

University of Colorado Denver
Anschutz Medical Campus

Fitzsimons Building CRIO Renovation

13001 E. 17th PLACE
AURORA, CO 80045

006734.00
CONSTRUCTION DOCUMENTS
03/22/2022

CANNONDESIGN

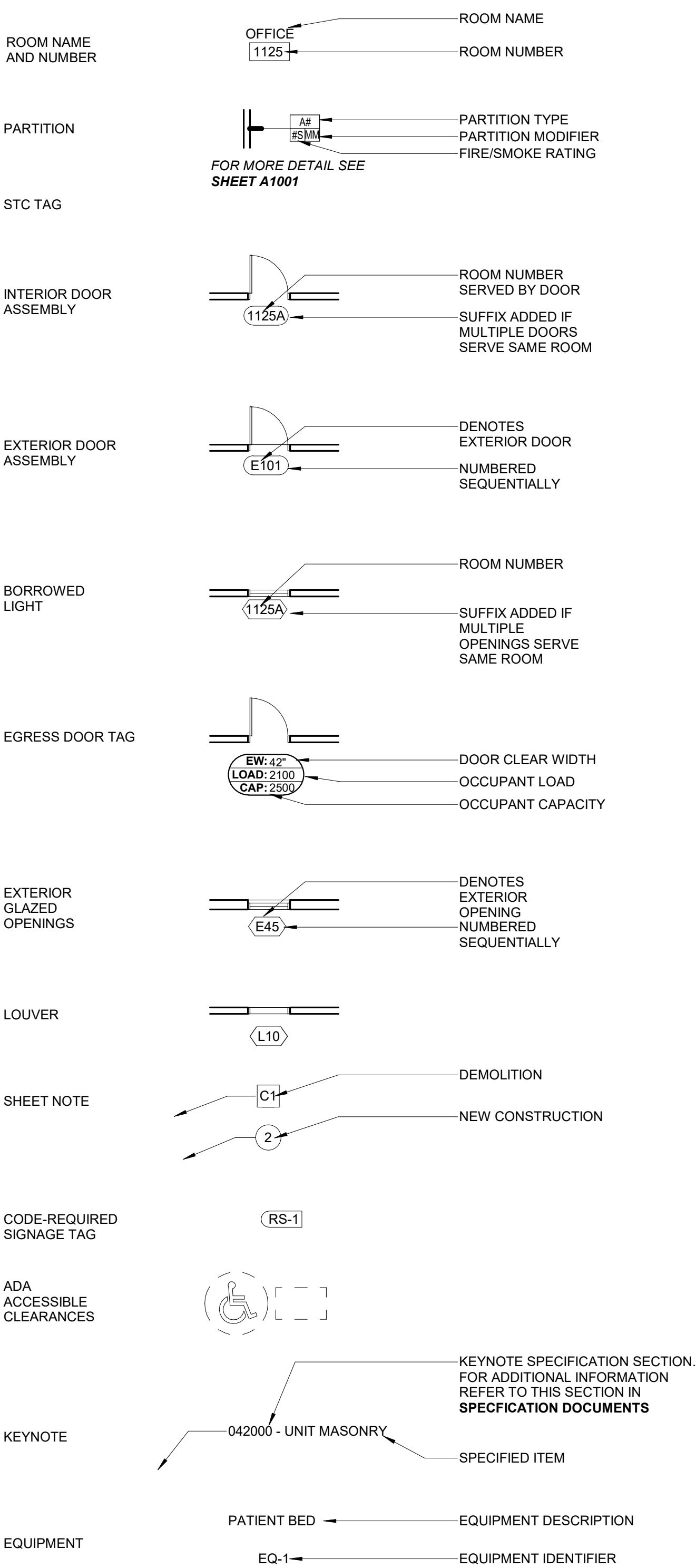
2800 Walnut Street, Suite 300
Denver, CO 80205
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BOSTON NEW YORK BALTIMORE WASHINGTON DC BUFFALO TORONTO COLUMBUS PITTSBURGH DALLAS
CHICAGO ST. LOUIS IRVINE DENVER HOUSTON LOS ANGELES MUMBAI

Consultants:

RMH Group, Inc.
Mechanical / electrical & Plumbing Engineers
12600 West Colfax Avenue, Suite A-400
Lakewood, Colorado 80215
303.239.0909

REFERENCE SYMBOLS (ARCHITECTURAL)



EXTERIOR ASSEMBLIES

FOR DETAILS, REFER TO SHEET A0401

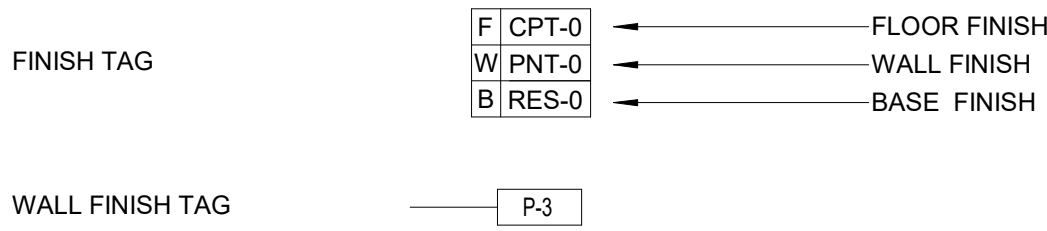
ROOF ASSEMBLY TAG: RA-XX

SOFFIT ASSEMBLY TAG: SA-XX

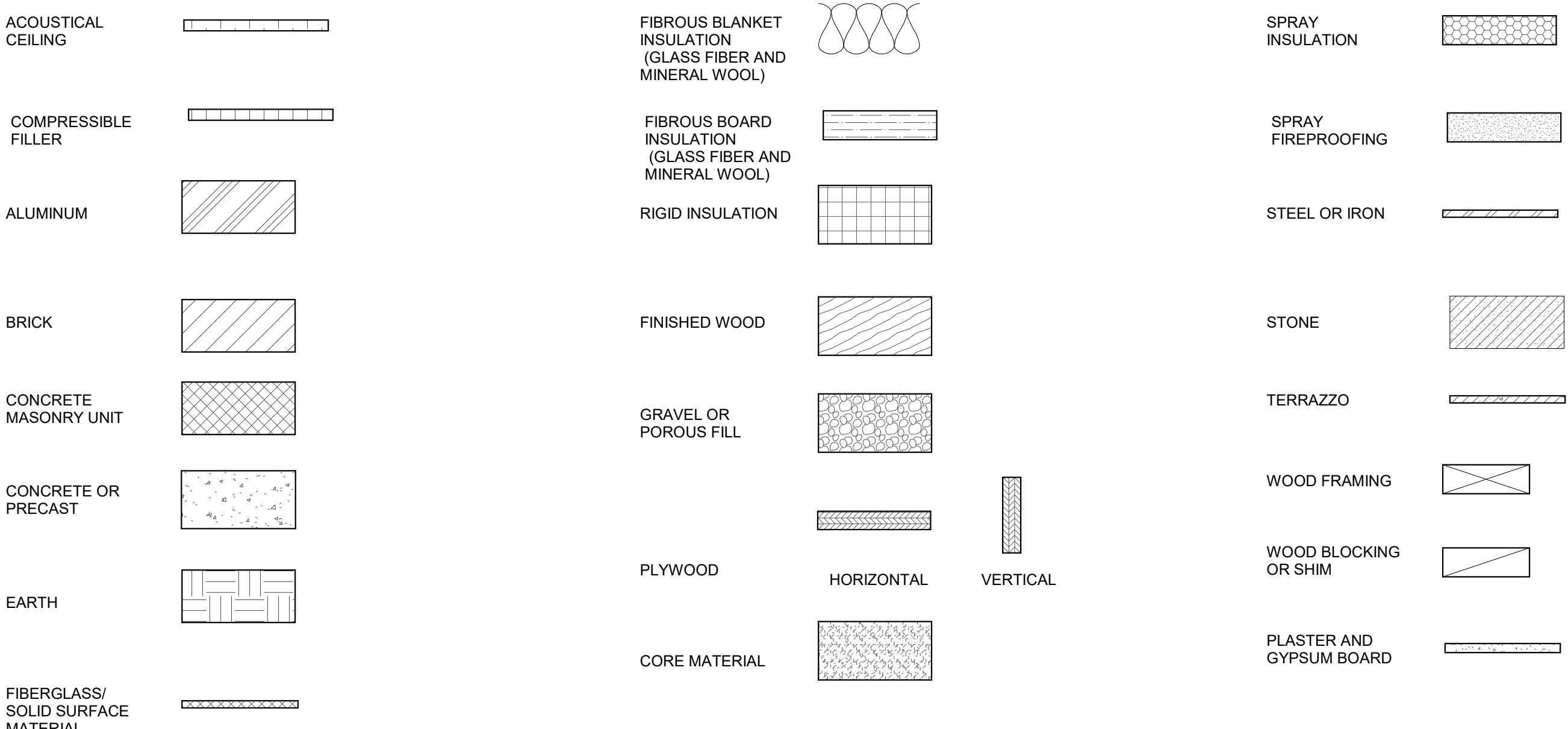
EXTERIOR WALL ASSEMBLY TAG: SA-XX

MATERIALS AND FINISHES

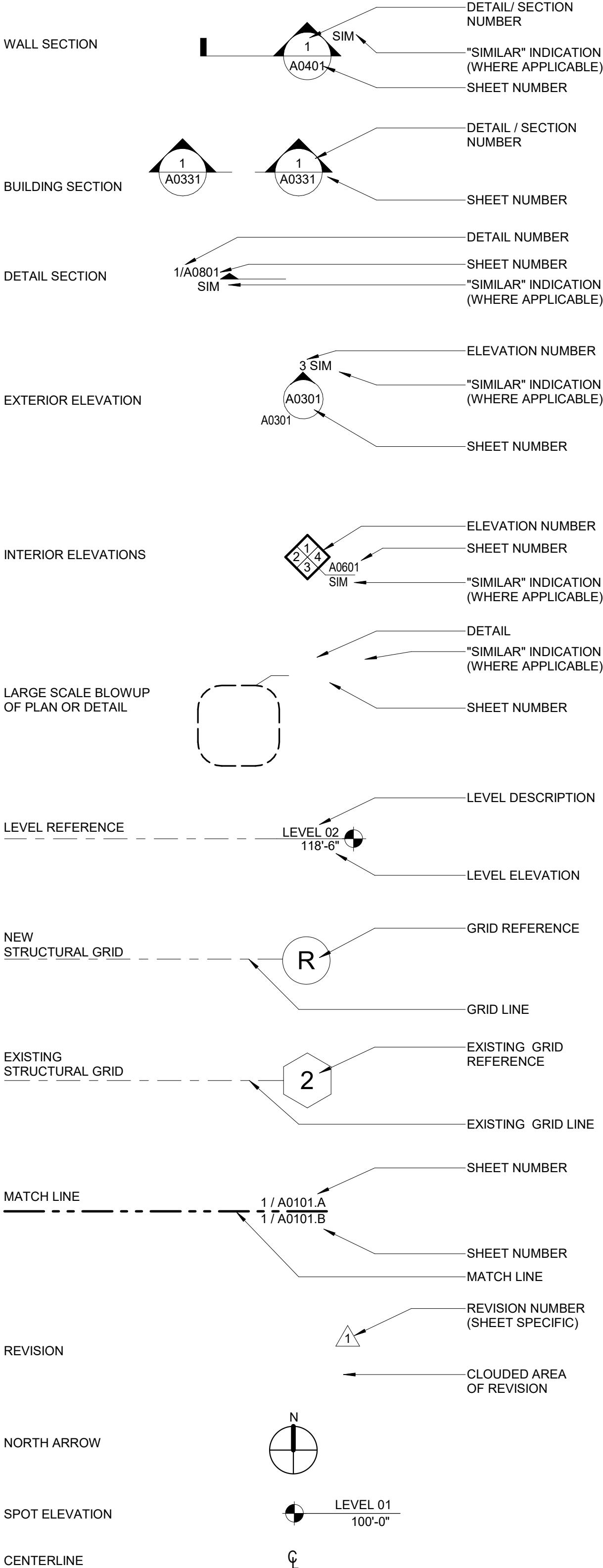
FOR FINISH LEGEND, REFER TO SHEET A1200



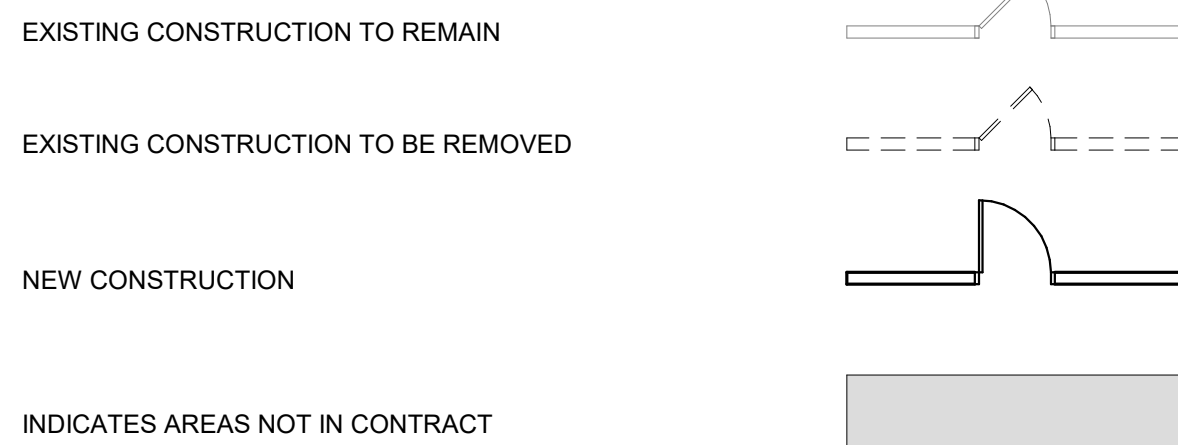
MATERIALS



REFERENCE SYMBOLS (ALL DISCIPLINES)



PLAN SYMBOLS

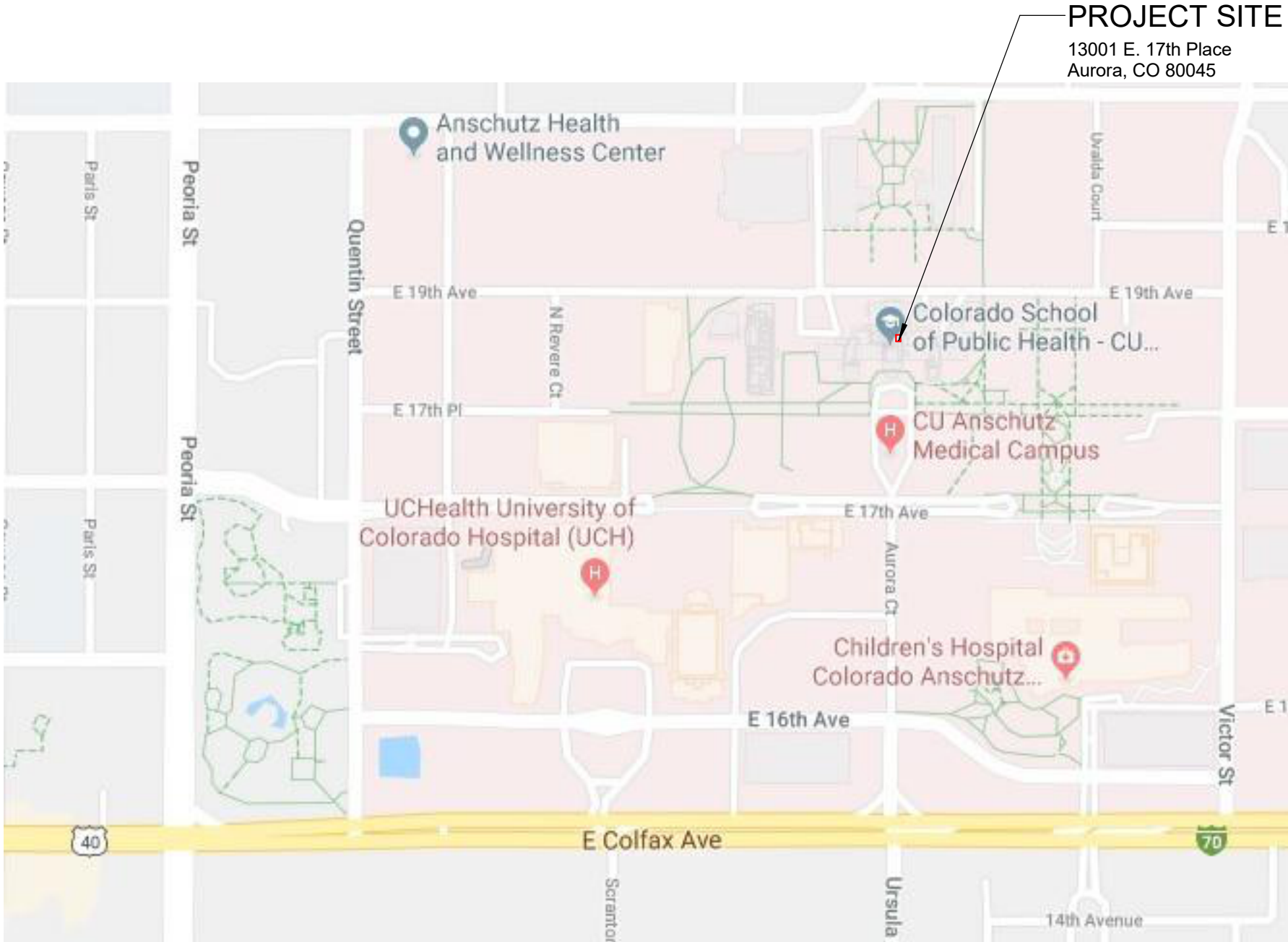


ABBREVIATIONS

ACR	AIR CONDITIONING	MACH	MACHINE
ACC	ACCESSIBLE	MAS	MASONRY
ADJ	ADJACENT	MATL	MATERIAL
AFF	ABOVE FINISHED FLOOR	MAX	MAXIMUM
AHU	AIR HANDLING UNIT	MB	MARKER BOARD
ALUM	ALUMINUM	MC	METAL COMPOSITE MATERIAL
ALT	ALTERNATE	MD	MDF PANELS
AO	ACOUSTICAL OPERATOR	MECH	MECHANICAL
APC	ACOUSTICAL PANEL CEILING	MES	METAL EDGE STRIP
APPROX	APPROXIMATE	MEZZ	MEZZANINE
APS	ACOUSTICAL PLASTER SURFACING	MFR	MANUFACTURER / MANUFACTURED
ARCH	ARCHITECTURAL	MIN	MINIMUM
ASN	ABRASIVE STAIR NOSING	MISC	MISCELLANEOUS
AUTO	AUTOMATIC	MO	MASONRY OPENING
AWP	ACOUSTICAL WALL PANEL	MPC	METAL PANEL CEILING
BTWN	BETWEEN	MSS	METAL SUSPENSION SYSTEM
BLDG	BUILDING	MTL	MILLWORK
BLKG	BLOCKING	MV	MILYWORK
BRG	BEARING	NIC	NOT IN CONTRACT
BSMT	BASEMENT	NO	NUMBER
BR	BRICK	NOM	NOMINAL
BTM	BOTTOM	NSMF	NON-STRUCTURAL METAL FRAMING
C	COURSE	NTS	NOT TO SCALE
CFCI	CONTRACTOR FURNISHED - CONTRACTOR INSTALLED	OC	ON CENTER
CF	CONDUCTIVE FLOORING	OD	OUTSIDE DIAMETER
CFMF	COLD-FORMED METAL FRAMING	OFF	OFFICE
CG	CORNER GUARD	OFI	OWNER FURNISHED - OWNER INSTALLED
CIP	CAST-IN-PLACE	OFVI	OWNER FURNISHED - VENDOR INSTALLED
CJ	CONTROL JOINT	OH	OVERHEAD
CL	CENTERLINE	OPNG	OPENING
CLG	CEILING	OPP	OPPOSITE
CLO	CLOSET	ORD	OVERFLOW ROOF DRAIN
CLR	CLEARANCE	PBD	PARTICLE BOARD
CLRM	CLASSROOM	PCC	PRECAST CONCRETE
CMU	CONCRETE MASONRY UNIT	PCF	POUNDS PER CUBIC FOOT
CO	CLEAN OUT	PCCNC	POLISHED CONCRETE
COL	COLUMN	PERF	PERFORATED
COMM	COMMUNICATION	PHR	PHENOLIC RESIN PANEL
CONC	CONCRETE	PL	PLATE
CONF	CONFERENCE	PLAM	PLASTIC LAMINATE
CONT	CONTINUOUS	PLSHD	POLISHED
CONTR	CONTRACTOR	PLYWD	PLYWOOD
COORD	COORDINATE	PNT	PAINTED
CORR	CORRIDOR	PREFAB	PREFABRICATED
CPT	CARPETTING	PREFIN	PREFINISHED
CR	CARD READER	PSF	POUNDS PER SQUARE FOOT
CRL	CRASH RAIL	PSI	POUNDS PER SQUARE INCH
CT	CERAMIC TILE	PTB	PORCELAIN TILE
CTB	CERAMIC TILE BASE	PTB	PORCELAIN TILE BASE
CUH	CABINET UNIT HEATER	PWC	PAINTED WALLCOVERING
CW	CASEWORK	QT	QUARRY TILE
DEMO	DEMOLISH / DEMOLITION	QTB	QUARRY TILE BASE
DEPT	DEPARTMENT	QTY	QUANTITY
DF	DRINKING FOUNTAIN	R	RISER
DGL	INTERIOR DECORATIVE GLASS	RAD	RADIUS
DIAM	DIAMETER	RAF	RESILIENT ATHLETIC FLOORING
DIAG	DIAGONAL	RB	RESILIENT BASE
DN	DIMENSION	RBF	RUBBER FLOORING
DS	DOWNSPOUT	RCP	REFLECTED CLG PLAN
DWP	DECORATIVE WALL PANEL	RD	ROOF DRAIN
EA	EACH	REF	REFER TO / REFERENCE TO
EF	ENTRY FLOOR	REFG	REFRIGERATOR
EG	END GUARD	REINF	REINFORCED / REINFORCING
EIFS	EXTERIOR INSULATION FINISH SYSTEM	REQD	REQUIRED
EJ	EXPANSION JOINT	RES	RESILIENT
EJC	EXPANSION JOINT COVER	REV	REVISE / REVISION
ELEC	ELECTRIC	RFL	RESILIENT FLOOR
EL	ELEVATION	RFG	REFLECTED CLG PLAN
ELV	ELEVATOR	RH	RIGHT HAND
EMB	ELECTRONIC MARKER BOARD	RM	ROOM
EMER	EMERGENCY	RO	ROUGH OPENING
EOS	EDGE OF SLAB	ROW	RIGHT OF WAY
EQUIP	EQUIPMENT	RS	RESILIENT SHEET
ER	EPOXY RESIN	RSN	RESILIENT STAIR NOSING
EST	ESTIMATE(D)	RST	RESILIENT STAIR TREAD
EWK	ELECTRIC WATER COOLER	RT	RESILIENT TILE
EXH	EXHAUST	RTU	ROOF TOP UNIT
EXIST	EXISTING	RV	RIGID VINYL
EXP	EXPANSION	S	SEALED
EXPD	EXPOSED	SCR	STATIC CONTROL RESILIENT FLOORING
EXT	EXTERIOR	SDF	STATIC DISSIPATIVE FLOORING
FD	FLOOR DRAIN	SECT	SECTION
FDTN	FOUNDATION	SFRM	SPRAY-APPLIED FIRE RESISTIVE MATERIAL
FLO	FLOOR DEFLECTION LINE	SHR	SHOWER
FE	FIRE EXTINGUISHER	SHT	SHEET
FE	FIRE EXTINGUISHER CABINET	SHR	SIMILAR
FHC	FIRE HOSE CABINET	SM	SPECIALIZED METAL
FIN	FINISH(ED)	SOG	SLAB-ON-GRADE
FLM	FLOOR FINISH	SP	SAFETY PAD
FLR	FLOOR	SPF	SPRAY POLYURETHANE FOAM
FPRP	FIRE PROTECTION RATED GLAZING	SPEC	SPECIFICATION
FRP	FIBER REINFORCED PLASTIC	SQ	SQUARE
FRTW	FIRE RETARDED TREATED WOOD	SS	STAINLESS STEEL
FT	FOOT/FEET	SSB	STAINLESS STEEL BASE
FTG	FOOTING	SSM	SOLID SURFACE / SURFACING MATERIAL
FURN	FURNISHED / FURNISHINGS	SSMB	SOLID SURFACE BASE
FWP	FABRIC WRAPPED PANEL	ST	STONE
GA	GAUGE / GAGE	STB	STONE BASE
GALV	GALVANIZED	STC	SOUND TRANSMISSION CLASS
GFRG	GLASS FIBER REINF CONCRETE	STD	STANDARD
GFRG	GLASS FIBER REINF GYPSUM	STL	STEEL
GL	GLASS	STOR	STORAGE
GLMU	GLASS MASONRY UNIT	STRUC	STRUCTURE / STRUCTURAL
GT	GROUT	SUSP	SUSPENDED
GW	GYPSUM WALL BOARD	SWC	SPECIAL WALL COATING
GYP	GYPSUM	T	TREAD
HDW	HARDWARE	TB	TACK BOARD
HM	HOLLOW METAL	TBD	TO BE DETERMINED
HO	HOLD OPEN	TC	TRAFFIC COATING
HORIZ	HORIZONTAL	TEMP	TEMPORARY
HOSP	HOSPITAL	TEXT	TEXTURE
HP	HIGH POINT	THK	THICKNESS
HPC	HIGH PERFORMANCE COATING	TLT	TOILET
HPS	HEADWALL PANEL SYSTEM	TOS	TOP OF STEEL
HR	HANDRAIL	TOW	TOP OF WALL
HSS	HOLLOW STRUCTURAL SECTION	TP	TANGENT POINT
HT	HEIGHT	TR	TRANSITION STRIP
HVAC	HEATING-VENTILATING-AIR CONDITIONING	TS	TACKABLE SURFACE
HWC	HIGH IMPACT WALL COVERING	TRSL	TRANSLUCENT
HWP	HIGH IMPACT WALL PROTECTION	TYP	TYPICAL
HWS	HIGH IMPACT WALL SHEET	TZ	TERRAZZO
IB	INTEGRAL BASE	TZB	TERRAZZO BASE
ID	INSIDE DIAMETER	T&G	TONGUE & GROOVE
IGU	INSULATED GLASS UNIT	UC	UNDERCOUNTER
INST	INSULATION / INSULATED	UPH	UPHOLSTERY
INT	INTERIOR	UNO	UNLESS NOTED OTHERWISE
JAN	JANITOR	VAC	VACUUM
JT	JOINT	VCT	VINYL COMPOSITION TILE
KIT	KITCHEN	VEST	VESTIBULE
LAB	LABORATORY	VET	VINYL ENHANCED TILE
LAM	LABORATORY LAMINATE(D)	VIF	VERIFY IN FIELD
LAV	LAVATORY	VTR	VENT THROUGH ROOF
LG	LENGTH	VWC	VINYL WALL COVERING
LH	LEFT HAND	WAF	WOOD ATHLETIC FLOORING
LP	LOW POINT	WC	WATER CLOSET
LT	LIGHT	WCV	WALL COVERING
LTWT	LIGHTWEIGHT	WD	WOOD
		WDB	WOOD BASE
		WDP	WOOD FLOORING
		WDP	WOOD PANEL
		WP	WORK POINT
		WPC	WOOD PANEL CEILING
		WPR	WALL PROTECTION
		WS	WOOD STAIN
		WT	WEIGHT
		WTR	WINDOW TREATMENT

GENERAL NOTES

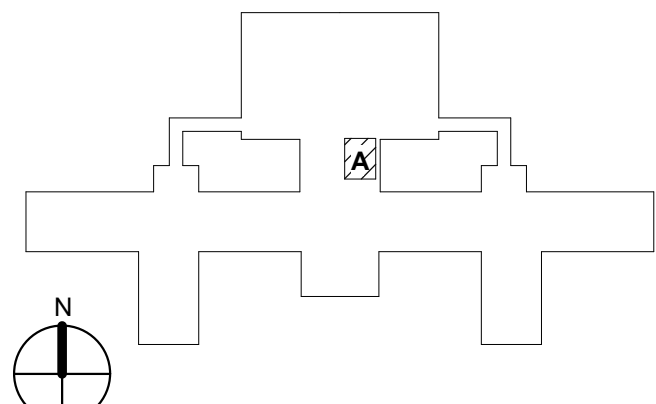
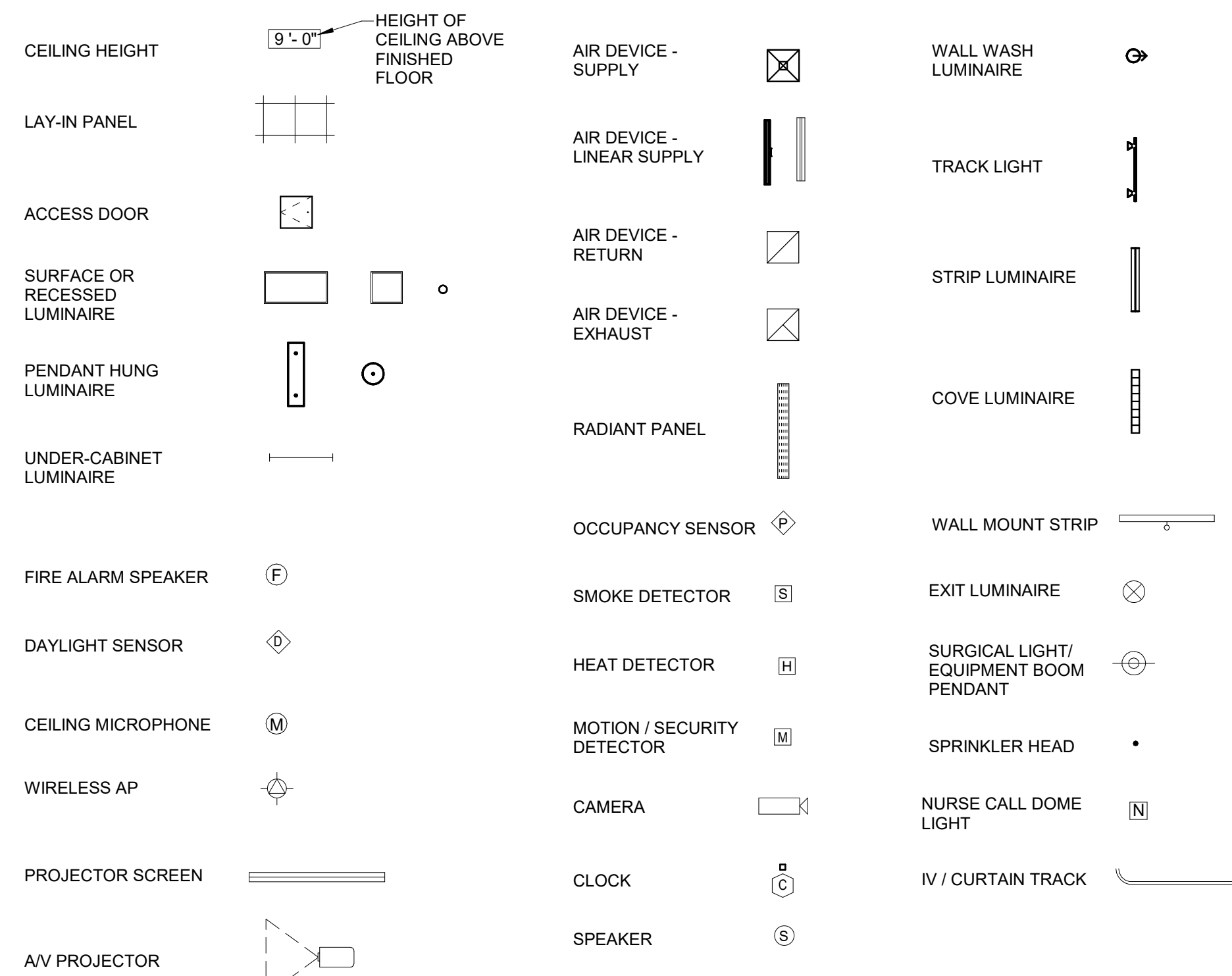
- COMPLY WITH ALL APPLICABLE CODES, RULES AND REGULATIONS. UNIVERSITY IS ITS OWN AUTHORITY HAVING JURISDICTION AND PERMIT ARE ISSUED THRU THE CAMPUS BUILDING OFFICE. NO FEE FOR PERMITTING. ALL WORK MUST BE INSPECTED AND APPROVED BY CAMPUS BUILDING OFFICIAL.
- CONTRACTOR SHALL VERIFY ALL CONDITIONS BEFORE COMMENCEMENT OF WORK AND REPORT ALL DISCREPANCIES TO THE OWNER AND ARCHITECT. THE DRAWINGS REFLECT CONDITIONS AS CAN REASONABLY INFERRED FROM VISIBLE CONDITIONS, OR FROM DRAWINGS & INFORMATION FURNISHED BY OWNER, BUT CANNOT BE GUARANTEED.
- ALL PENETRATIONS OF FIRE RESISTIVE FLOORS OR WALLS SHALL BE PROTECTED BY MATERIALS AND INSTALLATION DETAILS THAT CONFORM TO UNDERWRITER LABORATORIES LISTING FOR RATED ASSEMBLIES.
- ALL EXISTING FLOOR SLAB PENETRATIONS AT FLOOR OF WORK AND DECK ABOVE ARE TO BE SEALED TO AVOID ANY AND ALL MIGRATION OF DUST, WATER, CONSTRUCTION DEBRIS, ETC. TO ADJACENT FLOORS. SEALS MUST MEET THE RATING REQUIREMENT OF THE FLOOR/DECK ASSEMBLY.
- PROVIDE TEMPORARY DUST ENCLOSURES DURING ALL DEMOLITION AND CONSTRUCTION ACTIVITIES. CONTRACTOR TO COORDINATE LOCATIONS WITH PROJECT MANAGER. IF EXISTING WALLS ARE USED PENETRATIONS MUST BE SEALED TO CREATE A DUST PROOF ENCLOSURE.
- MODIFICATIONS TO THE EXISTING MEP SYSTEMS MAY IMPACT ADJACENT SPACES OUTSIDE THE GENERAL SCOPE AREAS. ANY DISTURBANCE TO EXISTING CONDITIONS AND FINISHES MUST BE REPAIRED TO MATCH THE CONDITIONS PRIOR TO CONSTRUCTION IMPACTS. CONTRACTOR TO AFFECTED ADJACENT AREAS PRIOR TO SUBMITTING FINAL COST.
- THE FACILITY IS OPERATIONAL. CONTRACTOR SHALL MAKE PROVISIONS FOR OWNER AND PUBLIC USE OF THE BUILDING AROUND THE CONSTRUCTION AREA. DELIVERIES, STAGING, STORAGE OF MATERIALS AND OTHER CONSTRUCTION RELATED ACTIVITIES SHALL BE COORDINATED WITH THE OWNER AND NOT ADVERSELY AFFECT THE BUILDING OPERATIONS. MATERIAL STORAGE AND DUMPSTER LOCATIONS MUST BE APPROVED BY THE OWNER.
- CONSTRUCTION ACTIVITIES ARE NOT TO ADVERSELY IMPACT THE ADJACENT OCCUPIED SPACES, INCLUDING BUT NOT LIMITED TO FLOORS ABOVE OR BELOW. CONSTRUCTION RELATED ACTIVITIES THAT MIGHT AFFECT THIS AREA MUST BE COORDINATED WITH THE OWNER AND APPROVED BEFORE ANY WORK IS STARTED.
- CONTRACTOR SHALL BE FAMILIAR WITH THE SITE AND IS RESPONSIBLE FOR INCORPORATING ALL REASONABLY INFERABLE CONDITIONS INTO THE WORK. NO CLAIM FOR ADDITIONAL COMPENSATION OR TIME BASED ON UNFAMILIARITY OF VISIBLE OR REASONABLY INFERABLE CONDITIONS. WILL BE CONSIDERED. CONTRACTOR WARRANTS TO THE OWNER THAT THE SITE AND EXISTING CONDITIONS HAVE BEEN FIELD VERIFIED PRIOR TO SUBMITTING A FINAL CONTRACT PRICE. DISCREPANCIES ARE TO BE REPORTED TO THE OWNER.
- CONTRACTOR SHALL KEEP THE CONSTRUCTION SITE CLEAN, FREE AND CLEAR OF DEBRIS AND SHALL MINIMIZE AND CLEARLY MARK ALL PHYSICAL HAZARDS. EMERGENCY EGRESS PATHS MUST BE MAINTAINED AT ALL TIMES.
- CONTRACTOR SHALL KEEP THE SITE SECURE AND FREE OF UNAUTHORIZED PERSONS, AND KEEP ALL EXPOSED, EXISTING CONDITIONS, SECURE FROM VANDALISM OR THEFT.
- CONTRACTOR SHALL PROVIDE PROTECTION OF ALL FINISHED FLOORING AND WALLS FROM ONGOING CONSTRUCTION ACTIVITIES, OWNER EQUIPMENT AND FURNITURE INSTALLATIONS.
- CONTRACTOR IS TO COMPLETE AND SUBMIT ALL UTILITY OUTAGE REQUESTS THAT AFFECT THIS AREA OF BUILDING TO OWNER'S PROJECT MANAGER WITHIN THE REQUIRED TIMELINES (FOR MINOR OUTAGES, THIS IS A MINIMUM OF SEVEN (7) WORKING DAYS PRIOR TO DATE WHEN WORK NEEDS TO TAKE PLACE, AND THIRTY (30) DAYS FOR MAJOR OUTAGES). ANY DEMOLITION/CONSTRUCTION WORK THAT AFFECTS EXISTING BUILDING UTILITIES WILL REQUIRE CU ANSCHUTZ APPROVED OUTAGE REQUEST.



VICINITY MAP

6" = 1'-0"

REFLECTED CEILING PLAN SYMBOLS

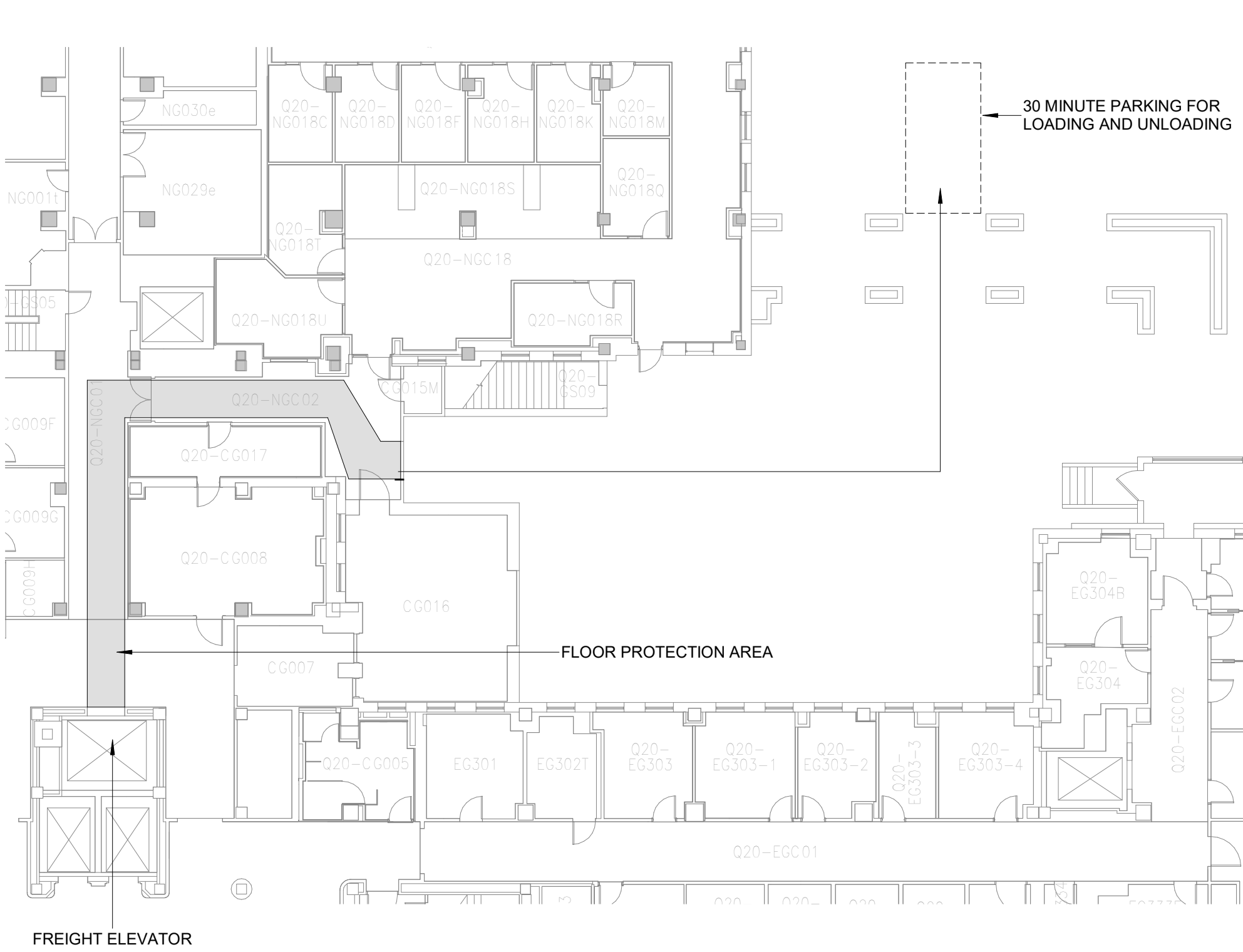


KEY PLAN

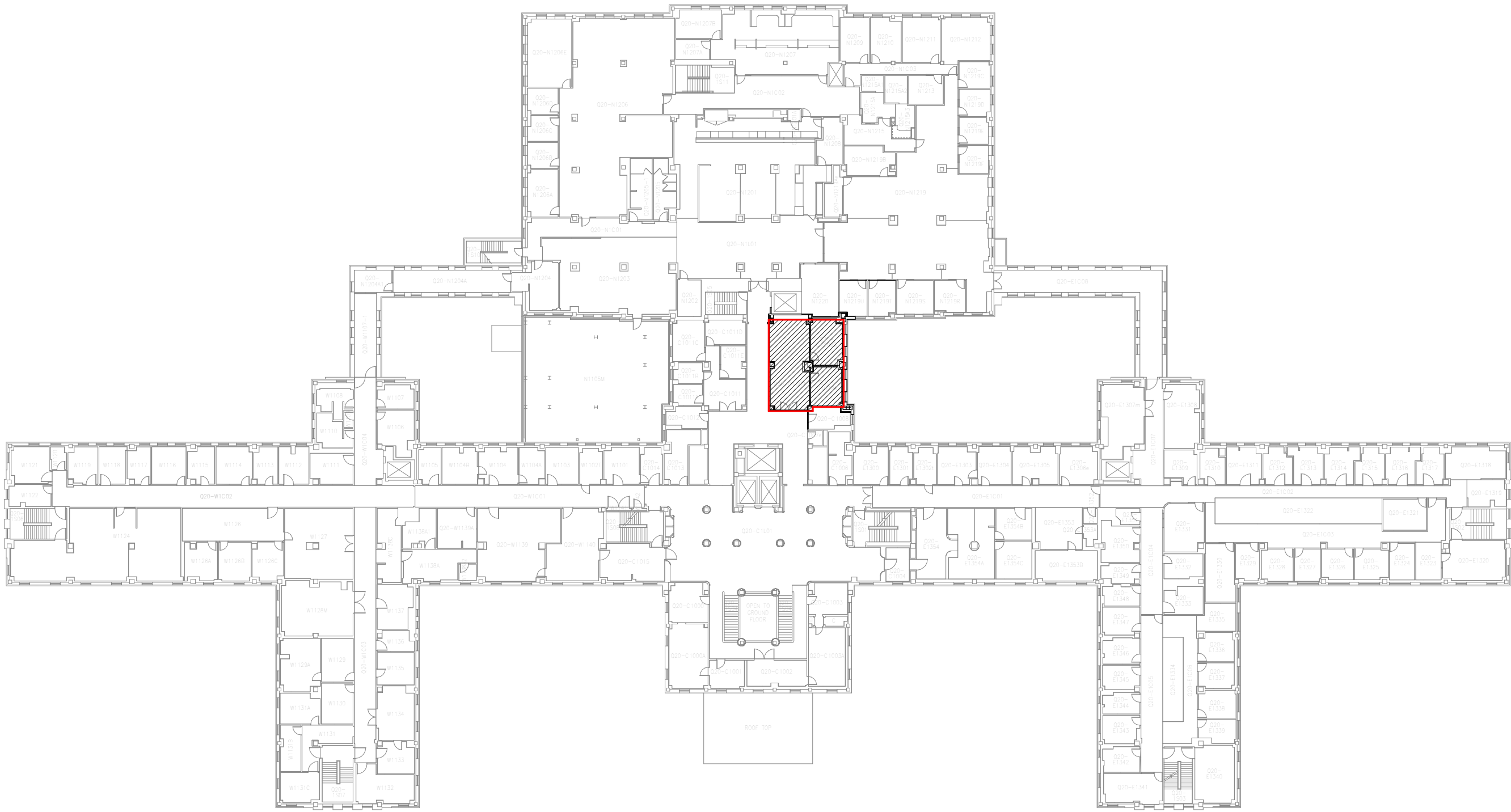
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DRAWING INDEX / SYMBOLS & ABBREVIATIONS

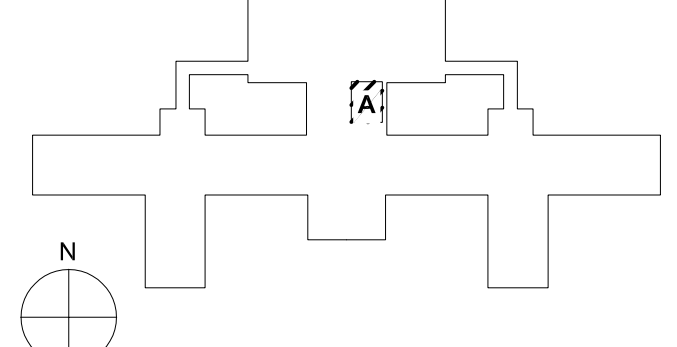
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7 GROUND LEVEL
1/16" = 1'-0"



ELECTRICAL LEGEND (NOTE: NOT ALL SYMBOLS SHOWN ARE USED ON THESE DRAWINGS)										APPLICABLE CODES			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	AHJ: UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CENTER FIRE AUTHORITY: AURORA FIRE			
- ONE LINE SYMBOLS -		- GENERAL -		- SPECIAL SYSTEMS DEVICES -		- POWER -		- LIGHTING - (REFER TO LUMINAIRE SCHEDULE)		- ABBREVIATIONS -			
	CIRCUIT BREAKER		BRANCH CIRCUIT HOME RUN TO PANELBOARD, DESIGNATION INDICATES PANEL AND CIRCUIT NUMBERS		DATA OUTLET		DUPLEX RECEPTACLE D = DEDICATED CIRCUIT IG = ISOLATED GROUND DEVICE O = AUTOMATICALLY CONTROLLED RECEPTACLE GFI = GROUND FAULT CIRCUIT INTERRUPTER		LUMINAIRES X = FIXTURE DESIGNATION # = BRANCH CIRCUIT NUMBER + = SWITCH LEG IDENTIFIER	(E) (N) (PART) A AC AF AFG AHJ AIC AL APL AS AT ATS AV BJ C CB CCTV CLG CU DISC DIST E/G ELEC ELEV EM EQPT F FA FAA FACP FIXT FO FLR FLUOR G GEN GFI OF OND HC HG HP HV INC IDF IG JB LED LTG LV MATV MCB MCC MDF MH MLO MOP MTD MTR MV NC NEC NF NIC NL NO OHE ONE PA PB PH PNL PWR RCPT(S) SBC SPD SW TEL TP TV UF UNO UPS V VFD VP W WG WPR XFRM XP	EXISTING NEW PARTIAL CIRCUIT AMP ABOVE COUNTER TOP AMP FRAME, AMP FUSE ABOVE FINISHED FLOOR ABOVE FINISHED GRADE AUTHORITY HAVING JURISDICTION AMPS INTERRUPTING CAPACITY ALUMINUM APPLIANCE AMP SWITCH AMP TRIP AUTOMATIC TRANSFER SWITCH AUDIOVISUAL BONDING JUMPER CONDUIT CIRCUIT BREAKER CIRCUIT CLOSED CIRCUIT T.V. CEILING COPPER DISCONNECT DISTRIBUTION ENGINE/GENERATOR ELECTRIC, ELECTRICAL ELEVATOR ELEVATION EMERGENCY EQUIPMENT FUSE FIRE ALARM FIRE ALARM ANNUNCIATOR FIRE ALARM CONTROL PANEL FIXTURE FIBER OPTIC FLOOR FLUORESCENT GROUND (EQUIPMENT) GENERATOR GROUND FAULT CIRCUIT INTERRUPTER GROUND FAULT PROTECTION GROUND HANDICAPPED HOSPITAL GRADE HORSEPOWER HIGH VOLTAGE INCANDESCENT INTERMEDIATE DISTRIBUTION FRAME ISOLATED GROUND JUNCTION BOX LIGHT EMITTING DIODE LIGHTING LOW VOLTAGE MASTER ANTENNA T.V. MAIN CIRCUIT BREAKER MOTOR CONTROL CENTER MAIN DISTRIBUTION FRAME MANHOLE MAIN LUGS ONLY METHOD OF PROCEDURE MOUNTED MOUNTING MOTOR MEDIUM VOLTAGE NEUTRAL NORMALLY CLOSED NATIONAL ELECTRICAL CODE NON-FUSED NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN OVERHEAD ELECTRIC POLE PUBLIC ADDRESS PULL BOX PHASE PANEL POWER RECEPTACLE(S) STRANDED BARE COPPER SURGE PROTECTIVE DEVICE SWITCH TELEPHONE TAMPERPROOF TELEVISION UNDERFLOOR UNLESS NOTED OTHERWISE UNINTERRUPTIBLE POWER SUPPLY VOLTAGE VARIABLE FREQUENCY DRIVE VAPOR PROOF WIRE WIRE GUARD WEATHERPROOF WIRE TRANSFORMER EXPLOSION PROOF	REMODEL <input checked="" type="checkbox"/> YES FULLY SPRINKLERED? <input type="checkbox"/> NO IS THE BUILDING FULLY SPRINKLERED? <input checked="" type="checkbox"/> YES FULLY DETECTED? <input type="checkbox"/> NO IS THE BUILDING FULLY DETECTED? <input checked="" type="checkbox"/> YES FULLY DETECTED? <input type="checkbox"/> NO	YEAR 2018 2018 2018 2018 2018 2020 INTERNATIONAL BUILDING CODE INTERNATIONAL MECHANICAL CODE INTERNATIONAL PLUMBING CODE INTERNATIONAL ENERGY CONSERVATION CODE INTERNATIONAL FIRE CODE NATIONAL ELECTRICAL CODE
										- GRAPHIC SYMBOLS -			
											KEY NOTE		
											REVISION NUMBER		
											DETAIL NOTE		
											X = DENOTES ALL LUMINAIRES IN THE RESPECTIVE AREA ARE THE TYPE INDICATED, REFER TO LUMINAIRE SCHEDULE		
											PANEL FLAG		
											OWNER EQUIPMENT TAG		
											LIGHTING CONTROL SEQUENCE INDICATION, SEE LIGHTING CONTROL SEQUENCE OF OPERATION SCHEDULE FOR INFORMATION X = DENOTES ILLUMINATION SET POINT		
											MECHANICAL EQUIPMENT TAG		
											SHADING INDICATES EQUIPMENT		
											HATCHING INDICATES ITEM(S) TO BE REMOVED		
											ROOM NUMBER		
											NORTH ARROW		
											DETAIL BUBBLE		
											DETAIL NUMBER		
											SHEET NUMBER - WHERE DETAIL IS SHOWN		
											SECTION CUT		
											SHEET NUMBER - WHERE SECTION IS SHOWN		
										GENERAL NOTES			
										SPECIFICATIONS ARE A PART OF THE CONSTRUCTION DOCUMENTS. SHOULD ANY CONFLICT ARISE BETWEEN THE DRAWINGS AND SPECIFICATIONS, BRING SUCH CONFLICT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION. UNLESS OTHERWISE DIRECTED BY ENGINEER, THE MOST STRINGENT REQUIREMENT WILL PREVAIL.			
										DATA ON THE DRAWINGS IS AS EXACT AS COULD BE REASONABLY SECURED. ABSOLUTE ACCURACY IS NOT GUARANTEED. VERIFY EXACT LOCATIONS, MEASUREMENTS, LEVELS, SPACE REQUIREMENTS, POTENTIAL CONFLICTS WITH OTHER TRADES. ADAPT WORK TO ACTUAL CONDITIONS AT THE SITE. BEFORE SUBMITTING COSTS VISIT THE SITE TO BECOME THOROUGHLY FAMILIAR WITH THE ACTUAL CONDITIONS OF THIS PROJECT. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE; DO NOT SCALE. THESE DRAWINGS DO NOT SHOW MATERIALS FOR A COMPLETE INSTALLATION; PLAN THE INSTALLATION AND LAYOUT OF THE WORK AS DIAGRAMMED IN THESE DOCUMENTS. REFER TO FLOOR PLANS, SCHEMATICS AND DIAGRAMS OF OTHER TRADES FOR ELECTRICAL REQUIREMENTS, BRANCH CIRCUITS AND OTHER ELECTRICAL CONNECTIONS NOT INDICATED ON THESE DOCUMENTS.			
										FIRE-SEAL ALL PENETRATIONS THROUGH RATED WALLS AND FLOORS WITH MATERIALS CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASES WHEN SUBJECTED TO THE REQUIREMENTS OF THE TEST STANDARD SPECIFIC FOR FIRE STOPS ASTM E814.			
										JUNCTION BOXES FOR LUMINAIRES AND OUTLETS ARE NOT INDICATED. PROVIDE THE PROPER NUMBER OF JUNCTION BOXES TO MEET LOCAL CODE AND NATIONAL ELECTRICAL CODE.			
										EXECUTE THE WORK IN ACCORDANCE WITH SUPPORTING OBJECTS FOR SEISMIC ZONE REQUIRED BY STATE AND LOCAL CODES ALL CEILING ATTACHED OBJECTS AND FLOOR ATTACHED EQUIPMENT INCLUDING, BUT NOT LIMITED TO: PENDANT LIGHTING FIXTURES, GENERAL LIGHTING, MULTIPLE RACEWAYS, GENERATOR, TRANSFORMER, ELECTRICAL SWITCHGEAR, SWITCHBOARDS AND OTHER ELECTRICAL EQUIPMENT.			
										WHERE DISCONNECTS ARE INDICATED ON DRAWINGS PROVIDE FINAL CONNECTION TO EQUIPMENT BEING SERVED BY DISCONNECT. DISCONNECTING MEANS FOR ALL MECHANICAL EQUIPMENT SHALL BE ACCESSIBLE AND HAVE THE CLEARANCE REQUIRED BY NEC.			
										UP-TO-DATE ELECTRICAL RECORD DRAWINGS ARE NOT AVAILABLE FOR THIS PROJECT. INFORMATION FOR EXISTING CIRCUITRY IS BASED ON EXISTING PANEL DIRECTORIES, AVAILABLE DRAWINGS, AND ASSUMPTIONS. LOCATIONS AND INFORMATION FOR EXISTING ELECTRICAL DEVICES AND EQUIPMENT SHOWN ON THESE DOCUMENTS ARE APPROXIMATE AND WERE DERIVED FROM FIELD OBSERVATION AND AVAILABLE RECORD DRAWINGS. VERIFY ACTUAL FIELD CONDITIONS PRIOR TO STARTING WORK.			



DIVISION 26 ELECTRICAL	SECTION 26 00 105 COMMON WORK RESULTS FOR ELECTRICAL
PART 1 – GENERAL	
1.1 IT IS THE INTENT OF THESE DOCUMENTS THAT A COMPLETE AND WORKABLE ELECTRICAL INSTALLATION IS PROVIDED FOR ALL THE ELECTRICAL PRODUCTS DESCRIBED, OR SHOWN AS BEING PART OF THIS CONTRACT. PROVIDE ALL MATERIALS AND LABOR TO FURNISH AND INSTALL ALL APPARATUS, MATERIALS, EQUIPMENT AND APPURTENANCES, IN A FASHION COMPLYING WITH ALL APPLICABLE CODES, INCLUDING ITEMS REQUIRED BUT NOT NORMALLY SHOWN, SUCH AS LAMPS, COUPLERS, HANGERS, BRACKETS, CLAMPS, BOXES, CONNECTORS, HARDWARE, MISCELLANEOUS IRON AND STEEL, WELDING, COMMISSIONING AND TESTING. APPLY FOR AND PAY FOR ALL PERMITS, FEES, LICENSES AND INSPECTIONS FOR THIS DIVISION OF WORK.	
1.2 PROVIDE ALL ELECTRICAL EQUIPMENT AND MATERIAL IN ACCORDANCE WITH REQUIREMENTS OF LOCAL BUILDING CODES, GOVERNING AUTHORITIES, AND AS SPECIFIED, WHERE A CONFLICT EXISTS BETWEEN ANY CODES AND THE WORK SHOWN WITHIN THESE DOCUMENTS, THE MORE STRINGENT REQUIREMENT SHALL GOVERN.	
1.3 COMPLY WITH THE REQUIREMENTS OF THE GENERAL CONDITIONS, SUPPLEMENTAL GENERAL CONDITIONS OF THE PROJECT SPECIFICATIONS, ALL CONTRACT DOCUMENTS, AND ANY BASE BUILDING SPECIFICATIONS AND BUILDING GENERALA INCLUDED IN THIS PROJECT.	
1.4 DEFINITIONS	
A. INSTRUCTIONS SUCH AS "PROVIDE" SHALL MEAN THE SAME AS THOUGH THE WORDS "THE CONTRACTOR SHALL" PRECEDE EACH SUCH INSTRUCTION.	
B. "PROVIDE" SHALL MEAN "FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."	
1.5 COORDINATE AND SCHEDULE THE PROGRESS OF ELECTRICAL WORK TO CONFORM TO THE OWNER'S SCHEDULE AND THE PROGRESS OF THE WORK OF OTHER TRADES. FOR CONNECTIONS TO MECHANICAL EQUIPMENT AND THE ASSOCIATED CONDUIT AND WIRE REQUIRED BUT NOT SHOWN ON THESE DOCUMENTS, REFER TO THE MECHANICAL AND PLUMBING DOCUMENTS. COORDINATE ALL SUCH CONNECTIONS WITH THE AFFECTED TRADES.	
1.6 PROVIDE A ONE YEAR WARRANTY ON ALL MATERIAL, EQUIPMENT, APPURTENANCES, AND INSTALLATION, FROM THE DATE OF ACCEPTANCE. IF, AFTER HAVING RECEIVED NOTICE FROM THE OWNER, DEFECTS ARE NOT CORRECTED WITHIN A REASONABLE TIME, THE OWNER WILL HAVE THE RIGHT TO SECURE THE NECESSARY WORK FROM ANOTHER PARTY AND TO BILL THE CONTRACTOR FOR THE COST OF SUCH WORK.	
1.7 PROVIDE TEMPORARY LIGHTING AND POWER AS REQUIRED.	
1.8 PERFORM THE WORK IN COOPERATION WITH THE AREA OCCUPANTS TO MINIMIZE INTERFERENCE WITH THEIR ACTIVITIES. WORK CAN BE PERFORMED DURING NORMAL WORKING HOURS. WHEN REQUIRED BY THE OWNER, PERFORM THE WORK DURING AFTERHOURS. SCHEDULE WORK A MINIMUM OF ONE WEEK IN ADVANCE.	
1.9 VISIT THE PROJECT SITE BEFORE SUBMITTING A BID; NO EXTRAS WILL BE ALLOWED FOR LACK OF KNOWLEDGE OF EXISTING CONDITIONS. THESE DRAWINGS HAVE BEEN INFORMED BASED ON INFORMATION PROVIDED BY OTHERS. DATA PRESENTED ON THIS DRAWING IS AS ACCURATE AS CAN BE DETERMINED, BUT ACCURACY IS NOT GUARANTEED. THE ENGINEER IS NEITHER RESPONSIBLE FOR ACCURACY NOR ERRORS NOR OMISSIONS THAT MAY HAVE BEEN INCORPORATED INTO THESE DOCUMENTS. FIELD VERIFICATION OF ALL AFFECTED COMPONENTS IS REQUIRED.	
1.10 THESE DRAWINGS ARE DIAGRAMMATIC IN CHARACTER AND DO NOT SHOW MATERIALS FOR A COMPLETE INSTALLATION. THESE DOCUMENTS INDICATE DESIRED LOCATIONS AND ARRANGEMENT OF ELECTRICAL COMPONENTS, CONDUIT RUNS, OUTLETS, AND EQUIPMENT; FOLLOW LOCATIONS AS CLOSELY AS POSSIBLE. TAKE ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS, CERTIFIED EQUIPMENT DRAWINGS, AND FROM THE STRUCTURE ITSELF BEFORE FABRICATING ANY WORK. PROPER JUDGEMENT MUST BE EXERCISED IN EXECUTING WORK TO SECURE THE BEST POSSIBLE INSTALLATION IN THE AVAILABLE SPACE AND TO OVERCOME LOCAL DIFFICULTIES DUE TO SPACE LIMITATIONS OR INTERFERENCE WITH STRUCTURAL OR ARCHITECTURAL CONDITIONS. PROVIDE ALL DEVIATIONS FROM THESE DOCUMENTS REQUIRED TO CONFORM TO THE STRUCTURE OR TO FIT THE INSTALLED WORK OF OTHER TRADES AND CONTRACTORS WITHOUT ADDITIONAL COST TO THE OWNER.	
1.12 SUBMITTALS	
A. SUBMIT SHOP DRAWINGS FOR ACCEPTANCE FOR LUMINAIRES, SWITCHBOARDS, PANELBOARDS, LIGHTING CONTROLS, DEVICES, AND ETC. AT COMPLETION OF WORK; DELIVER TO ARCHITECT/OWNER COMPLETED PROJECT RECORD DOCUMENTS MARKED WITH FIELD CHANGES; SUBMIT ALL MANUFACTURER'S DATA, HANDBOOKS, SCHEMATICS, ORDERING INFORMATION FOR ALL COMPONENTS.	
B. REVIEW EACH SUBMITTAL AND CHECK FOR COORDINATION WITH OTHER WORK OF THE CONTRACT AND FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS. NOTE CORRECTIONS AND FIELD DIMENSIONS. MARK WITH APPROVAL STAMP BEFORE SUBMITTING TO THE ARCHITECT AND CONSTRUCTION MANAGER.	
C. STAMP EACH SUBMITTAL WITH A UNIFORM APPROVAL STAMP. INCLUDE PROJECT NAME AND LOCATION, SUBMITTAL NUMBER, SPECIFICATION SECTION TITLE AND NUMBER, NAME OF REVIEWER, DATE OF CONTRACTOR'S APPROVAL, AND STATEMENT CERTIFYING THAT SUBMITTAL HAS BEEN REVIEWED, CHECKED, AND APPROVED FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS.	
D. COORDINATE PREPARATION AND PROCESSING OF SUBMITTALS WITH PERFORMANCE OF CONSTRUCTION ACTIVITIES. COORDINATE EACH SUBMITTAL WITH FABRICATION, PURCHASING, TESTING, DELIVERY, OTHER SUBMITTALS, AND RELATED ACTIVITIES THAT REQUIRE SEQUENTIAL ACTIVITY. COORDINATE TRANSMITTAL OF PRESENT SUBMITTALS FOR RELATED PARTS OF THE WORK SO PROCESSING WILL NOT BE DELAYED BECAUSE OF NEED TO REVIEW SUBMITTALS CONCURRENTLY FOR COORDINATION. ARCHITECT AND CONSTRUCTION MANAGER RESERVE THE RIGHT TO WITHHOLD ACTION ON A SUBMITTAL REQUIRING COORDINATION WITH OTHER SUBMITTALS UNTIL RELATED SUBMITTALS ARE RECEIVED.	
1.13 RECORD DOCUMENTS	
A. MAKE CAREFUL REVIEW AND INVESTIGATION TO DOCUMENT THE EXISTING BRANCH CIRCUIT LAYOUT AND OUTLET LOCATIONS FOR THE FOLLOWING SYSTEMS: LIGHTING, RECEPTACLES, MOTORS, EMERGENCY SYSTEMS, ACCESS CONTROLS (POWER ONLY), SECURITY SURVEILLANCE SYSTEMS (POWER ONLY), AND THE BRANCH CIRCUITS PROVIDING POWER TO ANY OTHER COMPONENTS IN THE REQUIRED FLOORS.	
B. INCLUDE DOCUMENTATION OF OUTLET LOCATION AND TYPE, BRANCH CIRCUIT, CONDUCTOR AND RACEWAY SIZE. EXECUTE DOCUMENTATION UPON DOCUMENTS PROVIDED BY THE ENGINEER, WHICH WILL INDICATE THE BEST KNOWN "AS-BUILT" CONDITIONS OF THE LIMITS OF WORK. MAKE DOCUMENTATION LEGIBLE, COMPLETE, WITH A DATE AND SIGNATURE OF THE RESPONSIBLE INDIVIDUAL DESIGNATED BY THE CONTRACTOR.	
C. PERFORM THE WORK USING CIRCUIT TRACING DEVICES THAT DO NOT REQUIRE ANY INTERRUPTIONS OR INTERFERENCE WITH THE POWER ON THE SYSTEM.	
D. DOCUMENT ALL PANEL SCHEDULES ON AN APPROVED FORM. AFTER REVIEW AND AUTHORIZATION BY THE ENGINEER, PROVIDE TYPEWRITTEN PANEL DIRECTORIES FOR ALL PANELBOARDS ON THE INDICATED FLOORS. FOR EACH PANELBOARD SCHEDULE INDICATE THE FOLLOWING: FEEDER SIZE, MATERIAL, ORIGIN, SIZE CONDUIT, FEEDER BUS SIZE AND MATERIAL, MAIN BREAKER SIZE, PANEL TYPE, BOLT-ON OR PLUG-IN TYPE BREAKERS, SHORT CIRCUIT RATING, BREAKER SIZES AND POLE DESIGNATION; QUANTITY OF BREAKER SPACE.	
PART 2 – MATERIALS	
2.1 MATERIALS SHALL BE NEW AND IN PERFECT CONDITION; ALL MATERIALS FOR SIMILAR USES SHALL BE OF THE SAME TYPE, MATERIAL, AND MANUFACTURER. MATERIAL SHALL BE LISTED BY A RECOGNIZED NRTL OR BEAR A UL LABEL WHERE SUBJECT TO SUCH APPROVAL, AND COMPLY WITH ANSI, IEEE AND NEMA STANDARDS. MAKE PROVISIONS FOR SAFE DELIVERY AND SECURE STORAGE OF ALL MATERIALS.	
2.2 CONNECTORS AND FITTINGS SHALL BE MANUFACTURED BY APPLETON, STEEL CITY, T & B, TOMIC, RACO, OR O.Z./SEDNEY.	
2.3 CONDUITS SHALL BE RIGID STEEL, INTERMEDIATE METAL CONDUIT, ELECTRICAL METALLIC TUBING, FLEXIBLE METALLIC CONDUIT, LIQUID TIGHT FLEXIBLE CONDUIT, NON-METALLIC, REINFORCED THERMOSETTING RESIN CONDUIT, AND RIGID PVC SCHEDULE 40. UNLESS SPECIFICALLY SHOWN TO BE LARGER, ALL CONDUITS SHALL BE SIZED PER THE NEC.	
2.4 SURFACE RACEWAYS SHALL BE WIREMOLD OR APPROVED EQUAL. ALL WIREMOLD G-3000, G-4000, G-6000, RACEWAYS TO INCLUDE DIVIDER TO SEPARATE POWER FROM TELLLOW AND DATA. PROVIDE EXPANSION JOINTS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.	
2.5 LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES	
A. CONDUCTORS SHALL BE MANUFACTURED BY ALPHA, CAROL BRAND, COLONIAL, TRIANGLE, ENCORE, GENERAL CABLE, OKWITE, SENATOR, OR SOUTHWIRE.	
B. CONDUCTORS SHALL BE COPPER, 600 V, TYPE THW, THWN, OR THHN. CONDUCTORS #10 AND SMALLER SHALL BE SOLID; #8 GAUGE AND LARGER SHALL BE STRANDED. MINIMUM WIRE SIZE SHALL BE #12; EXCEPT USE #14 FOR CONTROL WIRING. CONDUCTORS #1/0 AND LARGER SHALL BE THW, THWN, XHHW, OR RHW-USE. THE USE OF ALUMINUM CONDUCTORS IS PROHIBITED.	
C. CONDUCTORS #1 AND SMALLER SHALL HAVE A MINIMUM 60°C RATING. FOR WET LOCATIONS, AND WHERE DERATED DUE TO HIGH AMBIENT TEMPERATURE, PROVIDE CONDUCTORS SUITABLE FOR WET LOCATIONS WITH MINIMUM 90°C RATINGS.	
D. SIZE AND INSTALL ALL CONDUCTORS PER THE NEC.	
E. INCREASE CONDUIT SIZE AS NECESSARY TO LIMIT BRANCH CIRCUIT VOLTAGE DROP TO 3%; AND SERVICE/FEEDER VOLTAGE DROP TO 2%.	
F. WIRE CONNECTIONS:	
1. PROVIDE CONNECTIONS, LUGS, AND DEVICES RATED FOR 75°C.	
2. MAKE CONNECTIONS FOR WIRE #8 AWG AND SMALLER WITH TWIST-ON WIRE CONNECTORS.	
3. MAKE CONNECTIONS FOR WIRE #6 AWG AND LARGER WITH PROPERLY SIZED SOLDERLESS LUGS OR CONNECTORS.	
2.6 GROUNDING AND BONDING	
G. GROUNDING CONDUCTOR MATERIAL: COPPER.	
H. EQUIPMENT GROUNDING CONDUCTORS: INSULATED WITH GREEN-COLORED INSULATION PER COLOR CODING OF PHASE CONDUCTORS PARAGRAPH.	
I. GROUNDING ELECTRODE CONDUCTORS: STRANDED CABLE.	
J. UNDERGROUND CONDUCTORS: BARE, TINNED, STRANDED, UNLESS OTHERWISE INDICATED.	
2.7 RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS	
A. MANUFACTURERS: BOXES SHALL BE MANUFACTURED BY APPLETON, RACO, STEEL CITY, OR THOMAS & BETTS CO.	
B. OUTLET BOXES:	
1. FLUSH-MOUNTED OUTLET BOXES SHALL BE GALVANIZED OR ZINC COATED, PRESSED STEEL OUTLET BOXES. BOXES SHALL BE MINIMUM 4-INCHES SQUARE AND OF DEPTH REQUIRED; 1-1/2 INCHES MINIMUM BOX DEPTH. PROVIDE OUTLET BOXES OF PROPER TYPE AND DESIGN FOR THE PARTICULAR LUMINAIRE OR DEVICE TO BE INSTALLED.	
2. PROVIDE SINGLE OR DOUBLE GANG RING, AS REQUIRED BY THE DEVICE.	
3. PROVIDE 3/8-INCHES NO-BOLT LUMINAIRE STUDS.	
C. SURFACE-MOUNTED BOXES SHALL BE CAST METAL, MULTI-GANG AND OF DEPTH REQUIRED.	
D. ALL PULL BOXES SHALL BE CODE GAUGE METAL, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.	
E. DATA/NETWORK: EMPTY CONDUIT SYSTEM WITH PULL WIRE AND BACK BOXES. BACK BOXES SHALL BE 4-INCH SQUARE GALVANIZED PRESSED STEEL WITH PLASTER RING, MINIMUM 2-1/8 INCHES DEEP. MATCH FINISH OF OTHER PLATES.	
2.8 IDENTIFICATION	
A. PROVIDE ALL LABELS REQUIRED BY THE NEC.	
B. COLOR CODING OF PHASE CONDUCTORS:	
1. CONDUCTORS #2 AND SMALLER SHALL BE FACTORY COLOR CODED. CONDUCTORS #1 AND LARGER MAY BE COLOR CODED BY FIELD PAINTING OR COLOR TAPING A 6-INCH LENGTH OF EXPOSED END.	
2. PROVIDE THE FOLLOWING COLOR CODING FOR THE A-B-C-N-G-H-G PHASE SEQUENCE:	
a. 120/240V, 1-PHASE BLACK, RED, WHITE, GREEN	
b. 120/208V, 3-PHASE BLACK, RED, BLUE, WHITE, GREEN, GREEN/WHITE	
c. 277/480V, 3-PHASE BROWN, ORANGE, YELLOW, GRAY, GREEN/GRAY, GREEN/YELLOW	
d. SWITCH TRAVELERS PINK, PURPLE, AND TURQUOISE	
3. WIRING FOR CONTROL SYSTEMS SHALL BE COLOR CODED IN ACCORDANCE WITH THE WIRING DIAGRAMS FURNISHED WITH THE EQUIPMENT.	
C. PROVIDE 3/8-INCHES TAPE LABELS ON ALL RECEPTACLES AND SWITCHES THAT INDICATES PANELBOARD AND CIRCUIT NUMBER. LABELS SHALL BE:	
1. NORMAL BRANCH BLACK BACKGROUND WITH WHITE LETTERING	
2. EQUIPMENT BRANCH ORANGE BACKGROUND WITH BLACK LETTERING	
3. LIFE SAFETY RED BACKGROUND WITH BLACK LETTERING	
4. STANDBY YELLOW BACKGROUND WITH BLACK LETTERING	
D. PROVIDE UPDATED PANEL DIRECTORIES FOR ALL PANELBOARDS AFFECTED BY CONSTRUCTION. TYPE PANEL DIRECTORIES IN ACCORDANCE WITH THE DRAWING PANEL SCHEDULES. INCORPORATE CHANGES THAT WERE MADE IN THE FIELD. LIST WHERE PANEL IS FED FROM, I.E., PANEL AND CIRCUIT BREAKER.	
E. PROVIDE LABELING FOR RACEWAYS AND CABLES:	
1. POWER-CIRCUIT IDENTIFICATION: METAL TAPS OR ALUMINUM WRAPAROUND MARKER BANDS FOR CABLES, FEEDERS, AND POWER CIRCUITS IN VAULTS, PULL AND JUNCTION BOXES, MANHOLES, AND SWITCHBOARD ROOMS.	
2. CONDUCTORS: INDICATE SOURCE AND CIRCUIT NUMBERS.	
F. MULTIPLE POWER OR LIGHTING CIRCUITS IN SAME ENCLOSURE. IDENTIFY EACH CONDUCTOR WITH SOURCE, VOLTAGE, CIRCUIT NUMBER, AND PHASE. USE COLOR-CODING TO IDENTIFY CIRCUITS' VOLTAGE AND PHASE.	

2.9 WIRING DEVICES

- C. DEVICE PLATES SHALL BE, SCREW-ON, BRUSHED STAINLESS STEEL. EMERGENCY POWER DEVICES SHALL BE RED COLOR. ISOLATED GROUND DEVICES SHALL BE ORANGE COLOR.
- D. WALL PLATES IN UNFINISHED SPACES SHALL BE BRUSHED STAINLESS STEEL.
- E. DEVICES SHALL BE AS SPECIFIED OR APPROVED EQUAL BY ARROW HART, BRYANT, GENERAL ELECTRIC, HUBBELL, LEVITON, PASS & SENSIBUR, OR SQUARE-D.
1. A-C QUIET OPERATING TYPE SWITCHES, THAT ARE NOT INTEGRAL TO LIGHTING CONTROL SYSTEM, SHALL BE: 120/277V, 20A HUBBELL HBL1221 SERIES, OR APPROVED EQUAL.
2. MOMENTARY-CONTACT LIGHT SWITCHES, THAT ARE NOT INTEGRAL TO LIGHTING CONTROL SYSTEM, SHALL BE 120/277V, 20 AMP, SPDT, NORMALLY-OPEN, CENTER-OFF, THREE-POSITION, HUBBELL CATALOG NO. HBL1557.
3. SPECIFICATION GRADE RECEPTACLES: 20A HUBBELL HBL5362 SERIES. WHERE A SINGLE DEVICE IS INSTALLED ON A BRANCH CIRCUIT THE DEVICE RATING SHALL MATCH THE CIRCUIT BREAKER RATING.
4. SPECIAL PURPOSE RECEPTACLES SHALL BE SPECIFICATION GRADE, STANDARD COLOR, AND OF THE APPROPRIATE CODE AND NEMA CONFIGURATION TO MATCH THE SUPPLY CIRCUIT AND LOAD INVOLVED.
5. HOSPITAL GRADE RECEPTACLES: 20A HUBBELL HBL5300 SERIES, OR APPROVED EQUAL.
6. GFCI RECEPTACLES: 20A HUBBELL GF20 SERIES.

PART 3 – INSTALLATION

3.1 GENERAL

- A. PROVIDE ALL CORE DRILLING, CHANNELING, CUTTING, PATCHING, AND SLEEVES REQUIRED FOR INSTALLATION OF ELECTRICAL EQUIPMENT. SEAL HOLES, FIREPROOF WHERE NECESSARY, AND REFINISH ALL WORK TO ORIGINAL CONDITION WHERE DAMAGED BY ELECTRICAL WORK.
- B. PROVIDE HANGERS AND SUPPORTS FOR EQUIPMENT, RACEWAYS, AND CABLES, INCLUDING WEIGHT OF WIRE IN RACEWAYS.
- C. USE STEEL MATERIAL FOR DRY LOCATIONS.
- D. PAINT ALL EXPOSED CONDUIT, SUPPORTS, BOXES, ETC., TO MATCH SURROUNDING CEILING AND WALLS.
- E. CLEAN THE AREA AFTER WORK IS COMPLETED, AND AT THE END OF EACH WORK DAY.
- F. DO NOT USE CEILING GRID SUPPORT WIRES TO SUPPORT CONDUIT.
- G. PRESERVE AND PROTECT USABLE CONDITION OF ALL EQUIPMENT TO BE REMOVED AND REINSTALLED. REPLACE ANY EQUIPMENT DAMAGED AS A PART OF THIS WORK.
- H. MAKE ALL CUTTING AND PATCHING NECESSARY FOR THE WORK. PATCH AND PAINT DAMAGED SURFACES TO MATCH EXISTING CONDITIONS DUE TO DEMOLITION AND DAMAGE CAUSED DURING WORK.

3.2 CONDUIT LOCATIONS:

- A. PROVIDE ELECTRICAL METALLIC TUBING (EMT) FOR ALL DRY, ABOVE GRADE OR ABOVE FLOOR APPLICATIONS IN ACCORDANCE WITH THE NEC.
- B. PROVIDE FLEXIBLE METAL CONDUIT FOR CONNECTIONS TO LAY-IN TYPE LUMINAIRES, MOTOR AND EQUIPMENT CONNECTIONS IN DRY CONDITIONS, AND IN ENVIRONMENTAL AIR PLENUMS.

3.3 RACEWAYS

- A. ROUTE ALL CONDUIT PARALLEL OR PERPENDICULAR WITH THE BUILDING WALLS. SUPPORT CONDUIT AS REQUIRED BY THE NEC. INSTALL GROUPED CONDUIT USING SNEEPS STRUCK FROM THE SAME RADIIUS. PERFORM WORK BY SKILLED TRADESMEN USING THE BEST STANDARD PRACTICES OF THE TRADE.
- B. CONCEAL ALL CONDUITS IN FINISHED AREAS. MINIMUM CONDUIT SIZE 3/4 INCHES.
- C. UNLESS INDICATED OTHERWISE, ENCLOSE ALL CONDUCTORS IN CONDUIT SIZED IN ACCORDANCE WITH THE NEC.
- D. PROVIDE SUPPORTS AND HANGARS FOR A GOOD AND SUBSTANTIAL INSTALLATION. SUPPORT CONDUIT AND RACEWAY IN ACCORDANCE WITH THE NEC. SUPPORT RACEWAYS, LUMINAIRES, CABINETS, BOXES, ETC., ON APPROVED TYPES OF TRAPEZE HANGERS OR WALL BRACKETS. PROVIDE MINIMUM 3/8-INCH STEEL HANGER RODS SECURELY FASTENED TO THE BUILDING STRUCTURE FOR ALL TRAPEZES. PROVIDE FASTENERS SUCH AS "CANDY CLIPS" OR SIMILAR TYPE OF OTHER MANUFACTURER. DO NOT SUSPEND FROM MECHANICAL PIPING OR DUCTWORK OR FROM CEILING SUSPENSION WIRE. PERFORATED PLUMBER'S STRAPS OR WIRE ARE NOT PERMITTED.
- E. MAKE ALL BENDS USING AN APPROVED BENDING TOOL AND REAM ALL CUTS TO REMOVE BURRS. CLEAN AND DRY ALL CONDUITS PRIOR TO PULLING CONDUCTORS.
- F. SEAL ALL FIREWALL AND FLOOR PENETRATIONS WITH APPROPRIATE SEALANT AT BOTH SIDES AFTER INSTALLATION OF CONDUITS.
- G. USE STEEL COMPRESSION FITTINGS THROUGHOUT; DIE CAST ZINC FITTINGS ARE PROHIBITED.
- H. IN EACH CONDUIT WITHOUT CONDUCTORS, PROVIDE A NYLON PULLING CORD WITH A TAG IDENTIFYING THE LOCATION OF THE OPPOSITE END.
- I. PAINT ALL EXPOSED CONDUIT, SUPPORTS, BOXES, ETC. TO MATCH SURROUNDING CEILING AND WALLS.
- J. PROVIDE EXPANSION TYPE FITTINGS FOR ALL CONDUITS WHICH CROSS EXPANSION JOINTS.
- K. PROVIDE BUSHING ON ALL CONDUITS STUBBED ABOVE THE CEILING.
- L. PROVIDE ALL REQUIRED PULL BOXES AND JUNCTION BOXES. SIZE BOXES IN ACCORDANCE WITH THE NEC.
- M. AVOID PROXIMITY OF CONDUIT TO SOURCES OF HEAT SUCH AS FLUES AND HOT WATER LINES.

3.4 CONDUCTORS

- A. ROUTE ALL CONDUCTORS THROUGH RACEWAY REGARDLESS OF VOLTAGE APPLICATION, UNLESS SPECIFIED OTHERWISE.
- B. UNLESS OTHERWISE INDICATED, ALL WIRING FOR BRANCH CIRCUITS SHALL BE #12 AWG PROTECTED BY 20A CIRCUIT BREAKERS. TO ACCOUNT FOR VOLTAGE DROP, INCREASE CONDUCTOR SIZE FOR ALL 120V CIRCUITS OVER 75 FEET, AND ALL 277V CIRCUITS OVER 150 FEET. PROVIDE UNIFORM CONDUCTOR SIZE FOR THE ENTIRE LENGTH OF THE CIRCUIT UNLESS NOTED OTHERWISE. HANGERS THAT INDICATE UPGRADING CIRCUIT CONDUCTORS FOR VOLTAGE DROP, E.G., #10 AWG WIRE ON 20A CIRCUIT, SHALL HAVE THE INDICATED CONDUCTOR SIZE CARRIED THROUGHOUT THE CIRCUIT TO ALL JUNCTION BOXES UP TO AND INCLUDING THE J-BOX NEAREST THE LAST DEVICE OR OUTLET.
- C. DO NOT SPlice FEEDERS OR DEDICATED BRANCH CIRCUITS UNLESS OTHERWISE INDICATED. INSTALL ALL WIRE CONTINUOUS FROM OUTLET TO OUTLET AND TERMINAL TO TERMINAL. PROVIDE SPLICES IN CABLES WHEN REQUIRED UTILIZING SOLDERLESS CONNECTORS IN HANDHOLES, PULL BOXES, OR JUNCTION BOXES. MAKE UP SPLICES IN OUTLET BOXES WITH 8 INCHES OF CORRECTLY COLOR-CODED WIRE LEFT IN BOX. MAKE SPLICES IN WIRES SIZE #8 AWG AND SMALLER WITH INSULATED SPRING TYPE WIRE CONNECTORS. "SCOTCHLOK." MAKE SPLICES IN LARGER WIRE AND CABLES WITH INDET CONNECTORS. ALL INSULATING TYPE USED ON CIRCUITS OF 600V AND LESS SHALL BE 3-M #88 OR PLYMOUTH SUPLNKOT GREY.
- D. MAKE CONNECTIONS, SPLICES, TAPS AND JOINTS WITH SOLDERLESS DEVICES, MECHANICALLY AND ELECTRICALLY SECURE. PROVIDE ONLY APPROVED CONNECTORS IN WET OR DAMP AREAS.
- E. INSTALL COMPRESSION CONNECTORS WITH HYDRAULIC DIE, EMBOSHING DIE CODE INTO CONNECTOR. CONNECT TO BUS WITH BELLEVILLE TYPE WASHERS FOR POSITIVE PRESSURE OVER COMPLETE CONTACT AREA. INSULATE WITH 600V HEAT SHRINK HEAVY-WALL CABLE SLEEVES.
- F. INSTALL WIRING FOR CONTROL SYSTEMS IN CONJUNCTION WITH MECHANICAL AND MISCELLANEOUS EQUIPMENT.
- G. MAKE ALL GROUND, NEUTRAL, AND LINE CONNECTIONS TO RECEPTACLE AND WIRING DEVICE TERMINALS BY MEANS OF THE SIDE TERMINAL SCREW CONNECTIONS. DO NOT TERMINATE BRANCH CONDUCTORS TO THE DEVICE WITH BACKSIDE "PUSH-IN" CONNECTORS. PROVIDE GROUND JUMPER FROM OUTLET BOX TO GROUND TERMINAL OF RECEPTACLE.

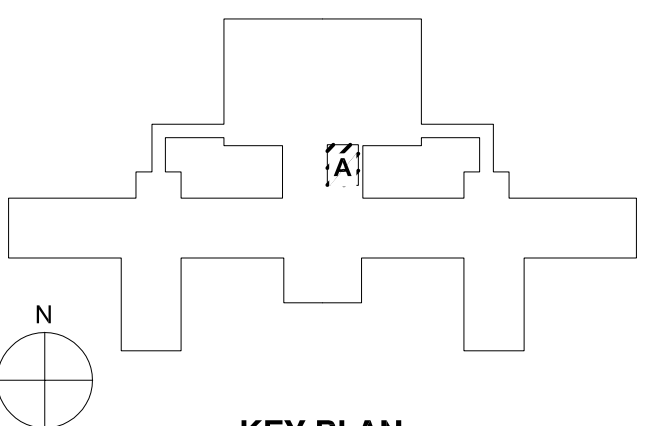
3.5 GROUNDING

- A. PROVIDE ALL BONDING JUMPERS AND WIRE, GROUNDING BUSHINGS, CLAMPS, FOR COMPLETE GROUNDING. INSTALL COMPLETE GROUNDING SYSTEM IN ACCORDANCE WITH NEC AND AS INDICATED.
- B. BOND CONDUIT SYSTEMS, SUPPORTS, CABINETS, EQUIPMENT, METALLIC CABLE TRAYS, INTERIOR METAL PIPING SYSTEMS, VENT STACKS, AND METAL AIR DUCTS TO EQUIPMENT GROUNDING CONDUCTORS OF ASSOCIATED PUMPS, FANS, BLOWERS, ELECTRIC HEATERS, AND AIR CLEANERS. BOND ALL HEATING AND VENTILATION DUCT RUNS CONTAINING FLEXIBLE JOINTS IN A MINIMUM OF TWO PLACES WITH BRAIDED-TYPE BONDING STRAPS AND GROUNDING LUGS. PROVIDE CONNECTIONS WITH A MACHINE SCREW, HEX NUT, AND LOCK WASHERS.
- C. GROUND CONNECTIONS SHALL HAVE CLEAN CONTACT SURFACES, TINNED AND SWEATED WHILE BOLTING.
- D. INSTALL ALL GROUND CONDUCTORS IN CONDUIT. PROVIDE A SEPARATE INSULATED GROUND CONDUCTOR IN ALL FEEDERS AND BRANCH CIRCUITS.
- E. PROVIDE A GROUND BUS IN ALL DISTRIBUTION EQUIPMENT, AND BRANCH-CIRCUIT PANELBOARDS.
- F. PROVIDE EXOTHERMIC WELDS, IF REQUIRED, BY CADWELD, OR THERMOWELD[, OR] APPROVED EQUAL).
- G. ROUTE GROUNDING CONDUCTORS TO PERMIT, AS FAR AS PRACTICABLE, THE SHORTEST AND MOST DIRECT PATH TO THE GROUND GRD SYSTEM.
- H. PROVIDE ALL GROUND CONNECTIONS TO EQUIPMENT OR STRUCTURE WITH SOLDERLESS CONNECTORS BOLTED TO THE EQUIPMENT OR STRUCTURE. UNLESS INDICATED OTHERWISE, EXOTHERMICALLY WELD ALL GROUNDING TAPS AND CONNECTIONS TO COLUMNS AND REINFORCING STEEL. BRAZE CONNECTIONS TO WIRE MESH, AND METAL DUCTS.
- I. IN ADDITION TO THE EQUIPMENT GROUND CONDUCTOR, GROUND ALL MOTOR FEEDERS AND MAIN FEEDERS THROUGH THE CONDUIT SYSTEM WITH A GROUNDING BUSHING AT EACH END. DIRECTLY BOND THE FRAMES OF STATONARY MOTORS TO LOCAL STEEL OR THE LOCAL GROUND GRD.

3.6 BOXES

- A. LOCATE OUTLET BOXES SO THAT TRANSMISSION OF SOUND THROUGH COMMON WALLS WILL NOT OCCUR.
- B. EXCEPT WHERE INDICATED OTHERWISE, MOUNT DEVICES IN ACCORDANCE WITH THE FOLLOWING:
1. CONVENIENCE RECEPTACLES: LONG AXIS VERTICALLY 18-INCHES AFF
2. LIGHT SWITCHES: 44-INCHES AFF
3. STANDARD VOICE/DATA: LONG AXIS VERTICALLY 18-INCHES AFF
4. VOICE/DATA OUTLET MARKED AS WALL: 44-INCHES AFF
- C. PROVIDE A GANG TYPE BOX WITH A GANG TYPE COVER WHERE TWO OR MORE SIMILAR TYPE DEVICES OCCUR ADJACENT TO EACH OTHER, WHERE DIFFERENT TYPE DEVICES OCCUR ADJACENT TO EACH OTHER, SPACE OUTLET BOXES SO THAT FINISH PLATES WILL BE SPACED 1 INCH APART.
- D. MOUNT TELEPHONE OUTLETS AT THE SAME HEIGHT AS ADJACENT RECEPTACLE OUTLETS, UNLESS NOTED OTHERWISE.
- E. DO NOT USE "BACK-TO-BACK" OUTLETS IN THE SAME WALL, OR "THRU-WALL" TYPE BOXES. PROVIDE (MINIMUM) 12-INCH-LONG NIPPLE TO OFFSET ALL OUTLETS SHOWN ON OPPOSITE SIDES OF A COMMON WALL TO MINIMIZE SOUND TRANSMISSION.
- F. PROVIDE SUITABLE BARRIERS TO SEPARATE SWITCH TERMINALS EXCEEDING 300V.
- G. PROVIDE PULL BOXES IN RACEWAY RUNS IN ACCESSIBLE LOCATIONS, AS REQUIRED BY NEC AND JOB CONDITIONS.
- H. PROUDLY INSTALL PULL BOXES TO PROPERLY COMPLETE THE SYSTEMS, AND IN THE LOCATIONS AS SHOWN ON THE DRAWINGS. IF REQUIRED BY THE OWNER, A/E, OR ENGINEER, OPEN BOX COVERS FOR INSPECTION.

END OF SECTION 26 00 105



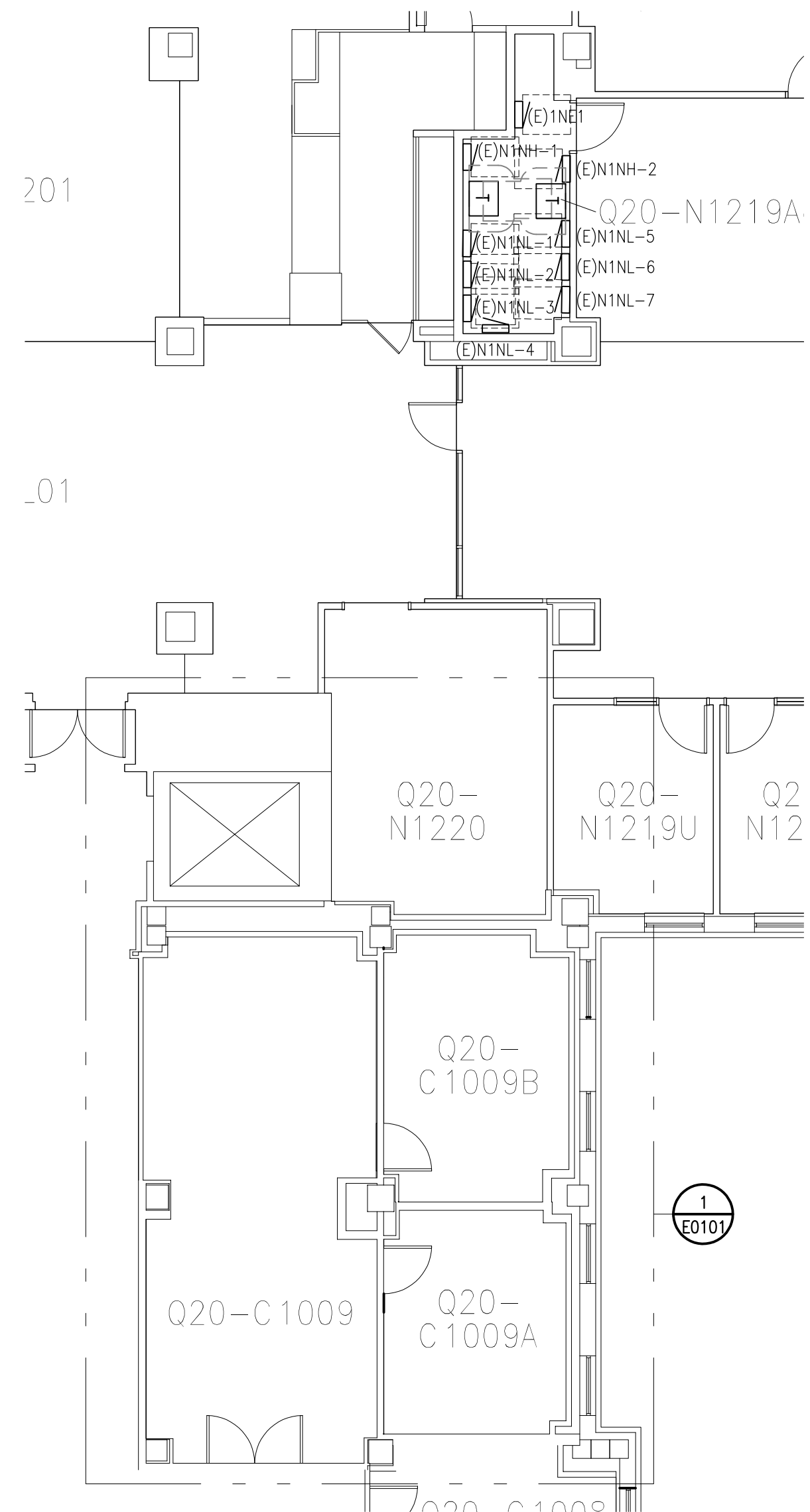
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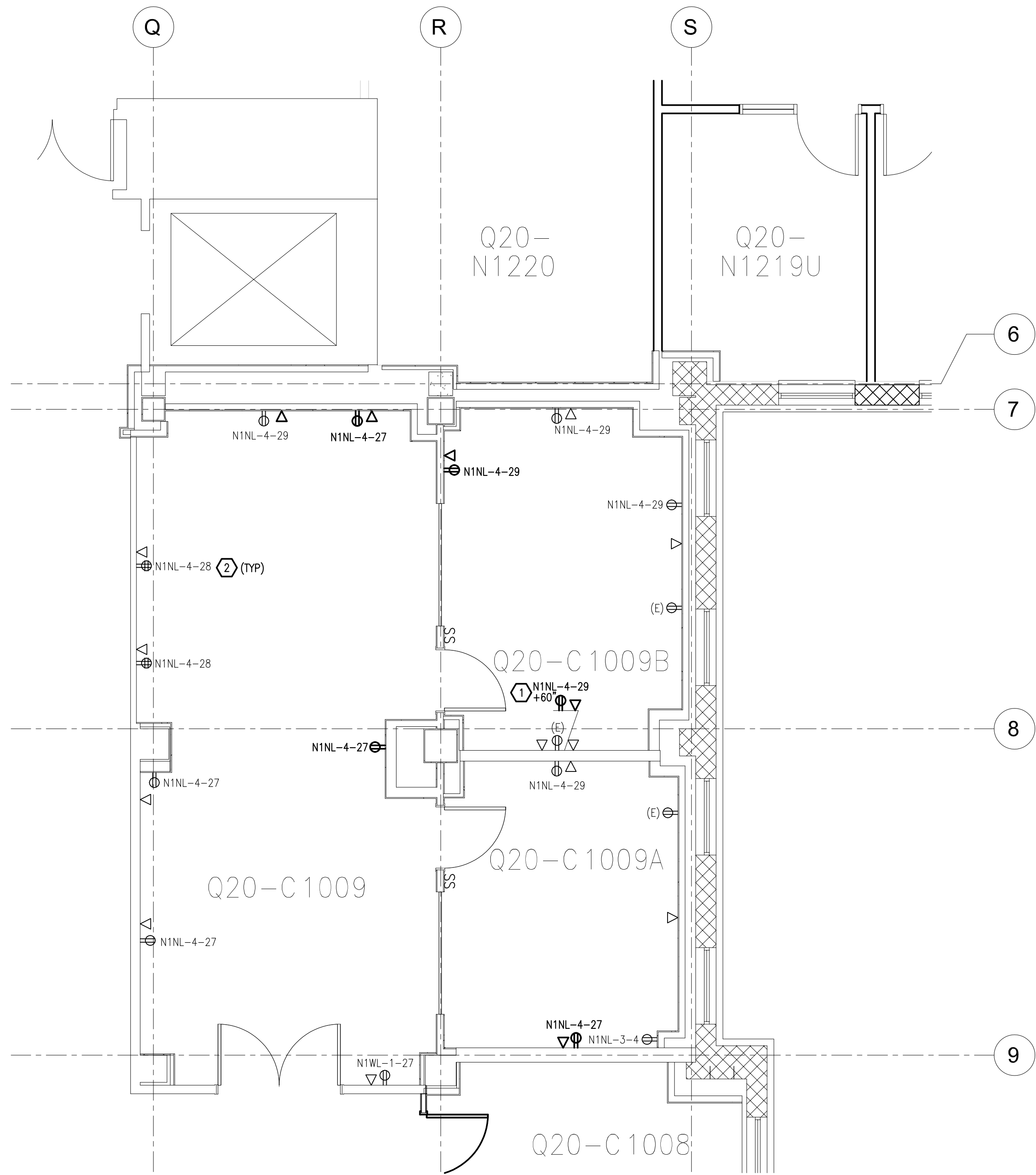
ELECTRICAL SPECIFICATIONS

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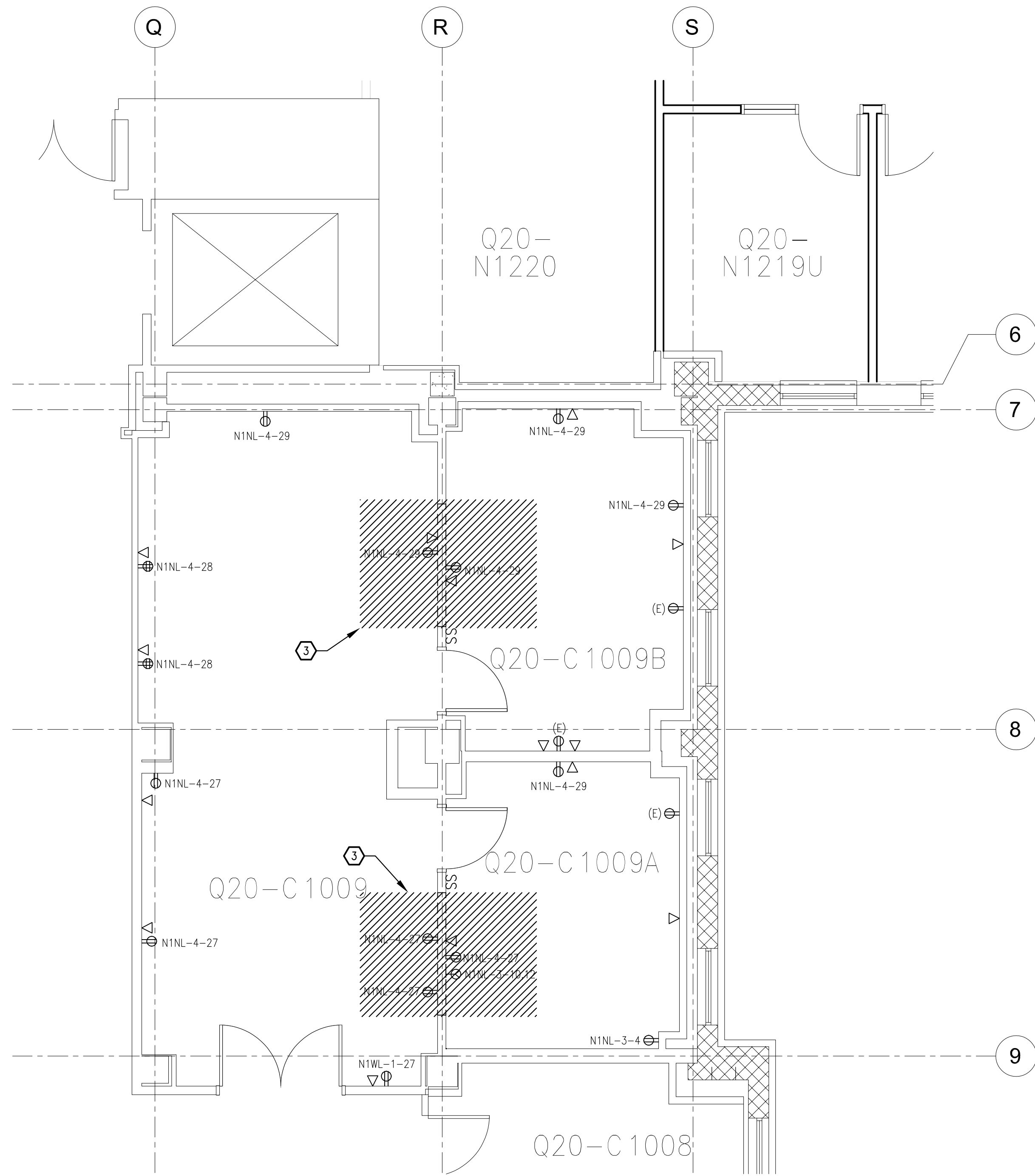
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1
E0101
ENLARGED ELECTRICAL FLOOR PLAN
SCALE: 1/8"=1'-0"



2
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ELECTRICAL FLOOR PLAN
SCALE: 1/4"=1'-0"



3
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ELECTRICAL DEMOLITION PLAN
SCALE: 1/4"=1'-0"

SHEET NOTES

1. LIGHT LINE WEIGHT INDICATES EXISTING. HEAVY LINE WEIGHT INDICATES NEW CONSTRUCTION. HATCHING INDICATES DEMOLITION.
2. PATCH AND PAINT ANY DAMAGED SURFACES DUE TO DEMOLITION AND CONSTRUCTION TO MATCH EXISTING CONDITIONS. SEAL ALL PENETRATIONS THROUGH RATED CEILINGS AND WALLS WITH UL LISTED SEALANTS AND FIRESTOPPING MATERIALS.
3. UPDATE PANEL SCHEDULES TO REFLECT INSTALLED CONDITIONS AFTER CONSTRUCTION IS COMPLETE.
4. EXISTING CIRCUIT INFORMATION SHOWN ON THE PLANS IS FOR REFERENCE ONLY. TRACE ALL EXISTING CIRCUITS AFFECTED BY THIS WORK TO CONFIRM SOURCE PANEL AND CIRCUIT NUMBERS.
5. THESE DRAWINGS HAVE BEEN PREPARED BASED ON INFORMATION PROVIDED BY OTHERS. DATA PRESENTED ON THIS DRAWING IS AS ACCURATE AS CAN BE DETERMINED, BUT ACCURACY IS NOT GUARANTEED. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER IS NEITHER RESPONSIBLE FOR ITS ACCURACY, NOR ERRORS NOR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO THESE DOCUMENTS. FIELD VERIFICATION OF ALL AFFECTED COMPONENTS IS REQUIRED.
6. NO ADDITIONAL ELECTRICAL LOAD ADDED IN THE SCOPE OF THIS PROJECT. 900VA REMOVED FROM PANEL N1NL-4 AND 900VA ADDED TO PANEL N1NL-4.

KEY NOTES

1. PROVIDE A CHIEF MANUFACTURING PAC-525/526 RECESSED LCD DISPLAY BOX FOR RECEPTACLE, A/V AND DATA DEVICES. MOUNT AS CLOSE AS POSSIBLE TO CENTERLINE OF LCD SCREEN TO AVOID CONFLICT WITH TV MOUNT. COORDINATE FINAL MOUNTING HEIGHT WITH THE OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN.
2. PANELBOARD NAMES WERE CHANGED AFTER THE DEVICES WERE LABELED. SEE ONE-LINE DIAGRAM FOR PREVIOUS AND CURRENT PANELBOARD NAMES.
3. WORK SHOWN HATCHED IS EXISTING TO BE REMOVED. REMOVE ALL DEVICES ON WALLS WHICH ARE REMOVED. WHERE DEVICES ARE REMOVED, REMOVE ASSOCIATED CIRCUIT CONDUCTORS TO THE NEXT DEVICE ON THE CIRCUIT WHICH REMAINS (MAINTAIN CIRCUIT CONTINUITY).

