

ELECTRICAL ABBREVIATIONS

AFP	ABOVE FINISHED FLOOR	INTLK	INTERLOCK
ACC	ACCESSORY	JCT	JUNCTION
ADO	AUTOMATIC DOOR OPERATOR	JB	JUNCTION BOX
AHU	AIR HANDLING UNIT	KW	KILOWATT
ATS	AUTOMATIC TRANSFER SWITCH	KWH	KILOWATT HOUR
BKR	BREAKER	KO	KNOCK OUT
BDB	BOTTOM OF BOX	LBL	LABEL
BOB	BOTTOM OF DECK	LT	LIGHT
BOS	BOTTOM OF STRUCTURE	LC	LIGHTING CONTROL
BP	BREAKER PANEL	LDM	LIGHTING CONTROL MODULE
BLG	BUILDING	LCP	LIGHTING CONTROL PANEL
CAP	CAPACITY	LTO	LIGHTING
CN	LIGHTING CONTROL INTENT NARRATIVE	MAX	MAXIMUM
CLG	CEILING	MJL	MAN JUMPING JUMPER
CNT	CIRCUIT	MCC	MOTOR CONTROL CENTER
CB	CIRCUIT BREAKER	MN	MINIMUM
C	CONDUIT	MTS	MANUAL TRANSFER SWITCH
COMM	COMMUNICATIONS	NEC	NATIONAL ELECTRICAL CODE
CONN	CONNECTION	NEG	NEGATIVE (-)
CONST	CONSTRUCTION	NC	NORMALLY CLOSED
CONTR	CONTRACT OR	NO	NORMALLY OPEN
CLL	CONTRACT LIMIT LINE	NA	NOT APPLICABLE
CT	CURRENT TRANSFORMER	NC	NOT IN CONTRACT
E.C.	ELECTRICAL CONTRACTING	NL	NIGHT LIGHT
EGC	EQUIPMENT GROUNDING CONDUCTOR	OCPO	OVERCURRENT PROTECTIVE DEVICE
EHD	ELECTRIC HAND DRYER	PC	PHOTOCELL / PHOTOCONTROL
EHC	ELECTRIC (A)	POS	POSITIVE (+)
EMC	ELECTRIC MOTOR COOLER	PWR	POWER
EM	EMERGENCY	P & L	POWER & LIGHTING
ENT	ENTRANCE	S	SURFACE
EQ	EQUAL	SBJ	SYSTEM BONDING JUMPER
EQP	EQUIPMENT	S.B.O.	SUPPLIED BY OTHERS
EST	ESTIMATE	SP	SINGLE POLE
EF	EXHAUST FAN	SPD	SURGE PROTECTION DEVICE
ETR	EXISTING TO REMAIN	SPKR	SPEAKER
EX	EXISTING	SPEC	SPECIFICATION
F	FLUSH	SBJ	SUPPLY-SIDE BONDING JUMPER
FA	FIRE ALARM	SUB	SUBSTITUTE
FSE	FOOD SERVICE EQUIPMENT	SWBD	SWITCHBOARD
FP	FIRE PROOF / FIRE PROTECTION	TEL	TELEPHONE
FUR	FLOOR	TSTAT	THERMOSTAT
FLUR	FLUORESCENT	XFRM	TRANSFORMER
GEN	GENERATOR	UG	UNDERGROUND
GEI	GROUNDING ELECTRODE CONDUCTOR	UL	UNDERWRITERS LABORATORIES
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	UH	UNIT HEATER
GRD	GROUND	UNO	UNLESS NOTED OTHERWISE
HORIZ	HORIZONTAL	VERT	VERTICAL
HTR	HEATER	W	WITH
HTG	HEATING	W/O	WITHOUT
HV	HEATING / VENTILATING	WG	WIRE GUARD
HVAC	HEATING, VENTILATING, AIR CONDITIONING	WL	WET LOCATION
HDA	HAND-OFF-AUTOMATIC	WP	WEATHER PROOF
HP	HEAT PUMP		

MAXIMUM CONDUCTOR LENGTHS FOR TYPICAL BRANCH CIRCUITS

CIRCUIT VOLTAGE	CONDUCTOR SIZE					
	#12 AWG	#10 AWG	#8 AWG	#6 AWG	#4 AWG	#4 AWG
120	60	100	150	245	385	
208	100	170	265	425	670	
277	135	230	355	565	890	
480	240	400	615	960		

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COMMUNICATIONS SYMBOL LEGEND

	COMMUNICATIONS OUTLET ROUGH-IN
	COMMUNICATIONS OUTLET, CEILING-MOUNTED
	COMMUNICATIONS OUTLET, FLOOR-MOUNTED
	CEILING-MOUNTED VIDEO PROJECTOR
	COMMUNICATIONS EQUIPMENT RACK, FLOOR-MOUNTED 2-POST
	COMMUNICATIONS EQUIPMENT RACK, FLOOR-MOUNTED 4-POST
	COMMUNICATIONS EQUIPMENT RACK, WALL-MOUNTED
	CONDUIT SLEEVES FOR COMMUNICATIONS CABLING, 3" DIA. OR EQUIV. FREE AREA TYP. UNLESS NOTED OTHERWISE. IN FIRE-RATED AND/OR SMOKE BARRIER WALLS, REFER TO SPECIFICATIONS FOR ACCEPTABLE FIRESTOP AND SMOKE SEAL PRODUCTS.
	LOUDSPEAKER, CEILING-MOUNTED, TYPE 1
	LOUDSPEAKER, WALL-MOUNTED, TYPE 1
	INTERCOM SYSTEM CALL STATION BUTTON
	VOLUME CONTROL FOR AUDIO SYSTEM, PAGING, OR INTERCOM LOUDSPEAKERS
	SECONDARY CLOCK, CEILING-MOUNTED, TYPE 1
	SECONDARY CLOCK, WALL-MOUNTED, TYPE 1
	SIGNALING BELL

NOTE: NOT ALL SYMBOLS ARE NECESSARILY USED

POWER SYMBOL LEGEND

	THREE PHASE MOTOR CONNECTION, 5 HORSEPOWER (EXAMPLE)
	SINGLE PHASE MOTOR CONNECTION, 12 HORSEPOWER (EXAMPLE)
	HVAC CONTROL, DAMPER ACTUATOR CONNECTION
	HVAC SMOKE DAMPER ACTUATOR CONNECTION
	HVAC COMBINATION FIRE/SMOKE DAMPER ACTUATOR CONNECTION
	SAFETY SWITCH DISCONNECTING MEANS, NOT FUSIBLE
	SAFETY SWITCH DISCONNECTING MEANS, FUSIBLE
	COMBINATION MOTOR STARTER AND FUSIBLE DISCONNECTING MEANS
	VARIABLE FREQUENCY DRIVE WITH INTEGRAL DISCONNECTING MEANS
	MOTOR STARTER
	BOX/COVER FUSIBLE DISCONNECT SWITCH
	MANUAL MOTOR CONTROLLER
	POWER SWITCH, REFER TO LIGHTING SYMBOL LEGEND FOR SIMILAR SWITCH TYPES
	DIRECT ELECTRICAL CONNECTION
	SINGLE NEMA 5-20R RECEPTACLE
	SINGLE NEMA 5-20R RECEPTACLE, CEILING-MOUNTED
	SINGLE NEMA 5-20R RECEPTACLE, FLOOR-MOUNTED
	DUPLEX NEMA 5-20R RECEPTACLE
	'E' NOTATION: REPLACE EXISTING WIRING DEVICE USING EXISTING OUTLET BOX
	'GFCI' NOTATION: GROUND FAULT CIRCUIT INTERRUPTER TYPE RECEPTACLE
	'S' NOTATION: SURFACE-MOUNTED
	'W' NOTATION: PROVIDE WEATHER-RESISTANT (WR) GFCI RECEPTACLE WITH EXTRA-DUTY WEATHER-USE WET LOCATION COVER
	DUPLEX NEMA 5-20R RECEPTACLE, CEILING-MOUNTED
	DUPLEX NEMA 5-20R RECEPTACLE, FLOOR-MOUNTED
	DUPLEX NEMA 5-20R RECEPTACLE, CONNECTED TO STANDBY POWER BRANCH CIRCUIT
	DUPLEX NEMA 5-20R RECEPTACLE, SPLIT-WIRED
	QUADRUPLIX (DOUBLE DUPLEX) NEMA 5-20R RECEPTACLE
	QUADRUPLIX (DOUBLE DUPLEX) NEMA 5-20R RECEPTACLE, CEILING-MOUNTED
	QUADRUPLIX (DOUBLE DUPLEX) NEMA 5-20R RECEPTACLE, FLOOR-MOUNTED
	RECEPTACLE OTHER THAN NEMA 5-20R (MAY BE MULTI-POLE OR MULTI-PHASE), SEE PLAN FOR TYPE
	RECEPTACLE OTHER THAN NEMA 5-20R (MAY BE MULTI-POLE OR MULTI-PHASE), SEE PLAN FOR TYPE, FLOOR-MOUNTED
	SURFACE RACEWAY SYSTEM
	AUTOMATIC TRANSFER SWITCH
	SWITCHBOARD / SWITCHGEAR
	PANELBOARD
	TRANSFORMER
	MOTOR CONTROL CENTER
	EMERGENCY STOP STATION, REFER TO DETAIL FOR REQUIREMENTS
	AUTOMATIC DOOR OPERATOR PUSH BUTTON
	ON/OFF PUSH BUTTON
	THREE-FUNCTION PUSH BUTTON
	FLOOR BOX, TYPE 1
	JUNCTION BOX
	METER
	THERMOSTAT ROUGH-IN
	RELAY
	ENCLOSED CONTROL CONTACTOR

NOTE: NOT ALL SYMBOLS ARE NECESSARILY USED

LIGHTING SYMBOL LEGEND

	SINGLE POLE TOGGLE SWITCH
	DOUBLE POLE TOGGLE SWITCH
	THREE-WAY TOGGLE SWITCH
	FOUR-WAY TOGGLE SWITCH
	SINGLE POLE SWITCH WITH INTEGRAL OCCUPANCY SENSOR
	SINGLE POLE SWITCH WITH INTEGRAL OCCUPANCY SENSOR AND DIMMER
	WALL-BOX DIMMER SWITCH
	THREE-WAY WALL-BOX DIMMER SWITCH
	ELECTRONIC INTERVAL TIMER SWITCH
	LIGHT SWITCH WITH PILOT LIGHT
	LIGHTING CONTROL SWITCH, REFER TO LIGHTING CONTROL SWITCH SCHEDULE AND SPECIFICATIONS FOR DETAILS
	DOUBLE-THROW (MAINTAINED) LIGHT SWITCH
	KEY OPERATED SWITCH (SUFFIX DESIGNATION - NONE, SINGLE POLE, 2, DOUBLE POLE, 3, THREE-WAY, 4, FOUR-WAY)
	LOCKING SWITCH (SUFFIX DESIGNATION - NONE, SINGLE POLE, 2, DOUBLE POLE, 3, THREE-WAY, 4, FOUR-WAY)
	TOUCHSCREEN PANEL
	CIRCUIT NUMBER FOR LIGHT FIXTURES WITHIN INDICATED SPACE
	WALL-MOUNTED LIGHTING FIXTURE, TYPE 'X'
	RECESSED LIGHTING FIXTURE, TYPE 'X'
	SURFACE-MOUNTED LIGHTING FIXTURE, TYPE 'X'
	TRACK LIGHTING
	SINGLE FACE EXIT SIGN, TYPE 'X' IN SCHEDULE UNLESS OTHERWISE NOTED, SHADING INDICATES FACE ORIENTATION
	DOUBLE FACE EXIT SIGN, TYPE 'X' IN SCHEDULE UNLESS OTHERWISE NOTED, SHADING INDICATES FACE ORIENTATION
	WALL-MOUNTED EXIT SIGN, SHADING INDICATES FACE ORIENTATION
	EMERGENCY LIGHT FIXTURE DESIGNATION
	EMERGENCY LIGHTING AUTOMATIC LOAD CONTROL RELAY
	LIGHTING CONTROL RELAY
	LIGHTING CONTROL ENCLOSED CONTACTOR
	TIME SWITCH
	LIGHTING CONTROL MODULE
	LIGHTING CONTROL PANEL
	EMERGENCY LIGHTING INVERTER, TYPE 1
	WALL-MOUNTED OCCUPANCY SENSOR
	CEILING-MOUNTED OCCUPANCY SENSOR
	WALL-MOUNTED PHOTOCELL FOR ON/OFF CONTROL
	CEILING-MOUNTED PHOTOCELL FOR ON/OFF CONTROL
	WALL-MOUNTED PHOTOSENSOR FOR DAYLIGHT HARVESTING DIMMING CONTROL
	CEILING-MOUNTED PHOTOSENSOR FOR DAYLIGHT HARVESTING DIMMING CONTROL
	POLE-MOUNTED SITE/AREA FIXTURE
	SELF-CONTAINED EMERGENCY LIGHTING UNIT

NOTE: NOT ALL SYMBOLS ARE NECESSARILY USED

FIRE DETECTION & ALARM SYMBOL LEGEND

	AUDIBLE NOTIFICATION APPLIANCE, WALL-MOUNTED
	VISUAL NOTIFICATION APPLIANCE, WALL-MOUNTED
	AUDIBLE/VISUAL NOTIFICATION APPLIANCE, WALL-MOUNTED
	AUDIBLE NOTIFICATION APPLIANCE, CEILING-MOUNTED
	VISUAL NOTIFICATION APPLIANCE, CEILING-MOUNTED
	AUDIBLE/VISUAL NOTIFICATION APPLIANCE, CEILING-MOUNTED
	FIRE PROTECTION OR ALARM BELL
	MANUAL PULL STATION
	SMOKE DETECTOR
	HEAT DETECTOR
	DUCT SMOKE DETECTOR
	CARBON MONOXIDE DETECTOR
	KEYED TEST SWITCH AND REMOTE INDICATOR FOR DUCT SMOKE DETECTOR
	FIRE PROTECTION FLOW SWITCH, PROVIDE SUPERVISED INPUT TO FIRE ALARM SYSTEM
	PRESSURE SWITCH, PROVIDE SUPERVISED INPUT TO FIRE ALARM SYSTEM
	FIRE PROTECTION TAMPER SWITCH, PROVIDE SUPERVISED INPUT TO FIRE ALARM SYSTEM
	ELECTROMAGNETIC DOOR HOLD-OPEN DEVICE
	ADDRESSABLE RELAY FOR FIRE ALARM CONTROL
	NOTIFICATION APPLIANCE CIRCUIT POWER SUPPLY
	FIRE ALARM REMOTE ANNUNCIATOR
	FIRE ALARM CONTROL PANEL
	WHERE 'WIRC' IS NOTED, PROVIDE LISTED WIRE GUARD OR PROTECTIVE POLYCARBONATE COVER FOR DAMAGE RESISTANCE OF ASSOCIATED DEVICE
	WHERE 'WL' IS NOTED, PROVIDE LISTED WET LOCATION VERSION OF ASSOCIATED DEVICE, SUITABLE FOR INDOOR OR OUTDOOR USE

NOTE: NOT ALL SYMBOLS ARE NECESSARILY USED

ELECTRONIC SAFETY / SECURITY SYMBOL LEGEND

	DOOR CONTACT
	ELECTRONIC LATCH
	ELECTRONIC STRIKE
	INTRUSION DETECTION KEYPAD
	INTERCOM STATION
	WALL-MOUNTED SURVEILLANCE CAMERA COMMUNICATIONS ROUGH-IN
	CEILING-MOUNTED SURVEILLANCE CAMERA COMMUNICATIONS ROUGH-IN
	WALL-MOUNTED SURVEILLANCE CAMERA, TYPE 1
	CEILING-MOUNTED SURVEILLANCE CAMERA, TYPE 1
	WALL-MOUNTED INFRARED MOTION DETECTOR
	CEILING-MOUNTED INFRARED MOTION DETECTOR
	WALL-MOUNTED ULTRASONIC MOTION DETECTOR
	CEILING-MOUNTED ULTRASONIC MOTION DETECTOR
	CARD READER
	CARD READER, MULLION-MOUNTED
	ACCESS CONTROL DOOR TAG, REFER TO HARDWARE SCHEDULE(S) IN SECTION 08 71 00 AND/OR SECTION 28 10 00 FOR FURTHER DETAILED REQUIREMENTS
	ACCESS CONTROL SYSTEM EQUIPMENT
	INTRUSION DETECTION SYSTEM EQUIPMENT
	POWER SUPPLY UNIT

NOTE: NOT ALL SYMBOLS ARE NECESSARILY USED

ELECTRICAL GENERAL NOTES

- ALL WORK SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE AS AMENDED AND ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION WHERE THE WORK IS PERFORMED.
- ALL "LOW-VOLTAGE" CONTROLS, COMMUNICATIONS, AND SAFETY/SECURITY CABLING MAY BE INSTALLED WITHOUT CONDUIT, RACEWAY, OR CABLE TRAY ONLY WHERE SPECIFIED ABOVE. SUBSIDIARY CEILING SYSTEM AND ACCESSIBLE FOR FUTURE MAINTENANCE. OTHERWISE, ALL CABLING (INCLUDING BUT NOT LIMITED TO CABLES ASSOCIATED WITH SYSTEMS SUCH AS ARCHITECTURAL, EQUIPMENT, BUILDING ENERGY MANAGEMENT, TEMPERATURE CONTROLS, LIGHTING CONTROLS, COMMUNICATIONS NETWORKS, TELEPHONE, AUDIO/VIDEO, INTERCOM, PAGING, CLOCK, SURVEILLANCE, ACCESS CONTROL, FIRE ALARM, ETC.) SHALL BE INSTALLED IN AN APPROVED CONDUIT, RACEWAY SYSTEM, AND/OR CABLE TRAY UNLESS OTHERWISE NOTED. IN EXPOSED STRUCTURE CEILING AREAS, CONCEALED INSTALLATION OF CABLES IN RACEWAYS SHALL BE REQUIRED FOR AESTHETIC REASONS. REFER TO REFLECTED CEILING PLANS FOR LOCATIONS. THIS APPLIES TO ALL TRADES AND WORK CATEGORIES. EXCEPTIONS:
 - DEDICATED MECHANICAL AND/OR ELECTRICAL ROOMS ABOVE 6' AFF.
 - DEDICATED TELECOMMUNICATIONS ROOMS.
- ALL DEVICES SHOWN TO BE INSTALLED ON EXISTING WALLS SHALL BE INSTALLED FLUSH OUT IN BOXES AND FISH WALLS WITH FLEXIBLE CONDUIT AS REQUIRED. DOCUMENT AND COORDINATE EXCEPTIONS WITH ARCHITECT/ENGINEER IN WRITING FOR REVIEW IN FIELD. IF WALL IS PROVEN NOT ABLE TO BE FISHED, PROVIDE SURFACE RACEWAY SYSTEMS PER SECTION 08 03 33. SHALL BE PROVIDED BY THE CONTRACTOR. SUCH COSTS SHALL BE INCLUDED IN BID. SURFACE-MOUNTED CONDUIT IS NOT ACCEPTABLE WHERE EXPOSED TO VIEW IN SPACES OTHER THAN DEDICATED MECHANICAL/ELECTRICAL ROOMS.
- "LOW-VOLTAGE" CONTROLS, COMMUNICATIONS, AND SAFETY/SECURITY CABLING SHALL NOT BE PAINTED. CONTRACTORS INSTALLING CABLING WHERE APPROVED FOR EXPOSED INSTALLATION SHALL INSTALL CABLES AFTER PAINTING HAS BEEN COMPLETED. DOCUMENT AND COORDINATE EXCEPTIONS WITH ARCHITECT/ENGINEER IN WRITING FOR REVIEW IN FIELD. IF WALL IS PROVEN NOT ABLE TO BE FISHED, PROVIDE SURFACE RACEWAY SYSTEMS PER SECTION 08 03 33. SHALL BE PROVIDED BY THE CONTRACTOR. SUCH COSTS SHALL BE INCLUDED IN BID. SURFACE-MOUNTED CONDUIT IS NOT ACCEPTABLE WHERE EXPOSED TO VIEW IN SPACES OTHER THAN DEDICATED MECHANICAL/ELECTRICAL ROOMS.
- METAL CLAD CABLE MAY BE USED FOR FIXTURE WIRMS IN LENGTHS OF 8 FEET OR LESS ABOVE AN ACCESSIBLE SUSPENDED CEILING SYSTEM ONLY. OTHERWISE, METAL CLAD OR OTHER FLEXIBLE CABLE TYPES SHALL NOT BE USED UNLESS SPECIFICALLY AUTHORIZED BY THE ENGINEER. IT IS THE INTENT OF THESE CONTRACT DOCUMENTS THAT ALL INSTALLED BRANCH CIRCUITS CONSIST OF SEPARATE RACEWAY AND CONDUCTORS ALLOWING REMOVAL AND REPLACEMENT OF WIRING AS REQUIRED FOR FUTURE UPGRADES. REFER TO SPECIFICATIONS FOR EXCEPTIONS.
- CIRCUIT WIRING FOR ARTICLE 770 EMERGENCY SYSTEMS AND ARTICLE 778 CRITICAL OPERATIONS SYSTEMS SHALL BE INSTALLED IN SEPARATE CONDUITS/RACEWAYS AND BE KEPT ENTIRELY INDEPENDENT OF ALL OTHER WIRING AND EQUIPMENT PER NEC REQUIREMENTS.
- ALL FEEDERS AND BRANCH CIRCUITS SHALL CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR SIZED ACCORDING TO THE NEC RACEWAYS INCLUDING CONDUITS, BOXES, WIREWAYS, ETC. SHALL NOT BE CONSIDERED AN ACCEPTABLE GROUND.
- CONDUITS AND CABLING SHALL NOT BE INSTALLED WITHIN 4" OF ROOF DECK, EXCEPT AS NECESSARY TO SERVE ROOF-MOUNTED ITEMS AND ONLY WHEN THE CONDUIT OR CABLE IS ROUTED VERTICALLY TO SUCH EQUIPMENT FROM BELOW. CLEARANCE SHALL BE PERMITTED TO BE REDUCED TO 1/2" WHERE SUPPLEMENTAL METAL FRAMING MEMBERS PROVIDE AN EFFECTIVE BARRIER BETWEEN THE ROOF DECK AND ANY CONDUIT/CABLING.
- SUPPLEMENTAL METAL FRAMING SHALL BE PROVIDED FOR SUSPENSION POINTS OF ALL ITEMS LOCATED BETWEEN STRUCTURAL MEMBERS (JOISTS, TRUSSES, BEAMS, ETC.) IN OPEN/VISIBLE STRUCTURE CEILING OR SUPPORT COLUMN AREAS. METAL FRAMING SHALL SPAN ACROSS THE TOP CHORD OR FLANGE OF OVERHEAD STRUCTURAL MEMBERS FOR BOTH STRUCTURAL AND AESTHETIC PURPOSES. SPECIFIC EXCEPTIONS SHALL BE COORDINATED IN WRITING WITH THE ARCHITECT/ENGINEER.
- CONDUIT INSTALLED WITHIN "INACCESSIBLE" CONSTRUCTION SHALL BE 3/4" MINIMUM SIZE.
- FEEDERS SHOWN ON DRAWINGS ARE SCHEMATIC ONLY. CONDUIT RUNS SHALL COMPLY WITH CONDUIT SPECIFICATIONS AND CONTAIN BUSES THAT ARE NO GREATER THAN 18 INCHES. CONDUITS INSTALLED ABOVE GRADE SHALL BE RUN PARALLEL TO, OR PERPENDICULAR TO, BUILDING STEEL, AND/OR ARCHITECTURAL LINES.
- CONTRACTORS SHALL VERIFY COLOR/FINISH OF WIRING DEVICES, FACE PLATES, SURFACE RACEWAY SYSTEMS, AND/OR MULTIDUPLICATION ASSEMBLIES WITH ARCHITECT/ENGINEER. IF NOT EXPLICITLY SPECIFIED.
- ELECTRICAL CONTRACTOR SHALL REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR ADDITIONAL INFORMATION REGARDING LIGHTING FIXTURE MOUNTING LOCATIONS, ARRANGEMENTS, AND CEILING FINISHES.
- ELECTRICAL CONTRACTOR SHALL ADJUST LIGHTING FIXTURE LOCATIONS IN MECHANICAL ROOMS TO ACCOMMODATE MECHANICAL EQUIPMENT, DUCTWORK, AND RELATED FIELD CONDITIONS.
- CONTRACTORS SHALL BE RESPONSIBLE TO REVIEW INTERIOR ELEVATION SHEETS FOR PLACEMENT OF DEVICE BOARDS. COORDINATE LOCATIONS THAT NO DEVICES ARE INSTALLED BEHIND CASEWORK, MILLWORK, VISUAL DISPLAY BOARDS, MIRRORS, CUSTOM GRAPHICS, SIGMAGE, ETC.
- ELECTRICAL CONTRACTOR SHALL REVIEW TOILET EQUIPMENT SHOP DRAWINGS AND ARCHITECTURAL DETAILS/ELEVATIONS FOR CORRECT DEVICE BOX ROUGH-IN LOCATION OF HAND DRYERS.
- ELECTRICAL CONTRACTOR SHALL COORDINATE WITH PLUMBING CONTRACTOR AND THE ELECTRIC WATER COOLER BOTTLE FILLER SHOP DRAWINGS FOR MOUNTING HEIGHT AND CONNECTION METHOD OF PLUMBING EQUIPMENT POWER CONNECTIONS. READILY ACCESSIBLE GFCI PROTECTION SHALL BE PROVIDED FOR THE BRANCH CIRCUIT(S) SUPPLYING ALL SUCH UNITS PER NEC REQUIREMENTS.
- REFER TO MECHANICAL EQUIPMENT SCHEDULE FOR DETAILED INFORMATION REGARDING EQUIPMENT AND CONTROLS. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING AND PROVIDING ITEMS AS SPECIFICALLY LISTED AND ASSIGNED ON MECHANICAL EQUIPMENT SCHEDULE SUCH AS DISCONNECT SWITCHES, VARIABLE FREQUENCY DRIVES, STARTERS, TIMERS, SWITCHES, ETC.
- ELECTRICAL CONTRACTOR

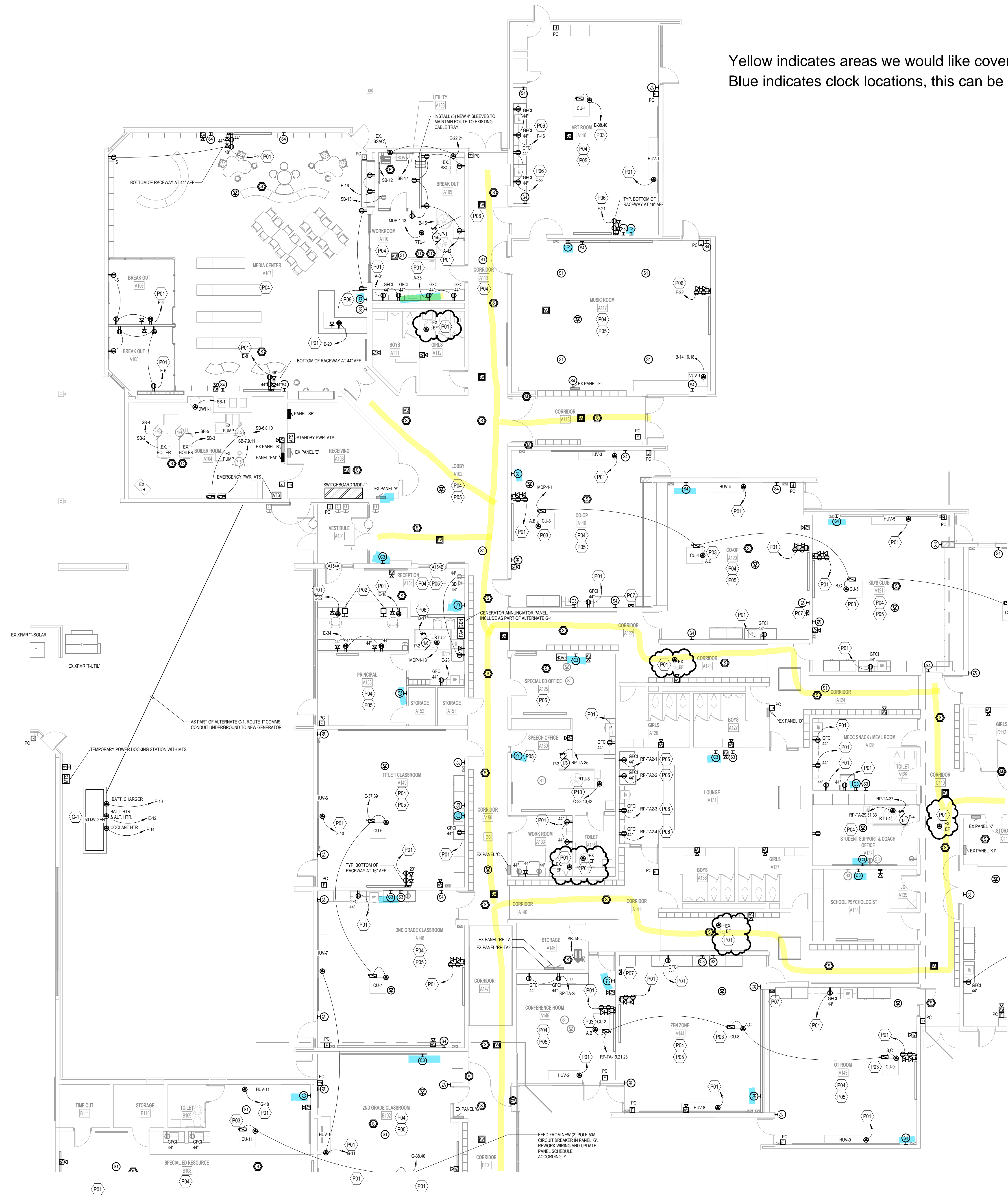
Yellow indicates areas we would like coverage
 Blue indicates clock locations, this can be adjusted if necessary.

POWER & COMMUNICATION GENERAL NOTES

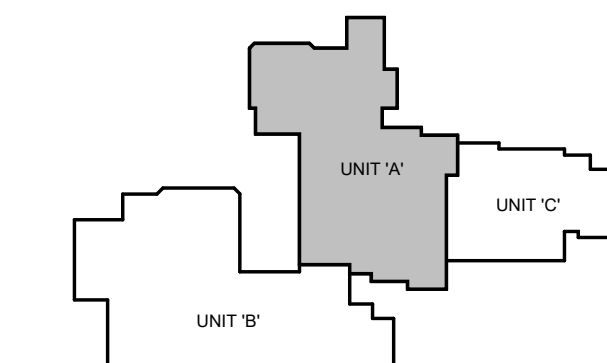
- REFER TO ELECTRICAL GENERAL NOTES ON SHEET 0001
- REFER TO CODE COMPLIANCE PLAN FOR LOCATIONS AND RATINGS OF VERTICAL AND HORIZONTAL BUILDING ASSEMBLIES. PROVIDE APPROPRIATE FIRESTOPPING SYSTEMS PER SPECIFICATIONS TO MEET ALL APPLICABLE CODES.
- ALL GENERAL USE 15- AND 20-AMPERE, 125- AND 250-VOLT NON-LOCKING RECEPTACLES SHALL BE TAMPER RESISTANT TYPE. REFER TO NEC-408.12 AND SPECIFICATION SECTION 26 27 26.
- PROVIDE 120VAC POWER FOR ALL SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS.
 - CONNECT TO DEDICATED 20A BRANCH CIRCUIT (WITH BREAKER LOCKOUT ACCESSORY LOCAL PANEL/BOARD FOR DAMPERS) IN EACH AREA (DAMPERS MAY BE GROUPED ON EACH CIRCUIT).
 - TERMINATE W/ BOX COVER FUSIBLE DISCONNECT SWITCH AT EACH DAMPER.
 - PROVIDE FIRE ALARM DUCT SMOKE DETECTOR WITHIN 5 FEET OF EACH DAMPER UNLESS COVERED BY ANOTHER DUCT DETECTOR WITHIN 5 FEET.
 - PROVIDE FIRE ALARM ADDRESSABLE RELAYS FOR INTERLOCKING DAMPER W/ CORRESPONDING HVAC UNITS) PER CODE REQUIREMENTS.
- PROVIDE BOX-COVER FUSIBLE DISCONNECT SWITCH (ON BUILDING INTERIOR IN ACCESSIBLE LOCATION) FOR EACH SMALL (< 1/2 HP) MECHANICAL AND/OR PLUMBING EQUIPMENT MOTOR LOAD WHERE MORE THAN ONE UNIT IS CONNECTED TO A COMMON BRANCH CIRCUIT. TYPICAL EQUIPMENT TYPES INCLUDE BUT ARE NOT LIMITED TO CABINET HEATERS, DAMPERS, EXHAUST FANS, FAN COIL UNITS, PUMPS, UNIT HEATERS, VAV BOXES, ETC.
- DESIGNATED CABLE PATHWAYS (CONDUITS, CABLE TRAYS, PENETRATION SLEEVES, ETC.) SHALL BE RESERVED FOR DIV. 27 COMMUNICATIONS CABLEING AND DIV. 28 SAFETY SECURITY CABLEING ONLY. OTHER CABLEING TYPES, SUCH AS DIV. 23 CONTROL, DIV. 25 CONTROLS, AND ARCHITECTURAL EQUIPMENT CABLEING SHALL BE SUPPORTED AND SLEEVED BY OTHER INDEPENDENT PATHWAYS, HANGERS, AND SUPPORTS.
- CONSOLIDATE ALL POWER SUPPLIES REQUIRED FOR ELECTRONIC DOOR HARDWARE (REF. SECTION 08 71 00) TO CENTRAL LOCATION(S) ADJACENT TO DESIGNATED ACCESS CONTROL EQUIPMENT LOCATION(S). CONNECT ALL POWER SUPPLIES TO DEDICATED STANDBY POWER SYSTEM BRANCH CIRCUIT(S) AS DESIGNATED FOR CONTINUED OPERATION UNDER LOSS OF UTILITY POWER.
- COORDINATE INSTALLATION OF ALL OWNER PROVIDED, OWNER INSTALLED CEILING AND WALL MOUNTED SPEAKERS, WAPS, CLOCKS, AV, AND OTHER COMMUNICATIONS DEVICES WITH OWNER.

ELECTRICAL KEYNOTES

G-1	INCLUDE GENERATOR AND ASSOCIATED DEVICES, CIRCUITS, AND DISTRIBUTION EQUIPMENT AS PART OF ALTERNATE G-1.
P01	CONNECT TO EXISTING NEARBY CIRCUIT FROM DEMO.
P02	INSTALL MOMENTARY DOOR UNLOCK PUSHBUTTON MAINTAINED FROM DEMO. UPDATE PANEL SCHEDULES ACCORDINGLY.
P03	CONNECT TO EXISTING NEARBY CIRCUIT FROM DEMO. INSTALL FUSIBLE DISCONNECT SWITCH MAINTAINED FROM DEMO.
P04	(TYP) SPEAKERS, WIRELESS ACCESS POINTS, PROJECTORS, AND MOUNTING HARDWARE TO BE PROVIDED AND INSTALLED BY OWNER. LOCATIONS AND AMOUNTS ARE APPROXIMATE. COORDINATE FINAL LOCATIONS AND AMOUNTS WITH OWNER PRIOR TO BEGIN.
P05	(TYP) CLOCKS TO BE PROVIDED AND INSTALLED BY OWNER. REUSE EXISTING CONDUIT AND BOXES UNLESS NOTED OTHERWISE.
P06	CONNECT CIRCUIT TO EXISTING 1 POLE 20A CIRCUIT BREAKER IN PANEL. UPDATE PANEL SCHEDULES ACCORDINGLY.
P07	INSTALL DUAL CHANNEL SURFACE RACEWAY MAINTAINED FROM DEMO. EXTEND EXISTING CIRCUIT TO NEW LOCATION.
P09	PROVIDE ROUGH-IN FOR NEW 3 POLE 30A CIRCUIT BREAKER IN PANEL WITH OWNER PRIOR TO INSTALL.
P10	CONNECT CIRCUIT TO NEW 3 POLE 30A CIRCUIT BREAKER IN PANEL 'C'. UPDATE PANELBOARD SCHEDULES ACCORDINGLY.



UNIT 'A' FIRST FLOOR POWER & COMMUNICATIONS PLAN
 1/8" = 1'-0"



ISSUANCES
 11.25.2024 BIDS & CONSTRUCTION
 12.05.2024 ADDENDUM 001

DRAWN B/JF
 REVIEWED JDM

PROJECT NO. 5-6370

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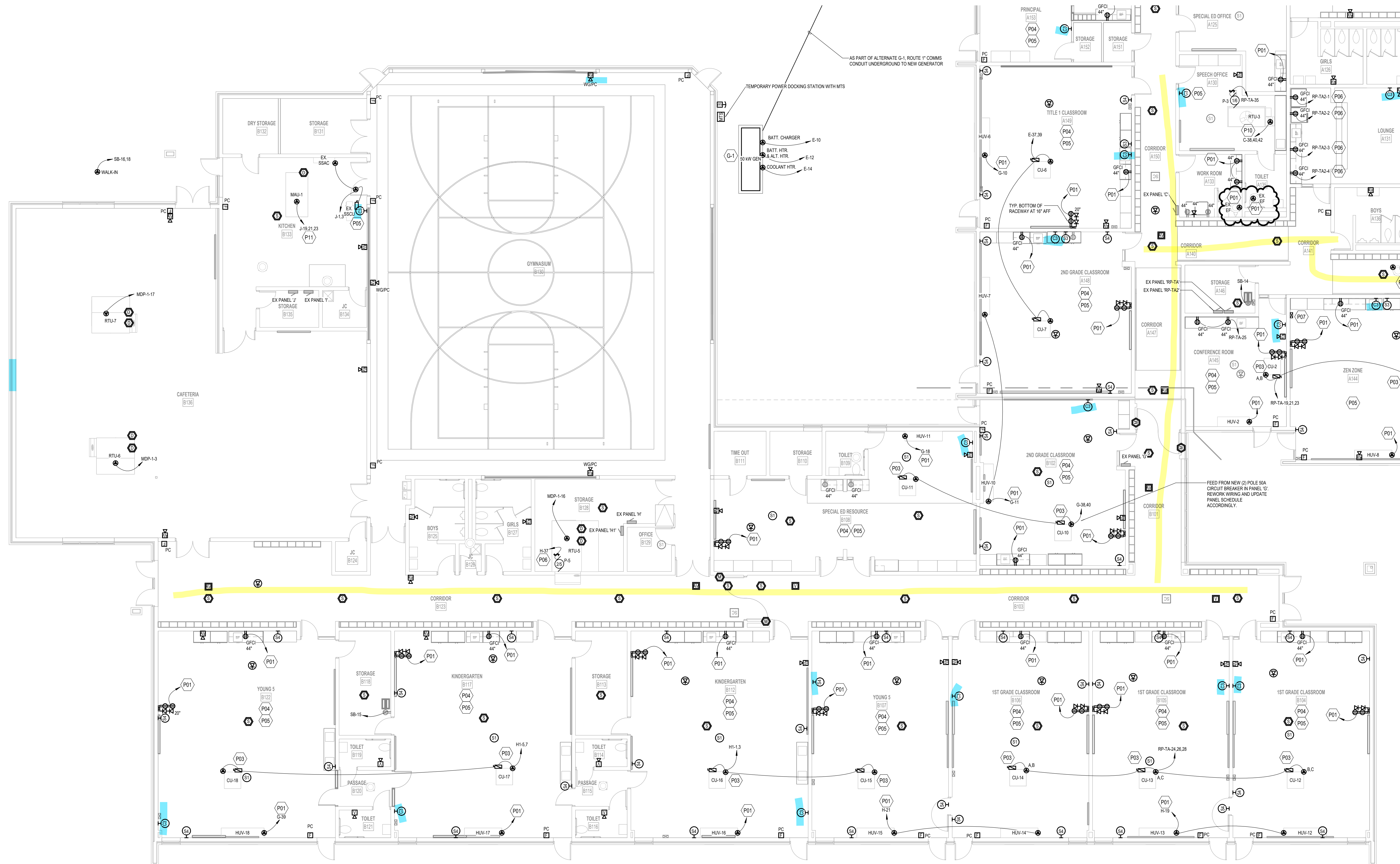
UNIT 'A' FIRST FLOOR POWER & COMMUNICATIONS PLAN

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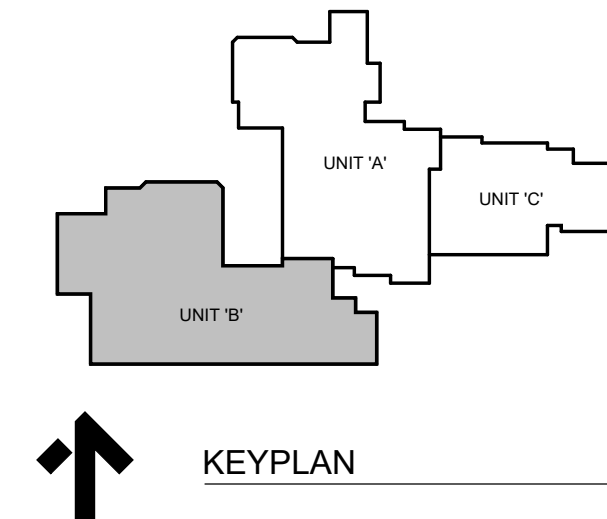
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- REFER TO ELECTRICAL GENERAL NOTES ON SHEET 0001.
- REFER TO CODE COMPLIANCE PLAN FOR LOCATIONS AND RATINGS OF VERTICAL AND HORIZONTAL BUILDING ASSEMBLIES. PROVIDE APPROPRIATE FIRESTOPPING SYSTEMS PER SPECIFICATIONS TO MEET ALL APPLICABLE CODES.
- ALL GENERAL USE 15- AND 20-AMPERE, 125- AND 250-VOLT NON-LOCKING RECEPTACLES SHALL BE TAMPER-RESISTANT TYPE. REFER TO NEC 408.12 AND SPECIFICATION SECTION 26 27 26.
- PROVIDE 120VAC POWER FOR ALL SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS.
 - CONNECT TO DEDICATED 20A BRANCH CIRCUIT (WITH BREAKER LOCK-ON ACCESSORY) IN LOCAL PANEL BOARD FOR DAMPERS IN EACH AREA. (DAMPERS MAY BE GROUPED ON EACH CIRCUIT).
 - TERMINATE IN W-BOX COVER FUSIBLE DISCONNECT SWITCH AT EACH DAMPER.
 - PROVIDE FIRE ALARM DUCT SMOKE DETECTOR WITHIN 5 FEET OF EACH DAMPER UNLESS COVERED BY ANOTHER DUCT DETECTOR WITHIN 5 FEET).
 - PROVIDE FIRE ALARM ADDRESSABLE RELAY(S) FOR INTERLOCKING DAMPER W/ CORRESPONDING HVAC UNITS PER CODE REQUIREMENTS.
- PROVIDE BOX COVER FUSIBLE DISCONNECT SWITCH (ON BUILDING INTERIOR IN ACCESSIBLE LOCATION) FOR EACH SMALL (< 1/2 HP) MECHANICAL AND/OR PLUMBING EQUIPMENT MOTOR LOAD WHERE MORE THAN ONE UNIT IS CONNECTED TO A COMMON BRANCH CIRCUIT. TYPICAL EQUIPMENT TYPES INCLUDE BUT ARE NOT LIMITED TO CABINET HEATERS, DAMPERS, EXHAUST FANS, FAN COIL UNITS, PUMPS, UNIT HEATERS, VAV BOXES, ETC.
- DESIGNATED CABLE PATHWAYS (CONDUITS, CABLE TRAYS, PENETRATION SLEEVES, ETC.) SHALL BE RESERVED FOR DIV. 27 COMMUNICATIONS CABLEING AND DIV. 28 SAFETY/SECURITY CABLEING ONLY. OTHER CABLEING TYPES, SUCH AS DIV. 23 CONTROLS, DIV. 28 CONTROLS, AND ARCHITECTURAL EQUIPMENT CABLEING SHALL BE SUPPORTED AND SLEEVED BY OTHER INDEPENDENT PATHWAYS, HANGERS, AND SUPPORTS.
- CONSOLIDATE ALL POWER SUPPLIES REQUIRED FOR ELECTRONIC DOOR HARDWARE (REF. SECTION 08 71 00) TO CENTRAL LOCATIONS ADJACENT TO DESIGNATED ACCESS CONTROL EQUIPMENT LOCATIONS. CONNECT ALL POWER SUPPLIES TO DEDICATED STANDBY POWER SYSTEM BRANCH CIRCUITS AS DESIGNATED FOR CONTINUED OPERATION UNDER LOSS OF UTILITY POWER.
- COORDINATE INSTALLATION OF ALL OWNER PROVIDED, OWNER INSTALLED CEILING AND WALL MOUNTED SPEAKERS, WAPS, CLOCKS, AV, AND OTHER COMMUNICATIONS DEVICES WITH OWNER.

ELECTRICAL KEYNOTES	
G-1	INCLUDE GENERATOR AND ASSOCIATED DEVICES, CIRCUITS, AND DISTRIBUTION EQUIPMENT AS PART OF ALTERNATE G-1.
P01	CONNECT TO EXISTING NEARBY CIRCUIT FROM DEMO.
P03	CONNECT TO EXISTING NEARBY CIRCUIT FROM DEMO. INSTALL FUSIBLE DISCONNECT SWITCH MAINTAINED FROM DEMO.
P04	(TYP) SPEAKERS, WIRELESS ACCESS POINTS, PROJECTORS, AND MOUNTED HARDWARE TO BE PROVIDED AND INSTALLED BY OWNER. LOCATIONS AND AMOUNTS ARE APPROXIMATE. COORDINATE FINAL LOCATIONS AND AMOUNTS WITH OWNER PRIOR TO BEGINNING.
P05	(TYP) CLOCKS TO BE PROVIDED AND INSTALLED BY OWNER. REUSE EXISTING CONDUIT AND BOXES UNLESS NOTED OTHERWISE.
P06	CONNECT CIRCUIT TO EXISTING 1 POLE 20A CIRCUIT BREAKER IN PANEL. UPDATE PANEL SCHEDULES ACCORDINGLY.
P07	INSTALL DUAL CHANNEL SURFACE RECEPTACLE MAINTAINED FROM DEMO. EXTEND EXISTING CIRCUIT TO NEW LOCATION.
P10	CONNECT CIRCUIT TO NEW 3 POLE 50A CIRCUIT BREAKER IN PANEL 'C'. UPDATE PANELBOARD SCHEDULES ACCORDINGLY.
P11	CONNECT CIRCUIT TO NEW 3 POLE 100A CIRCUIT BREAKER IN PANEL 'J'. UPDATE PANELBOARD SCHEDULES ACCORDINGLY.



UNIT 'B' FIRST FLOOR POWER & COMMUNICATIONS PLAN
1/8" = 1'-0"



LUTHER C. KLAGER ELEMENTARY RENOVATIONS
MANCHESTER COMMUNITY SCHOOLS
 MANCHESTER, MICHIGAN

ISSUANCES
 11.25.2024 BIDS & CONSTRUCTION
 12.05.2024 ADDENDUM 001

DRAWN B/JF
 REVIEWED JDM

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UNIT 'B' FIRST FLOOR POWER & COMMUNICATIONS PLAN

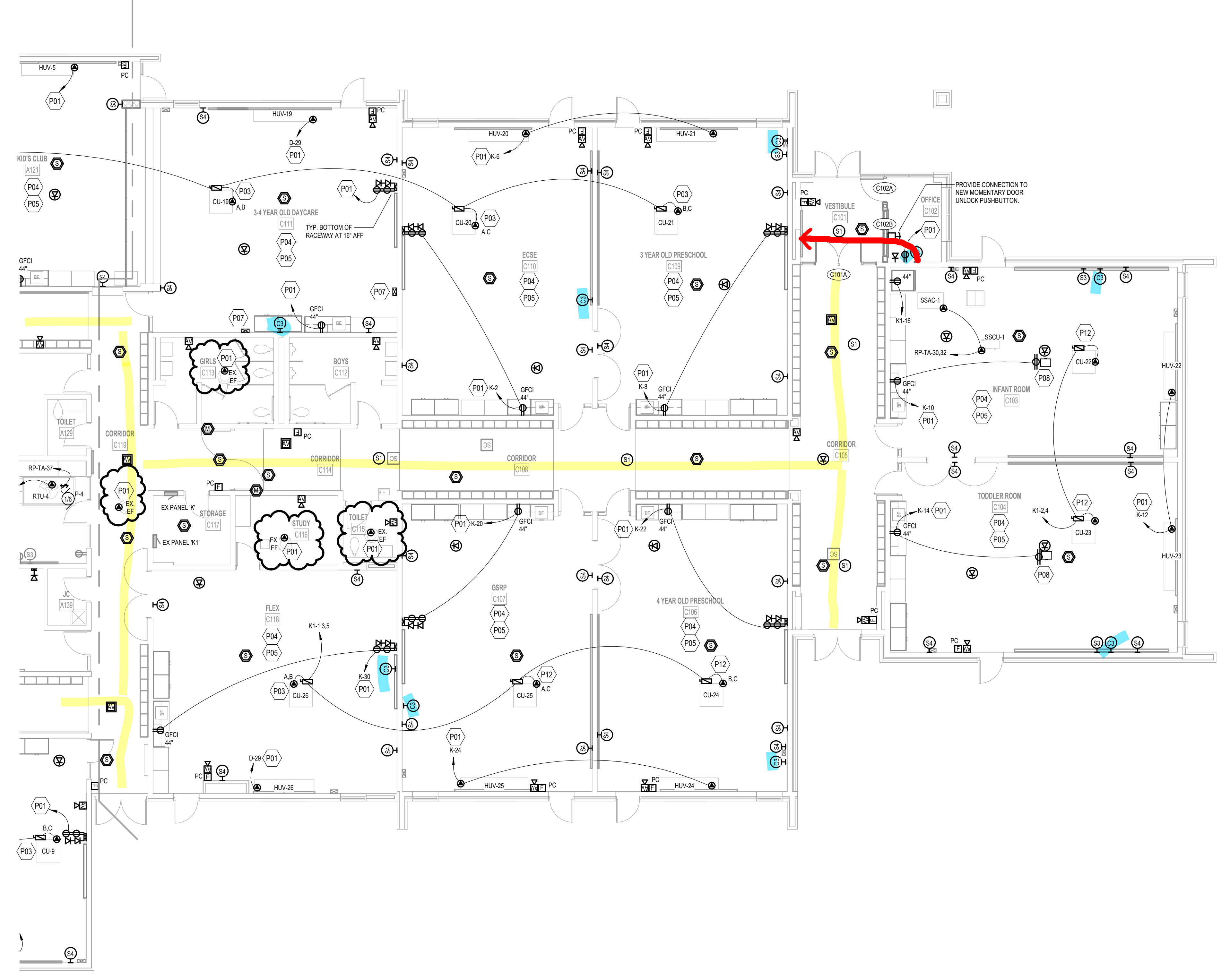
E2.1B

Yellow indicates areas we would like coverage
 Blue indicates clock locations, this can be adjusted if necessary.
 Red indicates a move from the original wiring diagram.

POWER & COMMUNICATION GENERAL NOTES

- REFER TO ELECTRICAL GENERAL NOTES ON SHEET **EM01**
- REFER TO CODE COMPLIANCE PLAN FOR LOCATIONS AND RATINGS OF VERTICAL AND HORIZONTAL BUILDING ASSEMBLIES. PROVIDE APPROPRIATE FIRESTOPPING SYSTEMS PER SPECIFICATIONS TO MEET ALL APPLICABLE CODES.
- ALL GENERAL USE 15 AND 20 AMPERE, 125 AND 250 VOLT NON-LOCKING RECEPTACLES SHALL BE TAMPER-RESISTANT TYPE. REFER TO NEC 408.12 AND SPECIFICATION SECTION 26 27 26.
- PROVIDE 120VAC POWER FOR ALL SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS.
 - CONNECT TO DEDICATED 20A BRANCH CIRCUIT (WITH BREAKER LOCK-OUT ACCESSORY IN LOCAL PANELBOARD FOR DAMPERS) IN EACH AREA (DAMPERS MAY BE GROUPED ON EACH CIRCUIT).
 - TERMINATE W/ BOX-COVER FUSIBLE DISCONNECT SWITCH AT EACH DAMPER.
 - PROVIDE FIRE ALARM DUCT SMOKE DETECTOR WITHIN FEET OF EACH DAMPER UNLESS COVERED BY ANOTHER DUCT DETECTOR WITHIN 5 FEET).
 - PROVIDE FIRE ALARM ADDRESSABLE RELAY(S) FOR INTERLOCKING DAMPER W/ CORRESPONDING HVAC UNIT(S) PER CODE REQUIREMENTS.
- PROVIDE BOX-COVER FUSIBLE DISCONNECT SWITCH (ON BUILDING INTERIOR IN ACCESSIBLE LOCATION) FOR EACH SMALL (< 1/2 HP) MECHANICAL AND/OR PLUMBING EQUIPMENT MOTOR LOAD WHERE MORE THAN ONE UNIT IS CONNECTED TO A COMMON BRANCH CIRCUIT. TYPICAL EQUIPMENT TYPES INCLUDE BUT ARE NOT LIMITED TO CABINET HEATERS, DAMPERS, EXHAUST FANS, FAN COILS, UNITS, PUMPS, UNIT HEATERS, VAV BOXES, ETC.
- DESIGNATED CABLING PATHWAYS (CONDUITS, CABLE TRAYS, PENETRATION SLEEVES, ETC.) SHALL BE RESERVED FOR DIV. 27 COMMUNICATIONS CABLING AND DIV. 28 SAFETY/SECURITY CABLING ONLY. OTHER CABLING TYPES, SUCH AS DIV. 23 CONTROLS, DIV. 25 CONTROLS, AND ARCHITECTURAL EQUIPMENT CABLING SHALL BE SUPPORTED AND SLEEVED BY OTHER INDEPENDENT PATHWAYS, HANGERS, AND SUPPORTS.
- CONSOLIDATE ALL POWER SUPPLIES REQUIRED FOR ELECTRONIC DOOR HARDWARE (REF. SECTION 08 71 01) TO CENTRAL LOCATION(S) ADJACENT TO DESIGNATED ACCESS CONTROL EQUIPMENT LOCATION(S). CONNECT ALL POWER SUPPLIES TO DEDICATED STANDBY POWER SYSTEM BRANCH CIRCUIT(S) AS DESIGNATED FOR CONTINUED OPERATION UNDER LOSS OF UTILITY POWER.
- COORDINATE INSTALLATION OF ALL OWNER PROVIDED, OWNER INSTALLED CEILING AND WALL MOUNTED SPEAKERS, WAPS, CLOCKS, AV, AND OTHER COMMUNICATIONS DEVICES WITH OWNER.

ELECTRICAL KEYNOTES	
	CONNECT TO EXISTING NEARBY CIRCUIT FROM DEMO.
	CONNECT TO EXISTING NEARBY CIRCUIT FROM DEMO. INSTALL FUSIBLE DISCONNECT SWITCH MAINTAINED FROM DEMO.
	(TYP) SPEAKERS, WIRELESS ACCESS POINTS, PROJECTORS, AND MOUNTING HARDWARE TO BE PROVIDED AND INSTALLED BY OWNER. LOCATIONS AND HANGERS ARE APPROPRIATE. COORDINATE FINAL LOCATIONS AND AMOUNT WITH OWNER PRIOR TO ROUGH-IN.
	(TYP) CLOCKS TO BE PROVIDED AND INSTALLED BY OWNER. REUSE EXISTING CONDUIT AND BOXES UNLESS NOTES OTHERWISE.
	INSTALL DUAL CHANNEL SURFACE RACEWAY MAINTAINED FROM DEMO. EXTEND EXISTING CIRCUIT TO NEW LOCATION.
	COORDINATE FINAL LOCATION OF PROJECTOR MOUNT WITH OWNER PRIOR TO ROUGH-IN.
	CONNECT TO EXISTING NEARBY CIRCUIT FROM DEMO. PROVIDE AND INSTALL NEW 20A FUSIBLE DISCONNECT SWITCH AT UNIT.



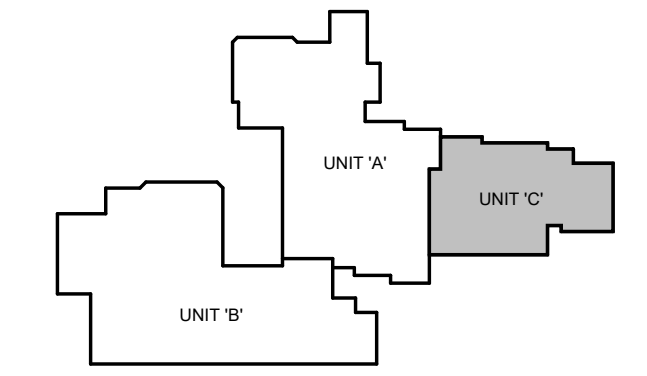
UNIT 'C' FIRST FLOOR POWER & COMMUNICATIONS PLAN
 1/8" = 1'-0"

LUTHER C. KLAGER ELEMENTARY RENOVATIONS
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KEYPLAN

UNIT 'C' FIRST FLOOR POWER & COMMUNICATIONS PLAN

E2.1C