0.00	0.00	EXIS.	100	3		
7	SPARE	0.00	0.00	0.00	0.00	0.00	EXIS.	100	3		
8	SPARE	0.00	0.00	0.00	0.00	0.00	EXIS.	100	3		

EXISTING PANEL

DISTRIBUTION BOARD DP-1W-MEDICAL

BUS AMPERAGE: 1200 AMPS | VOLT: 480/277 | AIC: 65k AMPS RMS SYM | LOCATION: ELECT CLOSET 89
MAIN: 800 MCB | PHASE: 3 | 4 WIRE + GND | MOUNTING: SURFACE

Circuit Number	SERVICE	KVA Load			Total KVA		Overcurrent Device			FEEDER TAG	FEEDER SIZE
		A	B	C	Connected	Demand	Frame	Trip	Pole		
1	EX. CT SCAN	0.00	0.00	0.00	0.00	0.00	EXIS.	150	3		
2	EX TVSS	0.00	0.00	0.00	0.00	0.00	EXIS.	60	3		
3	EX. CHILLER	0.00	0.00	0.00	0.00	0.00	EXIS.	100	3		
4	SPARE	0.00	0.00	0.00	0.00	0.00	EXIS.	125	3		
5	**NEW DIMPLEX CHILLER**	0.00	0.00	0.00	0.00	0.00	EXIS.	**80**	3		
6	SPACE	0.00	0.00	0.00	0.00	0.00	**0**	**0**	3		
7	EX. MEGA DYSC.	0.00	0.00	0.00	0.00	0.00	EXIS.	400	3		
8	SPARE	0.00	0.00	0.00	0.00	0.00	EXIS.	400	3		

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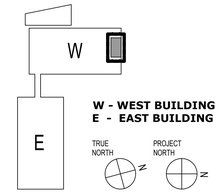

KEY PLAN

NO.	DESCRIPTION	DATE
1	CD SUBMISSION	6-18-21
REVISIONS/ISSUES		

SHEET TITLE:
ELECTRICAL SCHEDULES

SEAL:

DATE: 7/23/2020
CON/REF No.
CONTRACT No.
SCALE: As indicated
PROJECT No. 12384
CHECKED: Checker
DRAWN: MC

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E-501.00

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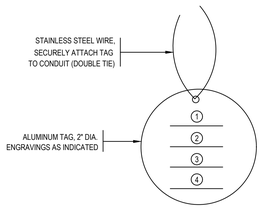


NOTE:

ONE TAG REQUIRED EVERY 50 FEET, FOR THE ENTIRE CONDUIT LENGTH. TAGS SHALL BE READILY ACCESSIBLE AND VISIBLE.1ST TAG SHALL BE WITHIN 3 FEET FROM POWER SOURCE PANEL. LAST TAG SHALL BE WITHIN 3 FEET FROM PANEL SERVED.PROVIDE ADDITIONAL TAGS EVERY 50 FEET BETWEEN THE 1ST AND LAST TAG ON CONDUIT AS REQUIRED)

1. VOLTAGE (IE: 120/208V OR 277/480V)
2. ORIGINATING POINT: PANELBOARD AND LOCATION (IE: FROM: HDP1-1 ON FLOOR NO. ...)
3. TERMINATING POINT: PANELBOARD/EQUIPMENT AND LOCATION (IE: TO: HDP2 ON FLOOR NO. ...)
4. FEEDER SIZE (NO. OF WIRES, WIRE SIZE, CONDUIT SIZE (IE: 4#500KCMIL+1#1/0G-4"C))

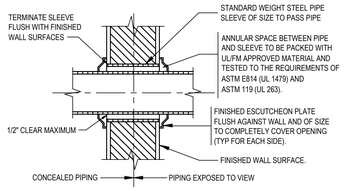
1 SAMPLE CONDUIT TAG TO BE PROVIDED FOR EACH ELECTRICAL FEEDER AND LOW VOLTAGE SYSTEMS CONDUIT

SCALE: NTS ACTUAL INFORMATION SHALL BE PER DRAWINGS.

1. PANEL DESIGNATION
2. CIRCUIT NUMBER IN PANEL
3. EQUIPMENT SERVED OR OFFICE NO.
4. FEEDER SIZE (NUMBER OF WIRES, WIRE SIZE AND CONDUIT SIZE) FOR LOCAL DISCONNECT SWITCHES; JUNCTION BOXES FOR HVAC, PLUMBING, FIRE PROTECTION EQUIPMENT; MOTOR STARTERS (FOR RECEPTACLES AND LIGHTING CONTROL SWITCHES INDICATE POWER SOURCE ONLY: PANEL AND CIRCUIT NUMBER)

2 SAMPLE NAMEPLATE FOR RECEPTACLES, POWER JUNCTION BOXES, TOGGLE-TYPE DISCONNECT SWITCHES & MOTOR STARTERS, LIGHTING CONTROL DEVICES

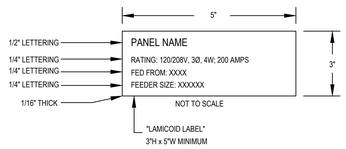
SCALE: NTS ACTUAL INFORMATION SHALL BE PER DRAWINGS.



SEAL OR CAULK SLEEVES THRU FIRE WALLS IN A SMOKE TIGHT MANNER.

3 DETAIL OF CONDUIT PENETRATING THRU FIRE RATED WALL AND FLOOR

SCALE: NTS



PANEL NAME, RATED VOLTAGE, # OF PHASES, # OF WIRES AND AMPS SHALL BE AS APPLICABLE AND AS SHOWN ON THE DRAWINGS. ADD ADDITIONAL LINES (1/4" LETTERING) WHERE ADDITIONAL INFORMATION IS REQUIRED: REFER TO IDENTIFICATION NAMEPLATES DETAILS ABOVE FOR ADDITIONAL INFORMATION.

NORMAL POWER: WHITE LETTERS ON BLACK BACKGROUND

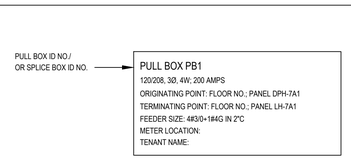
EMERGENCY POWER: BLACK LETTERS ON YELLOW BACKGROUND

U.P.S. POWER: WHITE LETTERS ON BLUE BACKGROUND

FIRE ALARM SYSTEM: WHITE LETTERS ON RED BACKGROUND

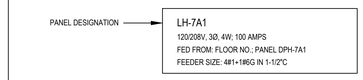
4 SPECIFICATIONS FOR ENGRAVED NAMEPLATES

SCALE: NTS ACTUAL INFORMATION SHALL BE PER DRAWINGS.



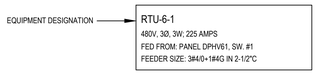
5 SAMPLE NAMEPLATE FOR INTERMEDIATE PULL BOX/SPLICE BOXES

SCALE: NTS ACTUAL INFORMATION SHALL BE PER DRAWINGS.



7 SAMPLE NAMEPLATE FOR LIGHTING/RECEPTACLE PANELS

SCALE: NTS ACTUAL INFORMATION SHALL BE PER DRAWINGS.



8 HVAC, PLUMBING, FIRE PROTECTION EQUIPMENT SAFETY-TYPE LOCAL DISCONNECT SWITCH ASSOCIATED WITH SAMPLE NAMEPLATE FOR LOCAL STARTER, CONTROL PANEL,

SCALE: NTS ACTUAL INFORMATION SHALL BE PER DRAWINGS.

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COLUMBIA DOCTOR'S TARRYTOWN

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NEW MRI

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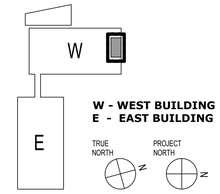


KEY PLAN

NO.	DESCRIPTION	DATE
1	CD SUBMISSION	6-18-21

REVISIONS/ISSUES

SHEET TITLE:
ELECTRICAL DETAILS

SEAL:

DATE: 7/23/2020
CON/REF No.
CONTRACT No.
SCALE: As indicated
PROJECT No. 12384
CHECKED: Checker
DRAWN: MC

SHEET NO.
E-601.00

DWG OF

LIGHTING REQUIREMENTS

- All lighting fixtures and associated components must meet all RF shielded room and RF grounding requirements (e.g., track lighting is not recommended due to possible RF noise).
- All removable lighting fixtures and associated components must be non-magnetic.
- All lighting must use direct current (the DC must have less than 5% ripple).

· 300 lux must be provided at the front of the magnet for patient access and above the magnet for servicing.
· Fluorescent lighting must not be used in the magnet room.

- Lighting must be adjusted using a discrete switch or a variable DC lighting controller.

· SCR dimmers or rheostats must not be used.
· DC LED lighting may be used if the DC power converter and RF sources are all located outside the magnet room RF shield.

NOTE: LED lighting could cause image quality issues due to RF interference. Make sure a MR-compatible LED lighting solution is chosen.

· Battery chargers (e.g., used for emergency lighting) must be located outside the magnet room.

- Short filament length bulbs are recommended.

· Linear lamps are not recommended due to the high burnout rate.

CONNECTIVITY REQUIREMENTS

Broadband Connections are necessary during the installation process and going forward to ensure full support from the Engineering Teams for the customers system. Maximum performance and availability for the customers system is maintained and closely monitored during the lifetime of the system. Proactive and reactive maintenance is available utilising the wide range of digital tools using the connectivity solutions listed below:

· Site-to-Site VPN/GE Solution
· Site-to-Site VPN/Customer Solution
· Connection through Dedicated Service Network
· Internet Access - connectivity for InSite 2.0

The requirements for these connectivity solutions are explained in the broadband solutions catalogue (separate document).

ELECTRICAL NOTES

1. All wires specified shall be copper stranded, flexible, thermo-plastic, color coded, cut 10 foot long at outlet boxes, duct termination points or stubbed conduit ends. All conductors, power, signal and ground, must be run in a conduit or duct system. Electrical contractor shall ring out and tag all wires at both ends. Wire runs must be continuous copper stranded and free from splices.
   1.1. Aluminum or solid wires are not allowed.
2. Wire sizes given are for use of equipment. Larger sizes may be required by local codes.
3. It is recommended that all wires be color coded, as required in accordance with national and local electrical codes.
4. Conduit sizes shall be verified by the architect, electrical engineer or contractor, in accordance with local or national codes.
5. Convenience outlets are not illustrated. Their number and location are to be specified by others. Locate at least one convenience outlet close to the system control, the power distribution unit and one on each wall of the procedure room. Use hospital approved outlet or equivalent.
6. General room illumination is not illustrated. Caution should be taken to avoid excessive heat from overhead spotlights. Damage can occur to ceiling mounting components and wiring if high wattage bulbs are used. Recommend low wattage bulbs no higher than 75 watts and use dimmer controls (except MR). Do not mount lights directly above areas where ceiling mounted accessories will be parked.
7. Routing of cable ductwork, conduits, etc., must run direct as possible otherwise may result in the need for greater than standard cable lengths (refer to the interconnection diagram for maximum usable lengths point to point).
8. Conduit turns to have large, sweeping bends with minimum radius in accordance with national and local electrical codes.
9. A special grounding system is required in all procedure rooms by some national and local codes. It is recommended in areas where patients might be examined or treated under present, future, or emergency conditions. Consult the governing electrical code and confer with appropriate customer administrative personnel to determine the areas requiring this type of grounding system.
10. The maximum point to point distances illustrated on this drawing must not be exceeded.
11. Physical connection of primary power to GE equipment is to be made by customers electrical contractor with the supervision of a GE representative. The GE representative would be required to identify the physical connection location, and insure proper handling of GE equipment.
12. GEHC conducts power audits to verify quality of power being delivered to the system. The customer's electrical contractor is required to be available to support this activity.

- All junction boxes, conduit, duct, duct dividers, switches, circuit breakers, cable tray, etc., are to be supplied and installed by customers electrical contractor.

· Conduit and duct runs shall have sweep radius bends

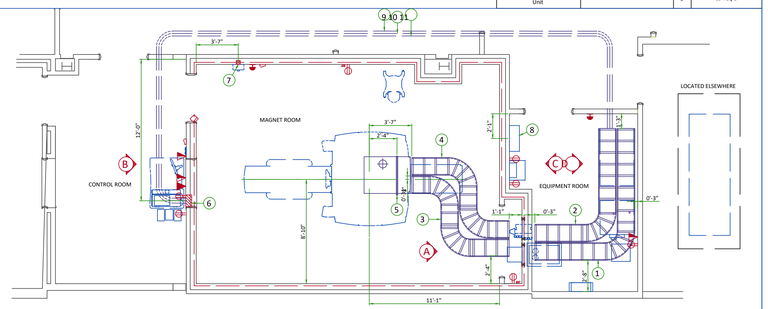
- Conduits and duct above ceiling or below finished floor must be installed as near to ceiling or floor as possible to reduce run length.
- Ceiling mounted junction boxes illustrated on this plan must be installed flush with finished ceiling.
- All ductwork must meet the following requirements:
  1. Ductwork shall be metal with dividers and have removable, accessible covers.
  2. Ductwork shall be certified/rated for electrical power purposes.
  3. Ductwork shall be electrically and mechanically bonded together in an approved manner.
  4. PVC as a substitute must be used in accordance with all local and national codes.
- All openings in raceway and access flooring are to be cut out and finished off with grommet material by the customers contractor.
- General contractor to insert pull cords for all cable run conduits between the equipment room and the operators control room.
- 10 foot pigtails at all junction points.
- Grounding is critical to equipment function and patient safety. Site must conform to wiring specifications shown on this plan.

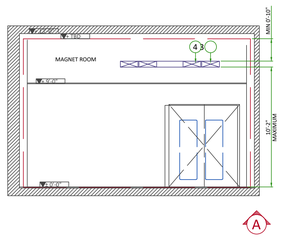
ITEM	DESCRIPTION (CONTRACTOR SUPPLIED & INSTALLED)
1	Cable ladder 450mm x 150mm [18" x 6"]
2	Cable ladder 450mm x 150mm [18" x 6"] for gradient cables
3	Non-ferrous cable ladder 450mm x 150mm [18" x 6"]
4	Non-ferrous cable ladder 450mm x 150mm [18" x 6"] for gradient cables
5	Non-ferrous unistrut cable support
6	300mm x 200mm x 150mm [12" x 8" x 6"] Junction box
7	100mm x 100mm x 50mm [4" x 4" x 2"] Junction box. At 5'-4" above finished floor, on center.
8	Main disconnect panel
9	50mm [2"] Conduit above RF screen
10	63mm [2-1/2"] Conduit above RF screen
11	75mm [3"] Conduit above RF screen

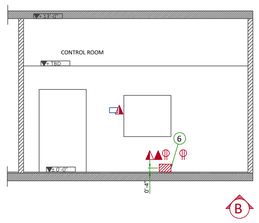
ITEM	Outlet Legend for GE Equipment
	System emergency off (SEO), (recommended height 1.2m [48"] above floor)
	Door interlock switch
	Emergency exhaust fan switch 1.2m [48"] height recommended)
	Duplex hospital grade, dedicated wall outlet 120-v, single phase power
	Network outlet
	Dedicated telephone lines/network connection
	Duplex hospital grade, dedicated outlet 120-v emergency, single phase power, 15a
	Duplex hospital grade, dedicated outlet 120-v, single phase outlet routed through RF filter

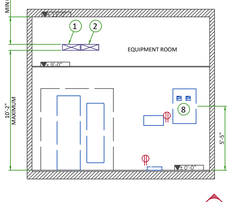
Additional Conduit Runs (Contractor Supplied and Installed)

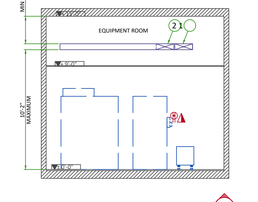
From	To	Qty	Size (in)	Size (mm)
Main Disconnect Panel	Power, Gradient, RF cabinet	1	as Req'd	
	Heat Exchanger Cabinet	1	as Req'd	
	System emergency off	1	1/2	16
System emergency off	Secondary Penetration Wall	1	1/2	16
Door Switch	Power, Gradient, RF cabinet	1	3/4	20
System emergency off	Secondary Penetration Wall	1	3/4	20
Magnet Rundown Unit	Magnet	1	1	25
	120-V 1Ø Power from RF filter	1	as Req'd	
RF filter	120-V 1Ø Power	1	as Req'd	
Room Light	RF filter	1	as Req'd	
RF filter	Facility emergency power	1	as Req'd	
Chiller	Remote graphic display	1	3/4	20
	Facility power	1	as Req'd	
Injector control unit	Waveguide or RF filter	1	2 1/2	70
Injector head		1	as Req'd	
Integrated Battery Charging Unit		1	as Req'd	



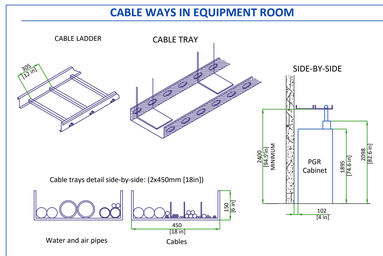






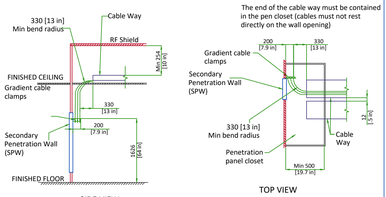


CABLE WAYS IN EQUIPMENT ROOM

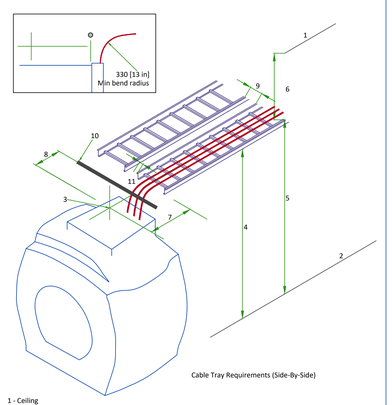


CABLE WAY TO PENETRATION PANEL

CABLE WAY TO PENETRATION PANEL REQUIREMENTS IN THE EXAM ROOM SIDE VIEW



CABLE TRAYS REQUIREMENTS IN MAGNET ROOM



1 - Ceiling
2 - Finished Floor
3 - Magnet isocenter. Gradient cables must be centered on magnet isocenter.
4 - Minimum cable tray height required at back of Magnet: 2578 mm [101.5 in].
Tray height may be lower at other points to avoid obstructions.
5 - Maximum height from floor to top of tray (anywhere in Magnet room): 3251 mm [128 in].
6 - Minimum distance from top of cable tray to ceiling or other obstruction: 254 mm [10 in].
7 - Tray end to isocenter: 1099 ±12 mm [43.25 ±0.5 in].
8 - Other cable termination to isocenter: 718 ±12 mm [28.25 ±0.5 in].
9 - Minimum distance between trays: 12 mm [0.5 in].
10 - Non-ferrous cable support

POWER REQUIREMENTS

SPECIFICATIONS OF MAIN POWER INPUT

POWER SUPPLY	
FREQUENCIES	
POWER FACTOR	0.9
MAXIMUM INPUT POWER (5 sec MAX)	123kVA
INSTALLED LOAD	99kVA
STAND-BY POWER	< 17kVA

- Power input must be separated from any others which may generate transients (elevators, air conditioning, radiology rooms equipped with high speed film changers...).
- Total harmonic distortion less than 2.5%.
- Phase imbalance must not exceed 2%
- Lock-out/Tag-out: The Main Disconnect Panel (MDP) shall provide an external single point lock-out/tag-out feature for the entire system and a means to externally lock-out/tag-out each output breaker independently. Each lock-out/tag-out feature shall accommodate a standard sized lock hasp.

SPECIFICATIONS OF BACK-UP POWER SUPPLY

MAGNET MONITOR REQUIRES A 110/220 VAC, 50/60 HZ, 2.0 A FACILITY SUPPLIED OUTLET. POWER AT THE OUTLET MUST BE CONTINUOUSLY AVAILABLE.

FOR CRYOCOOLER COMPRESSOR	
POWER INPUT	380/400/415/480V, THREE-PHASE + G
POWER REQUIREMENT	MIN 9kVA
POWER CONSUMPTION	MAX 7.2kW / STEADY STATE 6.5kW at 50Hz MAX 8.3kW / STEADY STATE 7.5kW at 60Hz
FREQUENCY	

CABLES

- Power and cable installation must comply with the distribution diagram.
- Size of the Main power input cable is determined by the customer, taking its length and admissible voltage drops into consideration.
- All cables must be isolated and flexible, cable color codes must comply with standards for electrical installation.
- The cables from signaling and remote control (Y.Emergency Off Buttons,...) will go to Main Panel with a pigtail length of 1.5m [60in], and will be connected during installation.
- Each conductor will be identified and isolated (screw connector).

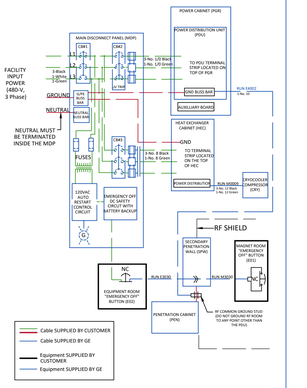
GROUND SYSTEM

- The equipotential link will be by means of an equipotential bar.
- The grounding point of MDP is directly connected to the building's ground by an isolated copper cable.
- The impedance of the earth bar should be less than or equal to 2 ohms.

GUIDANCE ON SLECTION OF FEEDER AND TRANSFORMER FOR MR SYSTEM			
	Direct feed from facility to MR system	MR system fed by dedicated facility distribution transformer	
Prerequisite Conditions			
MR System Incoming Voltage		480V 3-phase	
Minimum Source short-circuit kVA	7,900 kVA (at source of feeder to MDP)	8,325 kVA (at input to distribution transformer)	
Minimum No-Load Voltage	460V	475V (transformer secondary tapped accordingly)	
Feeder and Transformer Recommendations			
Dedicated Distribution Transformer Recommendations	N/A	Size: 225 kVA Impedance (Z): ≤5% K-Factor: ≥ K=20 200A overcurrent protection on secondary*	Size: 225 kVA Impedance (Z): ≤4% K-Factor: ≥ K=20 200A overcurrent protection on secondary*
Maximum Feeder Length*	280 ft	150 ft	240 ft
Feeder Size - 3-phase power conductors*	3/0 AWG Cu	3/0 AWG Cu	
Feeder Size - Ground (USA)*	6 AWG Cu (equipment grounding conductor)	4 AWG Cu (supply side bonding jumper) 6 AWG Cu (equipment grounding conductor)	
Feeder Size - Ground (Canada)*	6 AWG Cu (bonding conductor)	6 AWG Cu (bonding conductor)	

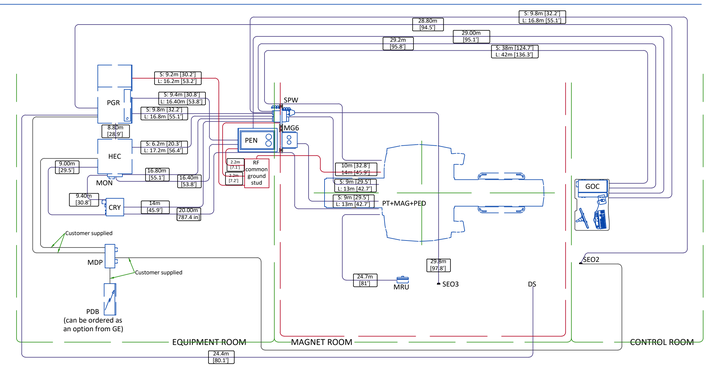
* NOTE: Recommendations shown apply only to cases defined exactly as shown in this table and when not in conflict with local electrical codes . For all other cases, refer to the local codes and the System Voltage Regulation Calculator located on the GE Healthcare Site Planning Website

POWER DISTRIBUTION



NOTE:
· THE HEAT EXCHANGER CABINET (HEC) PROVIDES POWER TO THE CRYOCOOLER COMPRESSOR (CRY) WHICH MUST OPERATE 24 HOURS PER DAY, 7 DAYS PER WEEK TO MAXIMIZE PROPER UNINTERRUPTED MAGNET OPERATION.
· RUNS E3030, M0009, M3030 AND E4002 ARE GE SUPPLIED CABLES. ALL OTHER WIRING IS CUSTOMER SUPPLIED.
· TWO REMOTE FLUSH WALL MOUNTED EMERGENCY OFF BUTTONS ARE SUPPLIED WITH THE MDP.
· MDP PROVIDES CIRCUIT BREAKERS FOR PDU (LOCATED IN THE POWER CABINET (PGR)) AND THE HEAT EXCHANGER CABINET (HEC).
· ALL MDP OUTPUT CIRCUITS DROP OUT ON LOSS OF POWER. THE HEC CIRCUIT WILL AUTOMATICALLY RESTART UPON RESTORATION OF POWER. EMERGENCY OFF LOCKS OUT ALL CONTRACTORS.
· GE MDP SHORT CIRCUIT CURRENT RATING IS 25,000 AMPERES AT 480 VAC.
· GE MDP IS UL AND cUL LABELED.
· ALL CIRCUITS REQUIRE GROUND WIRES.
· THE WIRE SIZE FOR THE EMERGENCY-OFF CIRCUIT IS 12-22 AWG CUSTOMER SUPPLIED

INTERCONNECTIONS



CABLES ROUTING FOR OPTIONS

OPTION	FROM	TO	CABLE LENGTH
BW	PEN	Brainwave cabinet	16.3m [60']
MRE	MRE	Magnet isocenter	Nominal: 7.3m [24'] Maximum: 10.1m [33']
	MRE	PEN cabinet	15.2m [50']
	MRE	Ethernet Hub in PGR	15.2m [50']
	MRE	Customer Supplied Outlet	60Hz: 6.1m [20'] 50Hz: 7.6m [25']

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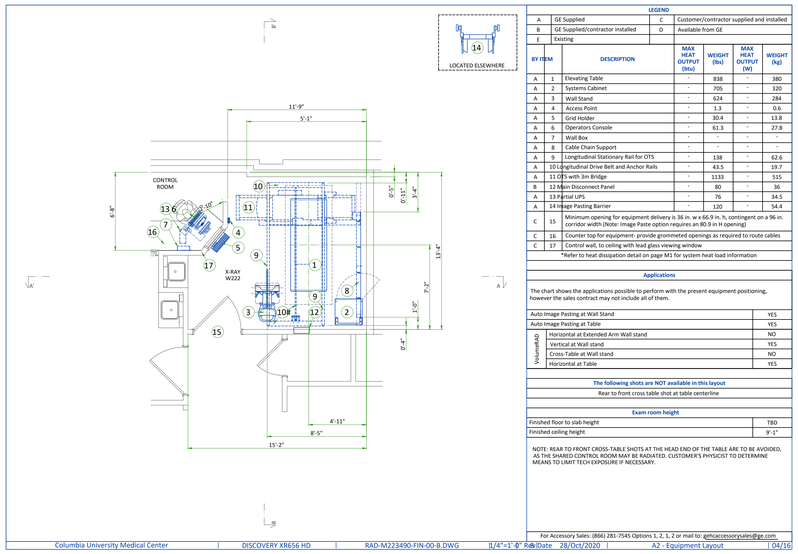

LEGEND			
A	GE Supplied	C	Customer/contractor supplied and installed
B	GE Supplied/contractor installed	D	Available from GE
E	Existing		

BY ITEM		DESCRIPTION	MAX HEAT OUTPUT (btu)	WEIGHT (lbs)	MAX HEAT OUTPUT (W)	WEIGHT (kg)
A	1	Elevating Table	-	838	-	380
A	2	Systems Cabinet	-	705	-	320
A	3	Wall Stand	-	624	-	284
A	4	Access Point	-	1.3	-	0.6
A	5	Grid Holder	-	30.4	-	13.8
A	6	Operators Console	-	61.3	-	27.8
A	7	Wall Box	-	-	-	-
A	8	Cable Chain Support	-	-	-	-
A	9	Longitudinal Stationary Rail for OTS	-	138	-	62.6
A	10	Longitudinal Drive Belt and Anchor Rails	-	43.5	-	19.7
A	11	OTS with 3m Bridge	-	1133	-	515
B	12	Main Disconnect Panel	-	80	-	36
A	13	Partial UPS	-	76	-	34.5
A	14	Image Pasting Barrier	-	120	-	54.4
C	15	Minimum opening for equipment delivery is 36 in. w x 66.9 in. h, contingent on a 96 in. corridor width (Note: Image Paste option requires an 80.9 in H opening)				
C	16	Counter top for equipment- provide grommeted openings as required to route cables				
C	17	Control wall, to ceiling with lead glass viewing window				

*Refer to heat dissipation detail on page M1 for system heat load information

Applications

The chart shows the applications possible to perform with the present equipment positioning, however the sales contract may not include all of them.

	Auto Image Pasting at Wall Stand	YES
	Auto Image Pasting at Table	YES
Unavailable	Horizontal at Extended Arm Wall stand	NO
Unavailable	Vertical at Wall stand	YES
Unavailable	Cross-Table at Wall stand	NO
Unavailable	Horizontal at Table	YES

The following shots are NOT available in this layout

Rear to front cross table shot at table centerline

Exam room height

Finished floor to slab height	TBD
Finished ceiling height	9'-1"

NOTE: REAR TO FRONT CROSS-TABLE SHOTS AT THE HEAD END OF THE TABLE ARE TO BE AVOIDED, AS THE SHARED CONTROL ROOM MAY BE RADIATED. CUSTOMER'S PHYSICIST TO DETERMINE MEANS TO LIMIT TECH EXPOSURE IF NECESSARY.

For Accessory Sales: (866) 281-7545 Options 1, 2, 1, 2 or mail to: gehcaccessorysales@ge.com

Columbia University Medical Center | DISCOVERY XR656 HD | RAD-M223490-FIN-00-B.DWG | 1/4"=1'-0" Rev | Date 28/Oct/2020 | A2 - Equipment Layout | 04/16

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PROJECT:

NEW MRI

155 WHITE PLAINS ROAD
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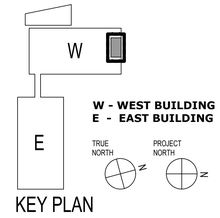

KEY PLAN

NO.	DESCRIPTION	DATE
1	CD SUBMISSION	6-18-21
REVISIONS/ISSUES		

SHEET TITLE:

ELECTRICAL DETAILS

SEAL:

DATE: 7/23/2020
CON/REF No.
CONTRACT No.
SCALE: As indicated
PROJECT No. 12384
CHECKED: Checker
DRAWN: MC

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E-603.00

DWG **OF**

FIRE ALARM SYMBOL LIST

CD / C	COMBINATION WALL-MOUNTED BUILDING STANDARD BELL/STROBE FIRE ALARM DEVICE FIELD SELECTABLE CANDELA LEVELS 15/30/75/110 CD = CANDELA RATING/SETTING C = CEILING MOUNTED
CD	WALL-MOUNTED BUILDING STANDARD STROBE FIRE ALARM DEVICE FIELD SELECTABLE CANDELA LEVELS 15/30/75/110 CD = CANDELA RATING/SETTING
CD	CEILING-MOUNTED BUILDING STANDARD STROBE FIRE ALARM DEVICE FIELD SELECTABLE CANDELA LEVELS 15/30/75/110 CD = CANDELA RATING/SETTING
G	WALL-MOUNTED GONG
S / EL	AREA SMOKE DETECTOR EL = ELEVATOR RECALL
D	DUCT-MOUNTED SMOKE DETECTOR
F	MANUAL PULL STATION
I	INTERFACE MODULE
CM	CONTROL MODULE (ADDRESSABLE OUTPUT MODULE)
MM	MONITOR MODULE (ADDRESSABLE INPUT MODULE)
R	INTERPOSING RELAY (NON-ADDRESSABLE OUTPUT RELAY)
EL	ELECTRIC LOCK
DH	MAGNETIC DOOR HOLD OPEN DEVICE
FSD	FIRE/SMOKE DAMPER
	MOTOR CONTROLLER (SHOWN TO ILLUSTRATE FAN SHUTDOWN)
WS	WARDEN STATION
WF	WATERFLOW SWITCH
TS	VALVE SUPERVISORY / TAMPER SWITCH
E.O.L.	END-OF-LINE RESISTOR
FACP	FIRE ALARM CONTROL PANEL
DGP	FIRE ALARM DATA GATHERING PANEL
———	NEW WIRING AND CONDUIT
– – – –	EXISTING WIRING AND CONDUIT

FIRE ALARM ABBREVIATIONS

ABBREVIATION	DESCRIPTION
1P	SINGLE POLE
2P	TWO POLE
3P	THREE POLE
A	AMPERES
AC	ABOVE CENTER
AFF	ABOVE FINISHED FLOOR
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AV, A/V	AUDIO-VISUAL
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
BMS	BUILDING MANAGEMENT SYSTEM
C	CONDUIT
CAB	CABINET
CAV	CONSTANT AIR VOLUME
CL	CLOSET
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT(S)	CIRCUIT(S)
CM	CONSTRUCTION MANAGER
COMM	COMMUNICATION
CONN	CONNECTED
CONT	CONTINUATION
CP	CONDENSATE PUMP
CT	CURRENT TRANSFORMER
CU	COPPER
CUH	CABINET UNIT HEATER
DB	DECIBEL
DEG	DEGREE
DIA	DIAMETER
DP	DISTRIBUTION PANEL
DISC. DS	DISCONNECT SWITCH
DWG	DRAWING
°C	DEGREES CELSIUS
°F	DEGREES FAHRENHEIT
(E), EX, E	EXISTING TO REMAIN
EA	EACH
EC	EMPTY CONDUIT, ELECTRICAL CONTRACTOR
ELEV	ELEVATOR
EM, EMER	EMERGENCY
EQUIP	EQUIPMENT
(ER)	EXISTING TO BE REMOVED
(ERR)	EXISTING TO BE REMOVED AND RELOCATED
ERC	ELECTRIC REHEAT COIL
EWC	ELECTRIC WATER COOLER
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FBO	FURNISHED BY OTHER DIVISION OF WORK
FCC	FIRE COMMAND CENTER
FCU	FAN COIL UNIT
FL	FLOOR
FLA	FULL LOAD AMPERES
FLUOR	FLUORESCENT
FSD	FIRE/SMOKE DAMPER
FT	FEET / FOOT
G, GRD/GND	GROUND
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GFI, GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HC	HUNG CEILING
HD	HAND DRYER
HID	HIGH INTENSITY DISCHARGE
HP	HORSEPOWER
HV	HIGH VOLTAGE
HZ	HERTZ
ID	INSIDE DIAMETER
IG	ISOLATED GROUND
JB	JUNCTION BOX
KCMIL	THOUSAND CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KW	KILOWATTS
KWH	KILOWATT HOURS
LAN	LOCAL AREA NETWORK
LIM	LINE ISOLATION MOTOR
LTG	LIGHTING
MAP	MEDICAL GAS MASTER ALARM PANEL

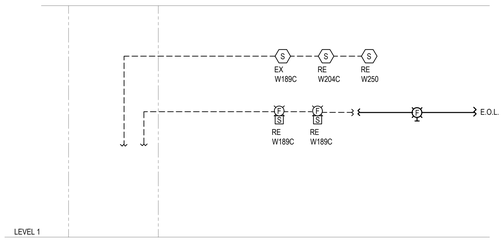
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MC, MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MD	MOTORIZED DAMPER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MER	MECHANICAL EQUIPMENT ROOM
MFS	MAIN FUSED SWITCH
MH	MANHOLE
MIN	MINIMUM
ML, MLO	MAIN LUGS ONLY
MOPD, MOCP	MAXIMUM OVERCURRENT PROTECTION DEVICE
MTD	MOUNTED
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
N	NEUTRAL
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE (NFPA 70)
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
P	POLE(S)
PA	PUBLIC ADDRESS SYSTEM
PB	PULL BOX
PC	PERSONAL COMPUTER
PH	PHASE
PM	POWER MONITOR
PNL	PANEL
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER
PWR	POWER
ø	PHASE
(RE)	RELOCATED EXISTING (RELOCATED EXISTING DEVICE AT NEW LOCATION)
RECEPT, RCPT	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
RM	ROOM
(RRO)	REMOVE AND RETURN TO OWNER
SD	SMOKE DAMPER, SMOKE DETECTOR
SO	SOUTH
SP	SPARE
SPD	SURGE PROTECTIVE DEVICE
SPST	SINGLE POLE SINGLE THROW
STD	STANDARD
SW	SWITCH
SWGR	SWITCHGEAR
SYM	SYMMETRICAL
SYS	SYSTEM
TBD	TO BE DETERMINED
TEL	TELEPHONE
TEMP	TEMPERATURE
TP	TAMPER-RESISTANT
TRANS, XFMR	TRANSFORMER
TS, VS	TAMPER SWITCH (VALVE SUPERVISORY SWITCH)
TV	TELEVISION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UH	UNIT HEATER
UNF	UNFUSED
UON	UNLESS OTHERWISE NOTED
UTP	UNSHIELDED TWISTED-PAIR
V	VOLT, VOLTAGE
VA	VOLT AMPERE
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLTMETER
VP	VAPORPROOF
W	WATT, WIRE
WP	WEATHER-RESISTANT
WT	WATERTIGHT
XP	EXPLOSION-RESISTANT

FIRE ALARM SYSTEM SEQUENCE OF OPERATION

SYSTEM FUNCTIONS	SYSTEM DEVICES: MANUAL INITIATION AT MAIN FACP	MANUAL PULL STATION	WATER FLOW DETECTOR	SMOKE DETECTOR, DUCT-MOUNTED	SMOKE DETECTOR, AREA (MULTI-CRITERIA)	SMOKE DETECTOR, TOP OF SHAFT	SMOKE DETECTOR, ELEVATOR LOBBY	SMOKE DETECTOR, ELEVATOR HOISTWAY	SMOKE DETECTOR, ELEVATOR MACHINE ROOM	HEAT DETECTOR	SUB-SYSTEM ALARM CONTACT		TEMPERATURE SWITCH ≤ 40°F	DGP OR FACP CABINET TAMPER SWITCH	CENTRAL STATION TRIP AT FACP	FIRE PUMP STATUS		FAN STATUS (ON/OFF)			STATUS: SUPERVISORY SIGNAL	TROUBLE SIGNAL	SUB-SYSTEM TROUBLE	SUB-SYSTEM SUPERVISORY
ALERT SIGNALING, AUTOMATIC. INITIATE A CODED GENERAL ALARM FOR THE FLOOR WHERE SMOKE HAS BEEN DETECTED AND INITIATE OPERATION OF ALL STROBE LIGHTS FOR THE FLOOR WHERE SMOKE HAS BEEN DETECTED.		X	X	X	X	X	X	X	X	X	X														
AUTOMATICALLY RELEASE ALL ELECTRICALLY OPERATED DOORS (PUSH PLATES REQUIRED TO OPERATE DOORS) LOCATED ON THE FLOOR UNDER ANY ALARM SIGNALS ORIGINATING FROM THAT FLOOR.		X	X	X	X	X	X	X	X	X	X														
SUPERVISORY SIGNALING.													X	X	X	X		X			X				X
TROUBLE SIGNALING.																						X	X		
STATUS MONITORING OF CENTRAL STATION TRANSMITTER.																					X				
TRANSMIT THE APPROPRIATE ALARM SIGNAL(S) TO THE CENTRAL STATION: MANUAL, AUTOMATIC, WATER FLOW.		X	X	X	X	X	X	X	X	X	X				X										
TRANSMIT A COMMON SUPERVISORY SIGNAL TO THE CENTRAL STATION.													X	X	X	X		X			X				X
TRANSMIT A COMMON TROUBLE SIGNAL TO THE CENTRAL STATION.																						X	X		
INITIATE AUTOMATIC SMOKE EXHAUST/VENTING OF SHAFTS.	X					X												X							
MANUAL INITIATION OF SYSTEM RESET.	X																								
SHUT DOWN FANS OVER 2,000 CFM.	X		X	X	X	X	X		X	X								X							

FIRE ALARM DRAWING LIST

FA-001	FIRE ALARM COVER SHEET
FA-301	LEVEL 1 FIRE ALARM PART PLAN



LEVEL 1 PARTIAL FIRE ALARM WIRING DIAGRAM

NOT TO SCALE

LEGEND:

——— NEW

– – – – – – EXISTING TO REMAIN

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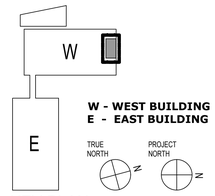

KEY PLAN

NO.	DESCRIPTION	DATE
1	CD SUBMISSION	6-18-21
	REVISIONS/ISSUES	

SHEET TITLE:

FIRE ALARM COVER SHEET

SEAL:

DATE: 7/23/2020
CON/REF No.
CONTRACT No.
SCALE: As indicated
PROJECT No. 12384
CHECKED: Checker
DRAWN: MC

SHEET NO.

FA-001.00

DWG OF

KEY NOTES	
1	ALL FIRE ALARM DEVICES LOCATED IN THE SCOPE AREAS ARE EXISTING TO REMAIN U.O.N. AND SHALL BE PROTECTED DURING CONSTRUCTION. RE-LOCATE FIRE ALARM DEVICES TO NEW LOCATION. EXTEND FEEDERS TO NEW LOCATION.
2	ALL FIRE ALARM DEVICES SHALL BE NON FERROUS.

NOTES

1. REFER TO DWG. FA-001.00 FOR DEMOLITION NOTES, SYMBOLS, GENERAL NOTES AND ABBREVIATIONS.

0 4 8 FEET

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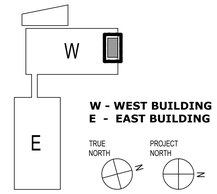

KEY PLAN

NO.	DESCRIPTION	DATE
1	CD SUBMISSION	6-18-21
	REVISIONS/ISSUES	

SHEET TITLE:
LEVEL 1 FIRE ALARM PART PLAN

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