30 ALL WORK MUST BE COMPLETED IN A NEAT AND PROFESSIONAL MANNER. THE WORK SITE SHALL BE KEPT CLEAN AND ALL DAMAGE TO OWNER'S PROPERTY REPAIRED. I. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONDUCTING A FINAL CLEANUP OF TH WORK SITE PRIOR TO FINAL SYSTEM ACCEPTANCE.

2. CONTRACTOR SHALL REMOVE ALL COPPER, FIBER AND COAXIAL CABLES ABANDONED IN CONDUIT, CEILINGS AND WALLS PER CEC. CABLE SHALL INCLUDE ALL INTRABUILDING, RISER SYSTEMS AND STATION CABLES FOR ALL LOW VOLTAGE/TECHNOLOGY/STRUCTURED CABLING SYSTEMS.

3. CONTRACTOR(S) SHALL VERIFY ALL SITE CONDITIONS PRIOR TO BID.

34. IN ACCESSIBLE CEILING SPACES; THE CONTRACTOR SHALL PROVIDE THE REQUIRED STUB UP(S) / OUT(S) AND BOXES WIT MUD-RINGS TO THE NEAREST ACCESSIBLE CEILING SPACE AND / OR NEAREST

TECHNOLOGY PATHWAY INFRASTRUCTURE, REFERENCE PLANS AND SPECIFICATION

THE DESIGNATED SCS / TECHNOLOGY CONTRACTOR(S) SHALL PROVIDE A J-HOOK PATHWAY SYSTEM AND REQUIRED SLEEVES. DO NOT USE CEILING TILE WIRE HANGERS, WATER OR ELECTRICAL PIPES. OR LIGHT FIXTURES TO HANG CABLE. CABLE MUST BE A MINIMUM OF 6 INCHES ABOVE THE CEILING TILE AND MUST NOT COME WITHIN TWELVE INCHES OF A LIGHT FIXTURE.

THE SCS / TECHNOLOGY CONTRACTOR WILL PROVIDE THE PATHWAY REQUIRED FOR THE STRUCTURE CABLING SYSTEMS.

THE DESIGNATED LOW VOLTAGE / TECHNOLOGY CONTRACTOR(S) FOR EACH "SUB-SYSTEM WILL PROVIDE THE PATHWAY REQUIRED FOR THE SYSTEMS, OUTSIDE WHAT IS CONSIDERED THE STRUCTURED CABLING SYSTEM.

5. IN INACCESSIBLE AND HARDLID CEILING SPACES;

FOR MORE INFORMATION.

THE CONTRACTOR SHALL PROVIDE ALL CONDUIT PATHWAYS BOXES FTC. FOR A COMPLETE SYSTEM FROM THE MDF ROOM IDE ROOM(S) IDE CABINET(S) AND ALL OTHER LOW VOLTAGE / TECHNOLOGY SYSTEMS HEADEND, CABINETS, TERMINAL CABINETS, ETC. TO THE POINT OF TERMINATION AT THE STATION END LOCATION PER PLANS AND SPECIFICATION.

<b>TECHNOLOGY ABBREVIATIONS</b>

	TECHNOLOGY A	BBREV	IATIONS:
ACP AFF AHJ AMP AOR AUD AUTO	ACCESS CONTROL PROCESSOR ABOVE FINISHED FLOOR AUTHORITY HAVING JURISDICITON AMPLIFIER ARCHITECT OF RECORD AUDIO AUTOMATIC	(N) NC NIC NO NTS NVR OC	NEW NORMALLY CLOSED NOT IN CONTRACT NORMALLY OPEN NOT TO SCALE NETWORK VIDEO RECORD ON CENTER
AUX AV AVc AWG BCT	AUXILIARY AUDIOVISUAL AUDIOVISUAL CONTROLLER AMERICAN WIRE GUAGE BONDING CONDUCTOR FOR TELECOMMUNICATIONS CONDUIT	OFCI OFOI OSP PB	OWNER FURNISHED, CONTRACTOR INSTALLED OWNER FURNISHED, OWNER INSTALLED OUTSIDE PLANT PULL BOX
C CATV CFCI CFOI	CONDUIT COMMUNITY ANTENNA TELEVISION CONTRACTOR FURNISHED, CONTRACTOR INSTALLED CONTRACTOR FURNISHED.	PIR POE PR PTZ PVC	PASSIVE INFRARED POWER OVER ETHERNET PAIR OF CONDUCTORS PAN TILT ZOOM POLYVINYL CHLORIDE
CL DIV DC (E)	OWNER INSTALLED CENTERLINE DIVISION DOOR CONTACT EXISTING	PWR RCP REX RFI RMC	POWER REFLECTED CEILING PLAN REQUEST TO EXIT REQUEST FOR INFORMATIC RIGID METALLIC CONDUIT
EC ECS EF	ELECTRICAL CONTRACTOR  EMERGENCY COMMUNICATION SYSTEM ENTRANCE FACILITY FOR TELECOMMUNICATION ELECTRIC METALLIC TUBING	SM STR STP SEC TBB	SINGLE MODE STRANDS (OF FIBER) SHIELDED TWISTED PAIR SECURITY TELECOMMUNICATIONS BONDING BACKBONE
ER EXT (F)	EQUIPMENT ROOM EXTERIOR FUTURE	TELCO TGB	TELEPHONE COMPANY TELECOMMUNICATIONS GROUNDING BUSBAR
FACP FATC FB FO GC IC IDF	FIRE ALARM CONTROL PANEL FIRE ALARM TERMINAL CABINET FLOORBOX FIBER OPTIC GENERAL CONTRACTOR INTERCOM INTERMEDIATE DISTRIBUTION	TMGB TYP UON UPS UTP	TELECOMMUNICATIOIN MA GROUNDING BUSBAR TYPICAL UNLESS OTHERWISE NOTE UNINTERUPTABLE POWER SUPPLY UNSHIELDED TWISTED PAII
ICP INT IP IT JB MDF MIC	FRAME INTRUSION CONTROL PROCESSOR INTERIOR INTERNET PROTOCOL INFORMATION TECHNOLOGY JUNCTION BOX MAIN DISTRIBUTION FRAME MICROPHONE	V VSS WB WP	VOICE VIDEO SURVEILLANCE SYS WALL BOX WEATHERPROOF
14110	MULTINODE		

MPOE | MINIMUM POINT OF ENTRY

### **TECHNOLOGY PENETRATION NOTES:**

UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL MAKE NO PENETRATION OF FLOORS, WALLS OR CEILING WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNERS REPRESENTATIVE. WALL PENETRATIONS:

THE SCS AND/OR LV CONTRACTOR SHALL PROVIDE FIRE STOPPING FOR ALL COMMUNICATIONS RATED (AND IN SOME CASES NON-RATED. THAT WILL BE DESCRIBED BELOW THIS SECTION) PATHWAYS AND SPACES. THESE FIRE STOPPING DEVICES SHALL CONFORM TO (BUT NOT LIMITED TO) UL 1479. ASTM E814. BICSI TDMM. FIRE STOPPING ANSI/TIA-568-C STANDARD FOR INSTALLING COMMERCIAL BUILDING TELECOMMUNICATIONS CABLING, SECTION 5, CLAUSE 5.1 THROUGH 5.2.3, MANUFACTURES GUIDELINES OR OTHER PREVAILING CODE AND MUST BE AN APPROVED UL LISTED SYSTEM.

CABLE TRAY FIRE-STOPPING SHALL UTILIZE THE MULTI GANG FIRE-STOPPING SYSTEM THAT WILL BE ABLE TO STACK THE UNITS HORIZONTALLY AND/OR VERTICALLY IF REQUIRED DUE TO CURRENT AND/OR FUTURE CABLING DESIGNS.

THE CONTRACTOR SHALL INSTALL PENETRATION FIRE-STOP SEAL MATERIALS IN ACCORDANCE WITH DESIGN REQUIREMENTS, AND MANUFACTURER'S INSTRUCTIONS. THE CONTRACTOR'S INSTALLER SHALL BE CERTIFIED. LICENSED OR OTHERWISE QUALIFIED BY THE FIRE-STOPPING MANUFACTURER AS HAVING BEEN PROVIDED THE

NECESSARY TRAINING TO INSTALL MANUFACTURER'S PRODUCTS PER SPECIFIED ALL THROUGH-PENETRATION SHALL BE A MANUFACTURED, UL CLASSIFIED, FIRE-STOP DEVICE / SYSTEM DESIGNED TO ALLOW CABLES TO PENETRATE FIRE-RATED WALLS WITH A BUILT-IN FIRE SEALING SYSTEM THAT AUTOMATICALLY ADJUSTS TO THE AMOUNT OF

CABLES INSTALLED. THE FIRE-STOPPING DEVICE SHALL BE CAPABLE OF INSTALLATION

THE CONTRACTOR MUST NOT USE CONCRETE OR OTHER NON-REMOVABLE SUBSTANCE FOR FIRE STOPPING ON CABLE TRAYS, WIREWAYS OR CONDUITS. CONTRACTORS WHO LISE THIS METHOD WILL BE REQUIRED TO REPLACE ALL CABLES AFFECTED AND PROVIDE THE ORIGINAL SPECIFIED ACCESS TO EACH EFFECTED AREA. THIS REQUIREMENT ALSO APPLIES TO MAINTAINING FIRE RATINGS OF ALL FLOORS PENETRATED BY CONDUITS OR DEVICES DESIGNATED FOR USE BY VOICE AND DATA CABLING.

ANY PENETRATIONS THROUGH FIRE-RATED WALLS FOR CABLE PATHWAYS / CABLES SHALL BE SEALED BY USE OF A NON-PERMANENT FIRE BLANKET OR OTHER METHOD IN COMPLIANCE. THE CONTRACTOR MUST USE FIRE STOPPING ON CABLE TRAYS. WIREWAYS AND CONDUITS FITHER VERTICAL OR HORIZONTAL FOUR DIFFERENT METHODS OF FIRE-STOPPING HAVE BEEN IDENTIFIED FOR THE HORIZONTAL THROUGH PENETRATIONS BETWEEN WALLS, RATED, RATED WITH ACOUSTIC PROPERTIES, NON-RATED, AND NON-RATED WITH ACOUSTIC PROPERTIES.

SEALING OF RATED OPENINGS BETWEEN FLOORS OR THROUGH RATED WALLS,

IN NEW CONSTRUCTION OR RETROFIT IN EXISTING STRUCTURES.

WHETHER EXISTING OR CREATED BY THE CONTRACTOR FOR PLACEMENT OF CABLE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SEALING MATERIAL AND APPLICATION SHALL BE AN APPROVED UL LISTED SYSTEM AND SHALL BE ACCOMPLISHED IN SUCH A MANNER THAT IS ACCEPTABLE TO THE LOCAL FIRE AND BUILDING AUTHORITIES HAVING JURISDICTION OVER THIS WORK. CREATION OF SUCH OPENINGS AS ARE NECESSARY FOR CABLE PASSAGE BETWEEN LOCATIONS AS SHOWN ON THE DRAWINGS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ANY OPENINGS CREATED BY OR FOR THE CONTRACTOR AND LEFT UNUSED SHALL ALSO BE SEALED AS PART OF THIS WORK. RATED WALLS WITH THROUGH PENETRATIONS WITH ACOUSTIC PROPERTIES SHALL BE INSTALLED WITH FACTORY MANUFACTURED DEVICE. SUCH AS A STL "FZ PATH" OF

TO OR GREATER THAN THE WALL PENETRATED, (AVG IS A RATING OF 44 STC PER UBC NON-RATED PATHWAY ALTHOUGH NOT REQUIRED TO BE FIRE-STOPPED, SHALL BE A MANUFACTURED DEVICE THAT WILL ALLOW FIRE-STOPPING TO BE INSTALLED IN THE FUTURE IF REQUIRED, (I.E. WIREMOLD "FLAMESTOPPER" OR EQUAL). A NON-RATED PATHWAY WITH ACOUSTIC PROPERTIES CAN BE FOUND IN AREAS SUCH AS CONFERENCE ROOMS HUMAN RESOURCE OFFICES MEDICAL EXAMINATION ROOMS ETC. THESE ROOMS REQUIRE TO LIMIT THE AMOUNT OF AMBIENT NOISE THAT CAN TRAVEL FROM ONE ROOM TO THE OTHER THROUGH THE CEILING GRID. IF THIS WALL IS PENETRATED, INSTALL A SYSTEM THAT WILL RE-ESTABLISH THE STC RATING

OF THE WALL, THE TYPICAL STC RATING IS AN AVERAGE OF 44 STC PER UBC RATINGS.

WIREMOLD "FLAMESTOPPER" OR EQUAL. THE TYPICAL STC RATING IS TO BE EQUAL

# CONTRACTOR(S) GUIDELINES:

ALL TECHNOLOGY WORK SHALL COMPLY WITH DESIGN GUIDELINES AS WELL AS APPLICABLE FEDERAL. STATE, AND LOCAL CODES. WHERE THE CONSTRUCTION DOCUMENTS INDICATE MORE RESTRICTIVE REQUIREMENTS. THE DOCUMENTS SHALL GOVERN BUT THE CONSTRUCTION DOCUMENTS SHALL NOT BE INTERPRETED AS AUTHORITY TO VIOLATE ANY CODE OR REGULATION.

IN THE EVENT OF A CONFLICT OR INCONSISTENCY BETWEEN ITEMS INDICATED ON THE PLANS AND/OR SPECIFICATIONS OR WITH CODE REQUIREMENTS, THE NOTE, CODE OR SPECIFICATION WHICH PRESCRIBES AND ESTABLISHES THE MORE COMPLETE JOB OR THE HIGHER STANDARD SHALL PREVAIL.

OMISSIONS FROM THE DRAWINGS. SPECIFICATIONS OR THE MIS-DESCRIPTION OF DETAILS FROM WORK WHICH ARE CLEAR AND NECESSARY TO CARRY OUT THE INTENT OF THE DRAWINGS SPECIFICATIONS OR WHICH ARE CUSTOMARII Y PERFORMED. SHALL NOT RELIEVE THE CONTRACTOR FROM PERFORMING SUCH OMITTED OR MIS-DESCRIBED DETAILS OF THE WORK BUT THEY SHALL BE PERFORMED AS IF FULLY AND CORRECTLY SET FORTH AND DESCRIBED IN THE DRAWINGS AND SPECIFICATIONS

THE CONTRACTOR SHALL CHECK ALL DRAWINGS FURNISHED, IMMEDIATELY UPON THEIR RECEIPT AND SHALL PROMPTLY NOTIFY THE OWNER OF ANY DISCREPANCIES. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BEAR THE UNDERWRITERS LABEL (UL) AND SHALL BE INSTALLED IN THE MANNER FOR WHICH THEY ARE DESIGNED

THE CONTRACTOR SHALL NOT BORE, NOTCH OR IN ANY WAY CUT INTO ANY STRUCTURAL MEMBER WITHOUT WRITTEN APPROVAL FROM THE ARCHITECT OR STRUCTURAL

ALL CHANGES TO STRUCTURES (BUILDING, DRILLING, CORING, ETC.) NOT SHOWN ON THE DRAWINGS SHALL BE APPROVED IN WRITING BY STRUCTURAL ENGINEER.

FOR PURPOSES OF CLEARNESS AND LEGIBILITY, THE TELECOM DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC THE SIZE AND LOCATION OF FOUIPMENT IS SHOWN TO SCALE WHEREVER POSSIBLE. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS. DATA INFORMATION AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATION SECTIONS WHERE SCS AND LOW VOLTAGE WORK INTERFACES WITH OTHER TRADES.

THE CONTRACTOR SHALL MAINTAIN AS-BUILT DRAWINGS TO REFLECT ALL CHANGES MADE DURING CONSTRUCTION AND ANY DEVIATIONS FROM THE ELECTRICAL AND TECHNOLOGY DRAWINGS. THIS INCLUDES DEVIATIONS FROM OUTLET NUMBERS AND ANY ADDITION, DELETION OR RELOCATION OF OUTLETS SHOWN ON WORKING DRAWINGS, PATHWAY ADDITIONS, DELETIONS OR RELOCATIONS, THE CONTRACTOR SHALL AFTER COMPLETION OF JOB, PROVIDE THE OWNER AN ELECTRONIC AND HARD

). ANY DEVIATIONS FROM PLANS OR SPECS MUST BE APPROVED IN WRITING BY THE OWNER'S REPRESENTATIVE.

1. ALL FOOTAGES ON DRAWINGS ARE ESTIMATED AND MUST BE VERIFIED BY CONTRACTOR PRIOR TO ORDERING MATERIAL.

2. ALL STATION CABLES SHALL BE NEATLY DRESSED AND SECURED EVERY FIVE FEET AT  $\mu$ 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND REPLACEMENT OF

CEILING TILE INCLUDING REPLACEMENT OF BROKEN OR DAMAGED TILES.

STOPPED USING APPROVED (UL CLASSIFIED) FIRE STOP SYSTEM, INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS AND PROPERLY LABELED.

1. ALL LOCATIONS PASSING THROUGH A FIRE OR A SMOKE BARRIER MUST BE FIRE

5. CONDUIT SHALL BE FILLED TO MAXIMUM CAPACITY (PER CODE, STANDARDS, AND NORMS) BEFORE UTILIZING ANOTHER VACANT CONDUIT.

OWNER'S STANDARD INTERNAL DISTRIBUTION NUMBERING SCHEME. ALL LABELS SHALL BE PREPRINTED OR TYPED. 7. EACH BACKBONE RISER AND/OR OSP CABLE SHALL BE EQUIPPED WITH A PERMANENT LABEL INDICATING CABLE TYPE, PAIR OR OPTIC COUNTS, DISTANT ENDS, AND CABLE

ALL STATION OUTLETS AND TERMINALS SHALL BE PROPERLY IDENTIFIED USING THE

3. FIBER BACKBONE CABLE SHALL BE PLACED WITH 6 FOOT MAINTENANCE LOOP AT BOTH ENDS OF THE RUN. THE MAINTENANCE LOOP SHALL BE SECURED IN SUCH A MANNER TO

AND PULL BOX, SHALL BE SO LABELED.

LENGTH. BOTH ENDS OF EACH CABLE AND AT EVERY MAINTENANCE HOLE, HAND HOLE,

PROVIDE PROTECTION DURING SUBSEQUENT CABLE PULLS. ALL STATION CABLES/OUTLETS SHALL BE TESTED AND DOCUMENTED USING A PAIR SCANNER SPECIFICALLY DESIGNED TO TEST THE TYPE OF CABLE INSTALLED (E.G. CATEGORY 6A) TEST RESULTS SHALL BE ONE PAGE PER AND NOTED WITH THE STATION/JACK NUMBERING SCHEME THAT IS STANDARDIZED FOR THE OWNER.

D. ALL FIBER OPTIC STATION AND RISER CABLE SHALL BE TESTED END-TO-END AND THE RESULTS (LOSS IN dB) NOTED ON A SEPARATE TYPED SHEET.

1. AFTER STATION CABLE IS TESTED AND DOCUMENTED, ONE PAIR FROM EACH VOICE STATION SHALL BE CROSS CONNECTED THROUGH EACH CLOSET BACK TO THE MAIN DISTRIBUTION FRAME. TELEPHONE NUMBER ASSIGNMENTS FOR EACH JACK MUST BE APPROVED BY THE TELECOM STAFE PRIOR TO IMPLEMENTATION, A WRITTEN RECORD OF ALL CROSS CONNECT ASSIGNMENTS WILL BE PROVIDED TO THE OWNER BY THE SCS

PERBER CABLES SHALL BE SPLICED TOGETHER USING A FUSION SPLICE AND PLACED IN A FIBER SPLICE CASE THAT IS RE-ENTERABLE, FULLY DRESSED AND ENCLOSED TO FIT THE NUMBER AND TYPE OF CABLES TERMINATED.

23. CABLE TRAY SHALL BE PLACED IN MDF AND IDF(S) AS SHOWN ON DRAWINGS AND AS REQUIRED TO PROPERLY SECURE CABLES AND WIRE.

24. A BACKBONE CABLE ASSIGNMENT RECORD SHEET SHALL BE PREPARED (TYPED) PRIOR TO START OF ACCEPTANCE TESTING. ALL FLOOR PLANS SHALL BE NEATLY HAND NOTED WITH STATION JACK NUMBER AND CABLE LENGTH.

5. ALL CABLES SHALL BE CLEARLY LABELED WITH CABLE NUMBERS, PAIR ASSIGNMENTS AND DESIGNATION. 5. ALL CABLE TRAYS, LADDER RACKS, CONDUITS, EQUIPMENT RACKS, PROTECTOR

PANELS, AND CABLE SHEATHS SHALL BE BONDED & GROUNDED TO EQUIPMENT GROUND WITH #6 WIRE (MIN.)

7. ALL SPLICES SHALL BE CONTAINED WITHIN AN APPROVED SPLICE CASE DESIGNED FOR MULTIPLE CLOSURE.

#### **TECHNOLOGY CABLING NOTES:**

THE USE OF LUBRICANTS SUCH AS CLEAR GLIDE, TO FACILITATE THE INSTALLATION OF CABLES IN CONDUITS IS ENCOURAGED FOR ERICTION REDUCTION AND TO MAINTAIN TH REQUIRED PULL TENSION. YELLOW 77 AND POLYWATER "F" IS PERMISSIBLE FOR USE A A LUBRICANT FOR ISP TECHNOLOGY CABLING. THE USE OF OSP, LOW TEMPERATURE CABLE LUBRICANTS SHALL NOT BE ACCEPTABLE IN AN INDOOR PLENUM ENVIRONMENT UNDER NO CIRCUMSTANCES SHALL CABLE PULLING LUBRICANT BE ALLOWED TO ACCUMULATE ON WALLS, FLOORS, BACKBOARDS, OR OTHER SURFACES OUTSIDE THE

ANY CABLE DAMAGED OR EXCEEDING RECOMMENDED INSTALLATION PARAMETERS. DURING INSTALLATION SHALL BE REPLACED BY THE CONTRACTOR BEFORE FINAL ACCEPTANCE AT NO COST TO THE OWNER

EACH RUN OF CABLE BETWEEN THE TERMINATION BLOCK OR PATCH PANEL AND THE STATION CONNECTOR SHALL BE CONTINUOUS WITHOUT ANY JOINTS OR SPLICES. ALL STATION CABLE SHALL BE PLACED IN THE INTERIOR OF WALLS UNLESS OTHERWISE

NOTED OR OBSTRUCTED. . PROVIDE BUSHINGS, GROMMETS AND STRAIN-RELIEF FOR CABLES TERMINATING AT WALL-MOUNTED OUTLETS AND PATCH PANELS TO ENSURE DURABLE AND ROBUST

CONNECTIONS. THE BUSHINGS AND GROMMETS ARE INTENDED TO PROTECT THE CABLES FROM ANY SHARP EDGES THAT PRESENT A RISK TO THE CABLES. ENSURE THA ALL SHARP EDGES ARE COVERED TO PROTECT THE CABLES FROM DAMAGE. 6. ALL CABLE BUNDLES EXITING FLOOR OR WALL PENETRATIONS AND RUNNING INTO FURNITURE OR CASEWORK SHALL BE WRAPPED IN SPIRAL WRAP OR SPLIT-LOOM TUBING

WALL STRUCTURES.

TO PROTECT THE CABLING AND PROVIDE A NEAT INSTALLATION. ALL CABLE OR INNERDUCT SHALL RUN PARALLEL OR AT RIGHT ANGLES TO BUILDING

IN SUSPENDED CEILING AND RAISED FLOOR AREAS WHERE DUCT, CABLE TRAYS OR CONDUIT ARE NOT AVAILABLE, CABLE BUNDLES SHALL BE SUPPORTED VIA "J" HOOKS ATTACHED TO THE BUILDING STRUCTURE AND FRAMEWORK AT A MAXIMUM OF FIVE (5) FOOT INTERVALS MINIMUM 1" WIDE J-HOOKS SHALL BE APPROPRIATELY SIZED TO ALLOW A MINIMUM OF 60% SPARE CAPACITY FOR FUTURE CABLE INSTALLATION. THE CONTRACTOR SHALL INCLUDE ALL COSTS IN BASE BID FOR ANY ADDITIONAL SUPPORTS/SEISMIC BRACING REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION

THE CONTRACTOR SHALL BUNDLE, IN BUNDLES OF 48 OR LESS, STATION OR OTHER CABLING WITH 3/4" HOOK AND LOOP "VELCRO" STRIPS TIGHT ENOUGH TO HOLD THE BLINDLE TOGETHER IN A CYLINDRICAL SHAPE BLIT NOT SO TIGHT AS TO DEFORM THE CABLE GEOMETRY. IT SHALL BE POSSIBLE TO COMPLETELY ROTATE ALL HOOK AND LOOP TIES AROUND ALL CABLE BUNDLES. PLENUM RATED HOOK AND LOOP TIES WILL BE USED IN ALL PLENUM AREAS

10. CABLES OR J-HOOKS SHALL NOT BE ATTACHED TO LIFT OUT CEILING GRID SUPPORTS OR LAID DIRECTLY ON THE CEILING GRID.

1. CABLES OR J-HOOKS SHALL NOT BE ATTACHED TO OR SUPPORTED BY FIRE SPRINKLER HEADS OR DELIVERY SYSTEMS OR ANY ENVIRONMENTAL SENSOR LOCATED IN THE CEILING AIR SPACE.

. WHERE ADDITIONAL CONDUIT(S)/SLEEVE(S) ARE REQUIRED, BUT NOT PROVIDED BY THE CONTRACTOR THE SCS AND/OR LV CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE SUCH CONDUIT(S)/SLEEVE(S). CONDUIT(S) AND SLEEVE(S) SHALL BE OF SUITABLE MATERIAL, SIZED, INSTALLED, FIRE-STOPPED, AND GROUNDED AS REQUIRED BY THE CEC 2022, ANSI/TIA-569-D STANDARD AND ALL OTHER APPLICABLE CODES AND STANDARDS. SLEEVES SHALL CONSIST OF METALLIC CONDUIT DE-BURRED AND GROMMETTED ON BOTH ENDS WITH FLANGES OR OTHER MEANS TO PREVENT THE SLEEVE FROM SLIPPING OR FALLING OUT OF THE PARTITION. SLEEVES SHALL EXTEND A MINIMUM OF 6" ON BOTH SIDES OF THE PARTITION. OUTSIDE PERIMETER OF SLEEVES SHALL BE SEALED AGAINST SOUND, AIR, WATER, HEAT, OR AS REQUIRED BY PARTITION DESIGN. INSIDE OF SLEEVE SHALL BE SEALED SIMILARLY AFTER INSTALLATION OF ALL CABLING. CABLES SHALL BE INDEPENDENTLY SUPPORTED ON EITHER SIDE OF THE SLEEVE. SLEEVES SHALL NOT BE USED AS CABLE SUPPORTS. ANY CONDUIT(S) AND SLEEVE(S) ADDED BY THE SCS CONTRACTOR SHALL BE APPROVED BY THE OWNERS REPRESENTATIVE PRIOR TO ROUGH-IN.

3. IN THE EVENT CONTRACTOR IS REQUIRED TO REMOVE CEILING TILES, SUCH WORK SHALL NOT BREAK OR DISTURB GRID. REMOVAL OF THE CEILING GRID MUST BE COORDINATED WITH THE OWNERS REPRESENTATIVE. ALL INSULATION SHALL BE REPLACED IN ITS ORIGINAL LOCATION.

THE NUMBER OF CABLES IN EACH CONDUIT SHALL BE CONTROLLED TO ALLOW FOR FUTURE CABLE INSTALLATION AND TO STAY WITHIN THE MANUFACTURER'S MAXIMUM ALLOWABLE CABLE PULLING TENSION. CONDUIT FILL RATIOS SHALL NOT EXCEED THE URRENT REQUIREMENTS OF THE CEC 2022, ANSI/TIA-569-D, REFERENCE SECTION B.2,

TABLES 1 AND 2 OF THIS DOCUMENT FOR ADDITIONAL REQUIREMENTS. 15. CONDUITS: ALL BACKBONE CABLING WILL RUN THROUGH DEDICATED CONDUITS. ALL NEW CONDUITS WILL BE SUPPLIED WITH A PULL STRING BY THE CONTRACTOR EXISTING CONDUITS SHALL BE PROVEN TO BE CLEAR BY THE SCS AND/OR LV

CONTRACTOR PRIOR TO PULLING OF CABLES. SCS AND/OR LV CONTRACTOR SHALL SUPPLY PULL STRING AND PULL ROPE FOR THE INSTALLATION OF ALL CABLES IN EXISTING CONDUITS. FOR ALL CONDUITS LEFT WITH AVAILABLE CAPACITY, SCS AND/OR LV CONTRACTOR SHALL REPLACE PULL STRINGS DURING THE COURSE OF HIS WORK. SCS AND/OR LV CONTRACTOR MUST SEAL ALL CONDUITS WITH AN APPROVED SEALING COMPOUND.

## TECHNOLOGY GROUNDING SYSTEM NOTES

THE CONTRACTOR SHALL PROVIDE A TELECOMMUNICATION GROUNDING BUSSBAR (TG AND TELECOMMUNICATION BONDING BACKBONE (TBB) CABLE(S) AT EACH MDF ROOM AND IDE LOCATION. TERMINATE THE TBB ON GROUND BARS LOCATED AT EACH MDF ROOM AND IDF CABINET FROM BUILDING STEAL OR MAIN ELECTRICAL GROUND, OR AS OTHERWISE INDICATED ON THE DRAWINGS.

THE SCS CONTRACTOR SHALL UTILIZE A TELECOMMUNICATIONS BONDING BACKBONE (TBB) AS INDICATED IN THE DRAWINGS. GROUNDING MUST BE IN ACCORDANCE WITH THE CEC 2022, ANSI/TIA-607-B AND ALL LOCAL CODES AND PRACTICES.

THE SCS CONTRACTOR SHALL BE RESPONSIBLE FOR BONDING ALL METALLIC SHEATH COMMUNICATIONS CABLES ENTERING THE BUILDING PER MANUFACTURER SPECIFICATIONS AND CEC 770-33, 800-33 AND 800-40. ALL GROUNDS SHALL CONSIST OF # 6-AWG COPPER WIRE AND SHALL BE SUPPLIED FROM AN APPROVED BUILDING GROUND AND BONDED TO THE MAIN ELECTRICAL GROUND. ALL CABLE SHEATHS AND SPLICE CASES SHALL BE GROUNDED TO A TELECOMMUNICATIONS GROUND BUS.

. THE SCS CONTRACTOR SHALL PROVIDE GROUNDING AND BONDING FROM ALL HORIZONTAL EQUIPMENT INCLUDING DISTRIBUTION AND CROSS CONNECT FRAMES, PATCH PANELS CABLE TRAYS EQUIPMENT RACKS LADDER TRAYS CONDUITS ACTIVE TELECOMMUNICATION EQUIPMENT, SLEEVES, TEST APPARATUS, EQUIPMENT SHALL BE BONDED TO THE TBB GROUND BARS UTILIZING A #6-AWG GREEN CONDUCTOR WITH 2-HOLE LONG BARREL COMPRESSION GROUNDING LUGS.

EACH EQUIPMENT CABINET AND RACK REQUIRES ITS OWN DEDICATED RACK GROUNDING BUSBAR (RGB) WITH A BONDING CONNECTION TO THE GROUNDING INFRASTRUCTURE. THE GROUNDING INFRASTRUCTURE CONSIST OF A TB. BY PROVIDING EVERY RACK/CABINET WITH ITS OWN DEDICATED #6 WAG (MIN.) GREEN CONDUCTORS BACK TO THE TOMB/TB. ALL GROUND CONDUCTOR ATTACHMENTS SHALL UTILIZE 2-HOLE LONG BARREL COMPRESSION LUGS.

b. HORIZONTAL CABLES SHALL BE GROUNDED IN COMPLIANCE WITH ANSI/TIA-607-C, FP 70 (EEC) AND LOCAL REQUIREMENTS AND PRACTICES.

: IN RAISED-FLOOR ENVIRONMENTS, THE GROUND CONDUCTOR SHALL ATTACH TO THE LOWEST HOLES ON THE FRONT RAIL OF EACH RACK/CABINET.

RACK MOUNTED EQUIPMENT SHALL BE GROUNDED VIA THE CHASSIS, IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

BONDING OF LADDER RACK SECTIONS: ATTACH BONDING STRAPS TO EACH LADDER RACK SECTION BY UTILIZING EITHER TWO (2) TRI-LOBULAR THREAD-FORMING SCREWS (NOT SELF-TAPPING OR SHEET METAL SCREWS) OR BY USING TWO (2) STANDARD BOLTS

WITH TWO (2) "TYPE B" INTERNAL / EXTERNAL TOOTH LOCK WASHERS PER BOLT. IF

THREAD-FORMING SCREWS ARE NOT USED, REMOVE PAINT AT EACH CONNECTION POIN AND USE AN APPROVED ANTI-OXIDANT PRIOR TO ATTACHING THE BONDING STRAP.

# TECHNOLOGY TERMINAL BACKBOARD NOTES

WHERE INDICATED ON DRAWINGS CONTRACTOR TO PROVIDE NEW PLYWOOD TERMINA BACKBOARDS. USE DOUGLAS FIR PLYWOOD, INTERIOR A/C GRADE, FINISHED ONE SIDE AND PRIME COAT PAINTED ON ALL SURFACES WITH A FINISH COAT OF FIRE RETARDANT WHITE FNAMEL ON EACH PLYWOOD SHEET LEAVE ONE (1) FIRE MARSHAL STAMP UNPAINTED FOR INSPECTION. UNLESS OTHERWISE INDICATED, USE 8'-0" HIGH X LENGTH AS SHOWN ON DRAWINGS X 3/4" THICK PLYWOOD. REFERENCE BACKBOARD ELEVATIONS FOR MORE INFORMATION.

## **TECHNOLOGY PATHWAY NOTES:**

PATHWAYS CAN BE DIVIDED UP INTO TWO SEPARATE CATEGORIES, OUTSIDE PLANT (OSP) AND INSIDE PLANT (ISP). IT IS THE SCS AND/OR LV SYSTEM(S) CONTRACTOR'S RESPONSIBILITY TO IDENTIFY ALL EXISTING PATHWAYS (CONDUIT, CABLE TRAY, ETC) THAT WILL BE UTILIZED ON THE PROJECT, AND COORDINATE WITH THE ON-SITE ELECTRICAL OR GENERAL CONTRACTOR TO PROVE ALL PATHS SUBJECT TO BE USED ON THIS PROJECT, BEFORE INSTALLATION. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION ALL UNDERGROUND (OSP) PATHWAYS, NON-ACCESSIBLE AND OPEN CEILING SPACE PATHWAYS AS DESCRIBED IN SECTION F, CONTRACTOR GUIDELINES OF THESE TECHNOLOGY GENERAL NOTES.

. ALL PULL-BOXES SHALL BE SIZED AND INSTALLED PER ANSI/TIA-569-D. PULL-BOXES FOR IN/UNDER SLAB CONDUIT RUNS ARE NOT PERMITTED UNLESS OTHERWISE NOTED. PULL-BOXES FOR OVERHEAD CONDUIT RUNS SHALL BE LOCATED ABOVE ACCESSIBLE CEILINGS WITHIN THE ACCESSIBLE CEILING SPACE AND SUPPORTED INDEPENDENTLY FROM THE STRUCTURE AND CONDUIT SUPPORTS. PULL-BOXES FOR ROOF MOUNTED OR EXTERIOR ABOVE GRADE APPLICATIONS SHALL BE NEMA 3R RATED. PULL-BOXES SHALL BE SIZED ACCORDING TO THE FOLLOWING: FOR FILL RATIO BASED CONDUIT SIZING REFER TO THE FILL RATIO TABLE 1A - 2B BELOW AND REFERENCE TO ANSI/TIA-569-D.

8" 36" 4"

### PULLBOX SIZING PER ANSI/TIA 569-D WIDTH INCREASE PER WIDTH LENGTH DEPTH

FILL RATIO TABLE 1A - Conduit

Conduit Size	.13	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34	.35	.37	.39
3/4"	16	8	7	6	6	5	5	4	4	4	3	3	3	3	2	2	2	2	2	1	1
1"	26	13	12	11	9	9	8	7	7	6	6	5	5	4	4	4	4	3	3	3	2
1 1/4"	45	23	21	19	17	15	14	13	12	11	10	9	9	8	7	7	6	6	6	5	5
1 1/2"	61	32	28	25	23	21	19	18	16	15	14	13	12	11	10	10	9	8	8	7	6
2"	101	52	47	42	38	35	32	29	27	25	23	21	20	18	17	16	15	14	13	12	11
2 1/2"	176	92	82	74	67	61	56	51	47	44	40	38	35	33	31	29	27	25	24	21	19
3"	266	139	124	112	102	93	85	78	72	66	61	57	53	50	46	43	41	38	36	32	29
3 1/2"	347	181	162	146	133	121	111	102	94	86	80	74	69	65	61	57	53	50	47	42	38
4"	444	231	208	187	170	155	142	130	120	111	103	95	89	83	78	73	68	64	61	54	49

FILL RATIO TABLE 2A - Cable Tray / Wire Basket / Raceway per NEC 2022 Article 72	5																					
Tray Size (WxD)	.13	.18	.19	.20	.21	.22	.23	.24	.25	.26	.27	.28	.29	.30	.31	.32	.33	.34	.35	.37	.39	ı
4x4	482	251	225	203	184	168	154	141	130	120	111	103	96	90	84	79	74	70	66	59	53	
6x4	723	377	338	305	277	252	231	212	195	180	167	155	145	135	127	119	112	105	99	89	80	
12x4	1447	754	677	661	554	505	462	424	391	361	335	311	290	271	254	238	224	211	199	178	160	
18x4	2170	1132	1016	917	831	758	693	636	587	542	503	467	436	407	381	358	336	317	299	267	241	
24x4	2894	1509	1355	1222	1109	1010	924	849	782	732	671	623	581	543	509	477	449	423	399	357	321	
6x6	1085	566	508	458	415	379	346	318	293	271	251	233	218	203	190	179	168	158	149	133	120	
12x6	2170	1132	1016	917	831	758	693	636	587	542	503	467	436	407	381	358	336	317	299	267	241	
18x6	3256	1698	1524	1375	1247	1137	1040	955	880	814	754	701	654	611	572	537	505	476	449	401	361	
24x6	4341	2264	2032	1834	1663	1516	1387	1273	1174	1085	1006	935	872	815	763	716	673	634	598	535	482	

PATHWAY SEPARATION FROM SOURCE OF ELECTROMAGNETIC	C ENEGRY:		
CONDITION	<2KVA	2-5 KVA	>5KVA
Unshielded Power Lines in Proximity to open PVC Pathways	5" (In.)	12" (In.)	24" (ln.)
Unshielded Power Lines in Proximity to Grounded Metallic Pathways	2.5" (In.)	6" (In.)	12" (In.)
Power Lines enclosed in Metal Grounded	<1" (In.)	3" (In.)	6" (In.)

3. FOR ALL FIRESTOPPING OF SCS AND LV SYSTEMS PATHWAY RESPONSIBILITIES REFERENCE SECTION G, PENETRATION OF WALLS, FLOOR AND CEILINGS OF THESE TECHNOLOGY GENERAL

4. FOR ALL OTHER SCS AND/OR LV SYSTEMS PATHWAY RESPONSIBILITIES REFERENCE SECTION F, CONTRACTOR GUIDELINES OF THESE TECHNOLOGY GENERAL NOTES.

5. OUTSIDE PLANT (OSP) PATHWAYS CAN BE BROKEN DOWN INTO THE FOLLOWING ITEMS, MAINTENANCE HOLES, HAND HOLES, PULLBOXES, AND CONDUITS

1. WHILE ENTERING MAINTENANCE HOLES, HAND HOLES, PULLBOXES, FOLLOW ALL CODES AND SAFETY PRACTICES OF A "CONFINED SPACE". UTILIZE NECESSARY EQUIPMENT TO MAINTAIN ALL SAFE PULLING TENSIONS FOR THE CABLES TO BE INSTALLED. THIS INFORMATION CAN BE FOUND ON THE CABLE MANUFACTURER'S SPECIFICATIONS SHEETS.

b. BEFORE EXITING THE MAINTENANCE HOLE, HAND HOLE, PULLBOX, NOTE ON PAPER OR DIGITAL MEANS THE EXISTING AND NEW CABLE(S) LOCATION(S) AND ROUTE(S), AND PROVIDE A "BUTTERFLY" PRINT TO AHJ AND OWNER'S REPRESENTATIVE. LABEL THE INSTALLED MEDIA PER SPECIFICATIONS. WITH DIRECTION OF OWNER OR OWNER'S REPRESENTATIVE, CHOOSE AND PROVE ALL CONDUITS BEFORE THE INSTALLATION OF THE MEDIA. MEASURE ALL PATHWAYS WITH MULE-TAPE PRIOR

TO ORDERING MATERIAL. ALL LABOR AND MATERIAL COSTS ASSOCIATED WITH DISCREPANCIES BETWEEN DRAWINGS AND VERIFIABLE SITE CONDITIONS SHALL BE BORNE BY CONTRACTOR. COORDINATE WITH THE ELECTRICAL OR GENERAL CONTRACTOR (EC OR GC), IF CONDUITS ARE PLUGGED OR MISSING PULL ROPE. TRAIL ALL BACKBONE MEDIA (I.E. COPPER, FIBER OR INNERDUCT) WITH A 3/8" YELLOW POLY-NYLON ROPE, LABEL THE ROPE, AND TIE OFF EITHER END, FOR FUTURE INSTALLATIONS.

PROVIDE AND INSTALL ALL HARDWARE NECESSARY TO SUPPORT THE CABLING TO THE WALLS OF THE MAINTENANCE HOLE, HAND HOLES, PULLBOX. (IF IT DOES NOT ALREADY EXIST) THIS HARDWARE IS TO BE CONSTRUCTED FOR THE AREA IT IS TO BE INSTALLED AND DESIGNED FOR THE PURPOSE INTENDED FOR ITS USE.

SCS AND/OR LV CONTRACTOR TO PROVIDE EXPANSION PLUGS IN ALL DUCTS/CONDUITS ENTERING THE BUILDING. SEAL ALL UNUSED DUCTS/CONDUITS WITH PLUGS THAT ALLOW THE

INSIDE PLANT (ISP) PATHWAYS CAN BE BROKEN DOWN INTO THE FOLLOWING ITEMS. HOLLOW WALL PENETRATION, MEMBRANE PENETRATION, ACCESSIBLE CEILING (I.E. "J" HOOKS), AND CONDUIT. 7. CABLE RACEWAYS AND CONDUITS SHALL NOT BE FILLED GREATER THAN THE CEC 2022. ARTICLE 725 AND BICSI RECOMMENDED FILL FOR THE PARTICULAR RACEWAY OR CONDUIT SIZE FOR CLASS 2/3 WIRE/CABLE.

CONDUIT AND PATHWAY ROUTING SHOWN FOR THE SCS AND LV SYSTEMS ARE STRICTLY DIAGRAMMATICAL FOR THE PURPOSE OF THE BID TO ILLUSTRATE GENERAL METHODOLOGY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE BEST MEANS & METHODS FOR SCS & TECHNOLOGY CONDUIT AND PATHWAY INSTALLATION. ADDITIONALLY IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE INSTALLATION PLAN WITH THE OWNERS REPRESENTATIVE AND ALL TRADES PRIOR TO INSTALLATION. REFER TO PLANS AND GENERAL ELECTRICAL SPECIFICATION FOR ADDITIONAL REQUIREMENTS.

CONDUIT PATHWAYS SHALL BE SUPPLIED BY THE ELECTRICAL OR GENERAL CONTRACTOR AS PER THE DRAWINGS, OTHER CONDUITS (IF ANY) MAY NEED TO BE COORDINATED WITH THE EC AND/OR GC OF THE PROJECT.

NO CABLE IS TO BE PULLED THROUGH A CONDUIT L-BEND "LB" (CONDULETS).

d. ALL EXPOSED CONDUIT AND HARDWARE SHALL BE PAINTED TO MATCH SURROUNDING SURFACES. CONTRACT DISTRICT REPRESENTATIVE FOR PAINT COLORS. e. CONDUITS SHALL CONTAIN PLASTIC OR NYLON PULL TAPE RATED AT 200 LBS. WITH A MINIMUM OF 5 FEET OF EXTRA PULL TAPE COILED AT EACH END.

TERMINATE CONDUIT STUBS AND SLEEVES THAT PROTRUDE THROUGH STRUCTURAL FLOORS 2"-3" ABOVE THE FLOOR SURFACE. g. INSTALL BUSHINGS AND BELL ENDS AS REQUIRED ON ALL CONDUITS.

PROVIDE LABELING OF EACH CONDUIT PER GENERAL ELECTRICAL SPECIFICATIONS.

h. FLEX CONDUIT IS UNACCEPTABLE FOR USE AS A COMMUNICATIONS CONDUIT EXCEPT AT SEISMIC JOINTS AND/OR IF APPROVED IN WRITING BY THE ENGINEER.

ALL UNDER SLAB OR IN-SLAB CONDUITS SHALL BE INSTALLED IN A MANNER THAT PREVENTS WATER INFILTRATION OF THE CONDUIT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE GROUND WATER, RAIN WATER OR CONSTRUCTION WATER IS PREVENTED FROM ENTERING AND/OR REMOVED FROM THE CONDUITS PRIOR TO PLACEMENT OF COMMUNICATIONS CABLES, SEE ELECTRICAL SPECIFICATIONS, DETAILS AND PLANS FOR ADDITIONAL CONDUIT SEALING REQUIREMENTS.

k. REINSTALL PULL-STRINGS IN ALL SCS AND LV ISP PATHWAYS AFTER USE TO FACILITATE FUTURE ADDITION OF CABLES.

IT IS THE SCS AND/OR LV CONTRACTOR'S RESPONSIBILITY TO REPORT ANY UNUSABLE OR INADEQUATE CONDUIT RUNS TO THE OWNER PRIOR TO PULLING ANY CABLE

n. PULL BOXES ARE NOT TO BE USED IN LIEU OF A BEND, AND THE CONDUIT SHALL EXIT A PULLBOX ON THE WALL OPPOSITE THE WALL ENTERED CONDUITS SHALL; • CONTAIN NO CONTINUOUS SECTIONS LONGER THAN 30M (98 FT.) • CONTAIN NO MORE THAN (2) 90° BENDS OR (1) REVERSE BEND WITHOUT INSTALLING A PULLBOX SIZED

PER STANDARDS & CODE. • SPLIT CONDUITS IN PLACE OF PULLBOXES ARE UNACCEPTABLE. CONDUIT BEND RADIUS SHALL BE;

A MINIMUM OF 6 TIMES THE INTERNAL CONDUIT DIAMETER FOR CONDUITS 2" IN DIAMETER OR LESS. A MINIMUM OF 10 TIMES THE INTERNAL CONDUIT DIAMETER FOR CONDUITS MORE THAN 2" IN DIAMETER.

THE CONTRACTOR SHALL NOT PLACE ANY DISTRIBUTION CABLING ALONGSIDE POWER LINES, OR SHARE THE SAME CONDUIT, CHANNEL OR SLEEVE WITH ELECTRICAL APPARATUS. AT NO POINT SHALL THE COMMUNICATIONS CABLES BE TIED TO POWER CABLES OR OTHER BUILDING SERVICES. STATION CABLES AND TIE CABLES INSTALLED WITHIN CEILING SPACES SHALL BE ROUTED THROUGH THESE SPACES AT RIGHT ANGLES TO ELECTRICAL POWER CIRCUITS AVOID ELECTROMAGNETIC INTERFERENCE (EMI) BY MAINTAINING ADEQUATE PHYSICAL SEPARATION BETWEEN TECHNOLOGY CABLING AND POSSIBLE SOURCES SUCH AS, BUT NOT LIMITED TO, ELECTRIC MOTORS, ELECTRIC PENCIL SHARPENERS, TRANSFORMERS, FLUORESCENT LIGHTS THAT SHARE DISTRIBUTION SPACE WITH TELECOMMUNICATIONS CABLING, COPIERS THAT SHARE WORK AREA SPACE WITH LINE CORDS AND TERMINALS, LARGE FAX MACHINES AND POWER CORDS THAT SUPPORTS SUCH EQUIPMENT.

## PROJECT CODES AND STANDARDS:

PPLICABLE PROJECT BUILDING CODES, EFFECTIVE AS OF DATE: JANUARY 1, 2023

22 CALIFORNIA ADMINISTRATIVE CODE (CAC) 2 CALIFORNIA BUILDING CODE (CBC)

22 CALIFORNIA ELECTRICAL CODE (CEC) 022 CALIFORNIA FIRE CODE (CFC) 22 CALIFORNIA ENERGY COD

022 CALIFORNIA GREEN BUILDING STANDARDS CODE 2022 CALIFORNIA REFERENCED STANDARDS CODE 2022 NFPA 72: NATIONAL FIRE ALARM AND SIGNALING CODE, NATIONAL FIRE PROTECTION ASSOCIATION

2022 NFPA 1221: NATIONAL FIRE ALARM AND SIGNALING CODE, NATIONAL FIRE PROTECTION ASSOCIATION APPLICABLE INDUSTRY STANDARDS, CURRENT EDITION

TIA-568: GENERIC CABLE STANDARDS TIA-568-1: COMMERCIAL CABLE STANDARDS TIA-568-2: BALANCED TWISTED PAIR CABLING AND COMPONENTS

TIA-568-3: OPTICAL CABLING FEEDER COMPONENTS TIATIA-568-4: BROADBAND COAX CABLING AND COMPONENTS

TIA-569: TELECOMMUNICATION PATHWAYS AND SPACES TIA-570: RESIDENTIAL TELECOMMUNICATIONS

TIA-598: OPTICAL FIBER CABLE COLOR CODIN TIA-606: ADMINISTRATIVE LABELING STANDARDS FIA-607: TELECOMMUNICATIONS BONDING AND GROUNDING TIA-758: TELECOMMUNICATIONS OUTSIDE PLANT TIA-526-7: SINGLE-MODE FIBER STANDARDS

### **TECHNOLOGY DESIGN DIRECTORY:**

NAME:---- JOSIAH ZAMORA, CTS WORK:----- (916) 721-2938 MOBILE:---- (916) 996-3942 EMAIL:----- jzamora@lpengineers.com

PRODUCT SUBMITTAL DOCUMENTS

AS "SUBSTITUTION REQUEST"

CEC ARTICLE 830.

TIA-526-14: MULTI-MODE FIBER STANDARDS

NAME:---- RUBELINO LOZANO, NICET III PHONE:---- (916) 771-0778 x4026 EMAIL:---- rlozano@lpengineers.com

#### **CONTRACTOR SUBMITTALS:**

SHOP DRAWINGS / PRODUCT SUBMITTALS / QUALIFICATIONS)

ORDERING AND INSTALLATION OF THE SYSTEMS SHALL NOT BE STARTED UNTIL THE FOLLOWING: CONTRACTOR FURNISHED SHOP DRAWINGS (SEE BELOW FOR LISTED SHOP DRAWING REQUIREMENTS)

APPLICABLE TRADES QUALIFICATION CERTIFICATIONS HAVE BEEN APPROVED BY THE SYSTEMS ENGINEER AND/OR ARCHITECT AND IF (A. APPLICABLE, APPROVED BY THE DIVISION OF THE STATE

ANY DESIGN AND/OR INSTALLATION DISCREPANCIES/CHANGE ORDERS/REWORK (INCLUDING LABOR AND MATERIALS) INCURRED BEFORE OR AFTER CONTRACTOR FURNISHED SHOP DRAWINGS HAVE BEEN APPROVED SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR, CONTRACTOR

IT SHALL BE UNDERSTOOD THAT THE DRAWINGS, DETAILS, AND ONE-LINES PROVIDED WITH THE DESIGN PACKAGE ARE DIAGRAMMATIC. DATA PRESENTED ON DESIGN DRAWINGS ARE AS ACCURATE AS PRELIMINARY SURVEYS AND PLANNING CAN DETERMINE UNTIL FINAL EQUIPMENT SELECTION IS MADE. ACCURACY IS NOT GUARANTEED AND FIELD VERIFICATION. OF ALL DIMENSIONS. ROUTING. ETC., BY THE CONTRACTOR IS REQUIRED. DRAWINGS ARE PROVIDED TO SHOW THE INTENT OF THE DESIGN AND SPECIFICATION AND TO ASSIST

THE CONTRACTOR IN SUBMITTING A BID. CONTRACTOR IS DIRECTED TO MAKE FIELD SURVEYS AS

CONTRACTOR SHALL MAKE ALLOWANCE IN THE PROPOSAL TO COVER WHATEVER WORK IS REQUIRED

PART OF HIS WORK PRIOR TO SUBMITTING SYSTEM LAYOUT DRAWINGS (SHOP DRAWINGS). THE

TO COMPLY WITH THE INTENT OF THE DESIGN AND PROVIDE A FULLY FUNCTIONING COMPLETE. OPERABLE, AND INTEGRATED SYSTEM. IN CASE OF DOUBT OF WORK INTENDED, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REQUEST INSTRUCTIONS FROM THE ENGINEER OR OWNER PRIOR TO BID. THE CONTRACTOR SHALL BE

RESPONSIBLE FOR INSTALLING A COMPLETE OPERABLE AND INTEGRATED FUNCTIONING SYSTEM INSTALLATION OF THE SYSTEMS SHALL NOT BE STARTED UNTIL DETAILED CONTRACTOR FURNISHED SHOP DRAWINGS (IN AUTOCAD 2010/ OR SIMILAR PROFESSIONAL DRAWING FORMAT) AND PRODUCT SUBMITTALS HAVE BEEN APPROVED BY THE DESIGNER AND/OR ARCHITECT AND IF (A. APPLICABLE APPROVED BY THE DIVISION OF THE STATE ARCHITECT)

ANY AND ALL DESIGN AND/OR INSTALLATION DISCREPANCIES, CHANGE ORDERS, (INCLUDING LABOR, MATERIALS AND SHIPPING) INCLIRRED WITHOUT CONTRACTOR SHOP DRAWINGS OR AFTER CONTRACTOR SHOP DRAWINGS HAVE BEEN APPROVED SHALL BE THE SOLE RESPONSIBILITY OF THE

ANY WORK PERFORMED WITHOUT APPROVED CONTRACTOR FURNISHED SHOP DRAWINGS AND SUBMITTALS SHALL NOT BE ALLOWED. IF WORK PERFORMED PRIOR TO APPROVE SHOP DRAWINGS. CONTRACTOR WILL DO SO AT THEIR OWN RISK.

ANY PRODUCTS THAT HAVE DEVIATED FROM THE SPECIFICATION OR DRAWINGS SHALL BE FLAGGED

# **TECHNOLOGY GENERAL NOTES:**

ALL STRUCTURED CABLING SYSTEM (SCS) & LOW VOLTAGE (LV) CABLING USED THROUGHOUT THIS PROJECT SHALL COMPLY WITH THE REQUIREMENTS AS OUTLINED IN THE STANDARDS, CODES AND LOCAL REGULATIONS FOR THE FOLLOWING: ANSI/TIA-568-C ANSI/TIA-569-D ANSI/TIA-606-B ANSI/TIA-607-B BICSI TDMM (CURRENT VERSION). CEC ARTICLE 90. ARTICLE 300. CEC ARTICLE 645. CEC ARTICLE 646. CEC ARTICLE 725, CEC ARTICLE 760, CEC ARTICLE 770, CEC ARTICLE 800, CEC ARTICLE 830. THE SCS & TECHNOLOGY SYSTEM(S) MUST MEET ALL LOCAL AND OTHER PREVAILING

ALL SCS & LV CABLING SHALL BEAR UL LISTED TYPE CMP (PLENUM RATED) AND/OR CM/G (GENERAL PURPOSE) AND/OR CMR (RISER RATED). ALL FIBER OPTIC CABLING SHALL BEAR OFNP (PLENUM RATED) AND/OR OFNR (RISER RATED) AND/OR OFN/G (GENERAL PURPOSE). THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING APPROPRIATELY RATED

CABLE FOR THE ENVIRONMENT IN WHICH IT IS INSTALLED. ALL INSTALLATION SHALL BE DONE IN CONFORMANCE WITH ANSI/TIA-568-C STANDARDS AND MANUFACTURERS INSTALLATION GUIDELINES. THE CONTRACTOR SHALL ENSURE THAT THE CABLE'S MINIMUM BEND RADIUS AND, MAXIMUM PULLING TENSIONS OF THE SPECIFIED DISTRIBUTION CABLES ARE NOT EXCEEDED. THE CABLE BENDS MUST MAINTAIN THE PROPER RADIUS DURING THE PLACEMENT OF THE FACILITIES. FAILURE TO FOLLOW THE APPROPRIATE GUIDELINES WILL REQUIRE THE CONTRACTOR TO PROVIDE. IN A TIMELY FASHION, ANY ADDITIONAL MATERIAL AND LABOR NECESSARY TO PROPERL RECTIFY THE SITUATION TO THE SATISFACTION AND WRITTEN APPROVAL OF THE

OWNERS REPRESENTATIVE. THIS SHALL ALSO APPLY TO ANY AND ALL DAMAGES SUSTAINED TO THE CABLES BY THE CONTRACTOR DURING THE IMPLEMENTATION. . ALL SCS AND/OR LV INSTALLATIONS SHALL BE PERFORMED BY QUALIFIED TECHNICIANS FOR THAT SYSTEM. THE LABOR EMPLOYED BY THE CONTRACTOR SHALL BE REGULARLY EMPLOYED IN THE INSTALLATION AND REPAIR OF SCS AND/OR LV SYSTEMS AND SHALL

BE ACCEPTABLE TO THE OWNERS REPRESENTATIVE TO ENGAGE IN THE INSTALLATION AND SERVICE OF THIS SYSTEM. THE MDF AND IDF SPACES ARE DESCRIBED BELOW, AND ENCOMPASS THE AREAS THE COMMUNICATIONS CABLING EXISTS IN. THESE AREAS INCLUDE (BUT NOT LIMITED TO) THE BACKBOARDS, CABINETS, RACKS, FRAMES, LADDER RACKS, TERMINATION FIELDS AND PATCH CORDS. (WALL AND RACK TYPES FOR COPPER AND FIBER). THE SCS CONTRACTOR IS RESPONSIBLE FOR FOLLOWING THE STANDARDS, CODES AND LOCAL REGULATIONS FOR THESE SPACES, (E.G. ANSI/TIA-568-C, ANSI/TIA-569-D, ANSI/TIA-606-B, ANSI/TIA-607-B, BICSI TDMM (CURRENT VERSION), CEC ARTICLE 90, ARTICLE 300, CEC

ARTICLE 645, CEC ARTICLE 646, CEC ARTICLE 725, CEC ARTICLE 770, CEC ARTICLE 800,

THE WIRING OF THE SYSTEM SHALL BE EXECUTED IN ACCORDANCE WITH THE DRAWINGS AND THE EQUIPMENT MANUFACTURER'S WIRING DIAGRAMS. SHOULD ANY VARIATIONS IN THESE REQUIREMENTS OCCUR, THE CONTRACTOR SHALL NOTIFY THE OWNERS REPRESENTATIVE BEFORE MAKING ANY CHANGES IT SHALL BE THE RESPONSIBILITY OF THE MANUFACTURER - AUTHORIZED INSTALLER OF THE APPROVED EQUIPMENT TO INSTALL THE EQUIPMENT AND GUARANTEE THE SYSTEM TO OPERATE AS PER PLANS ANI SPECIFICATIONS.

ALL MATERIALS SHALL BE NEW. NO USED OR RE-MANUFACTURED PARTS OR COMPONENTS SHALL BE ACCEPTED

CABLE STORAGE: THE CONTRACTOR SHALL NOT ROLL OR STORE CABLE REELS WITHOUT AN APPROPRIATE UNDERLAY AND THE PRIOR WRITTEN APPROVAL OF OWNERS

SPECIAL EQUIPMENT AND TOOLS: IN ORDER TO ENSURE THE LEAST AMOUNT OF CABLE UNTWISTING, IT IS REQUIRED THAT ALL CABLES SHALL BE STRIPPED USING A CABLE MANUFACTURER'S RECOGNIZED SPECIAL TOOL. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FURNISH ANY SPECIAL INSTALLATION EQUIPMENT OR TOOLS NECESSARY TO PROPERLY COMPLETE THE SYSTEM. THIS MAY INCLUDE. BUT IS NOT LIMITED TO TOOLS FOR TERMINATING CABLES TESTING AND SPLICING FOUIPMENT FOR COPPER/FIBER CABLES, COMMUNICATION DEVICES, JACK STANDS FOR CABLE REELS, OF

. UNDER NO CIRCUMSTANCE ARE "CHANNEL LOCKS" OR OTHER PLIERS NOT DESIGNED

BY THE SCS MANUFACTURE TO BE USED TO TERMINATE WAO JACKS.

	TECHNOLOGY SHEET INDEX									
SHEET NO.	SHEET NAME									
T0.00	TECHNOLOGY CODES AND NOTES									
T0.01	TECHNOLOGY SYMBOL LEGEND									
T1.00	TECHNOLOGY SITE PLAN									
T2.00	TECHNOLOGY BUILDING-A PARTIAL FLOOR PLAN									
T2.01	TECHNOLOGY BUILDING-A PARTIAL FLOOR PLAN									
T2.02	TECHNOLOGY BUILDING-A PARTIAL FLOOR PLAN									
T2.03	TECHNOLOGY BUILDINGS-B AND C FLOOR PLANS									
T2.04	TECHNOLOGY BUILDING-D FLOOR PLAN									
T2.05	TECHNOLOGY BUILDING-K FLOOR PLAN									
T2.06	TECHNOLOGY PORTABLES FLOOR PLAN									
T3.00	TECHNOLOGY ONE-LINES AND EQUIPMENT SCHEDULE									
T4.00	TECHNOLOGY DETAILS									
T5.00	TECHNOLOGY FIRE RATED ASSEMBLY DETAILS									

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AGENCY APPROVAL STAMP

**ENGINEERS** 

PROFESSIONAL STAMP



Job #: 23-2032

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SACRAMENTO CITY UNIFIED SCHOOL

PROJECT

BRET HARTE **ELEMENTARY** 

SITE-WIDE INTERCOM AND CLOCK MODERNIZATION

SACRAMENTO CA. 95818

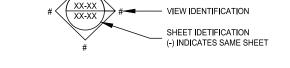
SHEET NUMBER

**TECHNOLOGY** CODES, NOTES

LPCE PROJECT NO.	23-2032
DESIGNED BY:	JZ/RL
CHECKED BY:	LPCE
ISSUE DATE:	2023/06/08
WORKING DATE:	2023/06/08

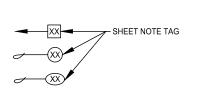
T0.00

	/BOL LE	EGEND CONTRACTOR FURNISHED, CONTRACTOR INSTALLED	UNLESS NOTED	OTHERWISE							
ROW ID	ANNOTATION SYMBOL	DESCRIPTION	BACK BOX	TRIM RING	CONDUIT	MOUNTING HEIGHT	CABLE	MANUFACTURER	MODEL	WEIGHT CAPACITY (LBS.)	SPECIAL INSTRUCTION
1	MDF	MDF EQUIPMENT RACK	N/A	N/A	N/A	N/A	N/A	EXISTING	EXISTING	N/A	N/A
2	IDF-1.#	IDF EQUIPMENT RACK	N/A	N/A	N/A	N/A	N/A	EXISTING	EXISTING	N/A	N/A
3	STC-#	SIGNAL TERMINATION CABINET	N/A	N/A	N/A	N/A	N/A	EXISTING	EXISTING	N/A	N/A
4	GB GB#	GROUND BOX W/ CONCRETE LID	N/A	N/A	N/A	N/A	N/A	EXISTING	EXISTING	N/A	N/A
5	PB PB#	PULL BOX W/ COVER	N/A	N/A	N/A	N/A	N/A	EXISTING	EXISTING	N/A	N/A
6		UNDERGROUND CONDUIT	N/A	N/A	N/A	N/A	N/A	EXISTING	EXISTING	N/A	N/A
7		SURFACE CONDUIT	N/A	N/A	N/A	N/A	N/A	EXISTING	EXISTING	N/A	N/A
8	-1-1-1-1-	HIGH CAPACITY CABLE TRAY / SPLINE	N/A	N/A	N/A	N/A	N/A	EXISTING	EXISTING	N/A	N/A
9	—SR—SR—	SURFACE RACEWAY, SINGLE CHANNEL	N/A	N/A	N/A	N/A	N/A	WIREMOLD	WM2300	N/A	N/A
10	—_J-—_J-—_J-	NON-CONTINUOUS OPEN ENDED PATHWAY, J-HOOK	N/A	N/A	N/A	N/A	N/A	EXISTING / B-LINE	BCH-32	N/A	INSTALL 12" ABOVE CEILING
11	SWITCH	NETWORK POE SWITCH	N/A	N/A	N/A	AT RACK	CAT6	SEE ONE-LINES FOR INFORMATION	SEE ONE-LINES FOR INFORMATION	N/A	N/A
12	PATCH	PATCH PANEL WITH WIRE MANAGER	N/A	N/A	N/A	AT RACK	CAT6	SEE ONE-LINES FOR INFORMATION	SEE ONE-LINES FOR INFORMATION	N/A	N/A
13	TCU	INTERCOM IP SITE CONTROLLER W/ SOFTWARE LICENSE	N/A	N/A	N/A	AT RACK	CAT6	SEE ONE-LINES FOR INFORMATION	SEE ONE-LINES FOR INFORMATION	N/A	INSTALL 12" ABOVE CEILING
14	ZONE	ZONE AUDIO AMPLIFIER, 35-WATT 25/70V	N/A	N/A	N/A	AT RACK	CAT6	SEE ONE-LINES FOR INFORMATION	SEE ONE-LINES FOR INFORMATION	N/A	INSTALL 12" ABOVE CEILING
15	AMP	AUDIO AMPLIFIER, 320-WATT 25/70V	N/A	N/A	N/A	AT RACK	CAT6	SEE ONE-LINES FOR INFORMATION	SEE ONE-LINES FOR INFORMATION	N/A	INSTALL 12" ABOVE CEILING
16	ADMIN	ADMINISTRATIVE CONTROL CONSOLE / PHONE SET	N/A	N/A	N/A	AT RECEPTION DESK	CAT6	SEE ONE-LINES FOR INFORMATION	SEE ONE-LINES FOR INFORMATION	N/A	INSTALL 12" ABOVE CEILING
17	$\Box$	ANALOG INTERCOM SPEAKER (WP=EXTERIOR WEATHERPROOF SPEAKER)	PER MFR.	PER MFR.	SURFACE RACEWAY / 1 EA. 1"C	REPLACE EXISTING / 90" AFF	CAT6	SEE ONE-LINES FOR INFORMATION	SEE ONE-LINES FOR INFORMATION	N/A	N/A
18	¥	IP INTERCOM SPEAKER	PER MFR.	PER MFR.	SURFACE RACEWAY / 1 EA. 1"C	REPLACE EXISTING / 90" AFF	2C #18	SEE ONE-LINES FOR INFORMATION	SEE ONE-LINES FOR INFORMATION	N/A	N/A
19		IP ANALOG CLOCK	REUSE EXISTING / SINGLE GANG	REUSE EXISTING / SINGLE GANG	SURFACE RACEWAY / 1 EA. 1"C	REPLACE EXISTING / 90" AFF	CAT6	SEE ONE-LINES FOR INFORMATION	SEE ONE-LINES FOR INFORMATION	N/A	N/A
20	12:00	IP DIGITAL CLOCK	REUSE EXISTING / SINGLE GANG	REUSE EXISTING / SINGLE GANG	SURFACE RACEWAY / 1 EA. 1"C	REPLACE EXISTING / 90" AFF	CAT6	SEE ONE-LINES FOR INFORMATION	SEE ONE-LINES FOR INFORMATION	N/A	N/A
21		ANALOG INTERCOM SPEAKER AND IP ANALOG CLOCK COMBO.	REUSE EXISTING / SINGLE GANG	REUSE EXISTING / SINGLE GANG	SURFACE RACEWAY / 1 EA. 1"C	REPLACE EXISTING / 90" AFF	2C #18 (SPK) / CAT6 (CLOCK)	SEE ONE-LINES FOR INFORMATION	SEE ONE-LINES FOR INFORMATION	N/A	N/A
22		IP INTERCOM SPEAKER AND IP ANALOG CLOCK COMBO.	REUSE EXISTING / SINGLE GANG	REUSE EXISTING / SINGLE GANG	SURFACE RACEWAY / 1 EA. 1"C	REPLACE EXISTING / 90" AFF	2 EA. CAT6	SEE ONE-LINES FOR INFORMATION	SEE ONE-LINES FOR INFORMATION	N/A	N/A
			DELLOE	DELIGE	OUDEAGE	DEDLAGE					



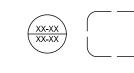
IP INTERCOM SPEAKER AND IP DIGITAL CLOCK COMBO.



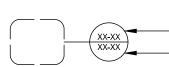


2 EA. CAT6

REUSE REUSE SURFACE REPLACE
EXISTING / EXISTING / RACEWAY / EXISTING /
SINGLE GANG SINGLE GANG 1 EA. 1"C 90" AFF



SEE ONE-LINES FOR INFORMATION



SEE ONE-LINES FOR INFORMATION

DETAIL DIVISION GROUP\* (# ONLY)/SPECIFIC IDENTIFICATION (# W/ ALPHA I.D.)

SHEET IDENTIFICATION

\*IF DETAIL DIVISION GROUP IS CALLED OUT, ALL DETAILS APPLY. TYP.

N/A

NOTES:
1. USE EXTENSION RINGS, DEPTH AS REQUIRED, ON ALL BACK BOX LOCATIONS.

2. REFERENCE ANSI / EIA / TIA STANDARDS AS APPLICABLE.

3. ROUTE CONDUIT IN-WALL TO NEAREST TO ACCESSIBLE CEILING SPACE. CONTRACTOR SHALL NOTIFY ARCHITECT/DESIGNER IF CONDUITS ARE UNABLE TO BE INSTALLED IN-WALL PRIOR TO SURFACE MOUNTED CONDUIT INSTALLATION.

4. ALL TRIM RINGS AND INSIDE OF BACK BOX SHALL BE PAINTED "GREEN" FOR PRE-SHEETROCK / WALL PANEL IN-WALL INFRASTRUCTURE INSPECTION.

AGENCY APPROVAL STAMP



PROFESSIONAL STAMP



COPYRIGH

CLIENT

SACRAMENTO CITY UNIFIED SCHOOL DISTRICT

5735 47TH AVENUE, SACRAMENTO CA. 95824

PROJECT

BRET HARTE ELEMENTARY

SCHOOL 2751 9TH AVENUE, SACRAMENTO CA. 95818

SITE-WIDE INTERCOM AND CLOCK MODERNIZATION

SHEET TITLE

TECHNOLOGY SYMBOL LEGEND

	LPCE PROJECT NO.	23-2032
	DESIGNED BY:	JZ/RL
	CHECKED BY:	LPCE
	ISSUE DATE:	2023/06/08
	WORKING DATE:	2023/06/08
	SHEET NUMBER	

T0.01

GROUND BOX-1 (GB1)

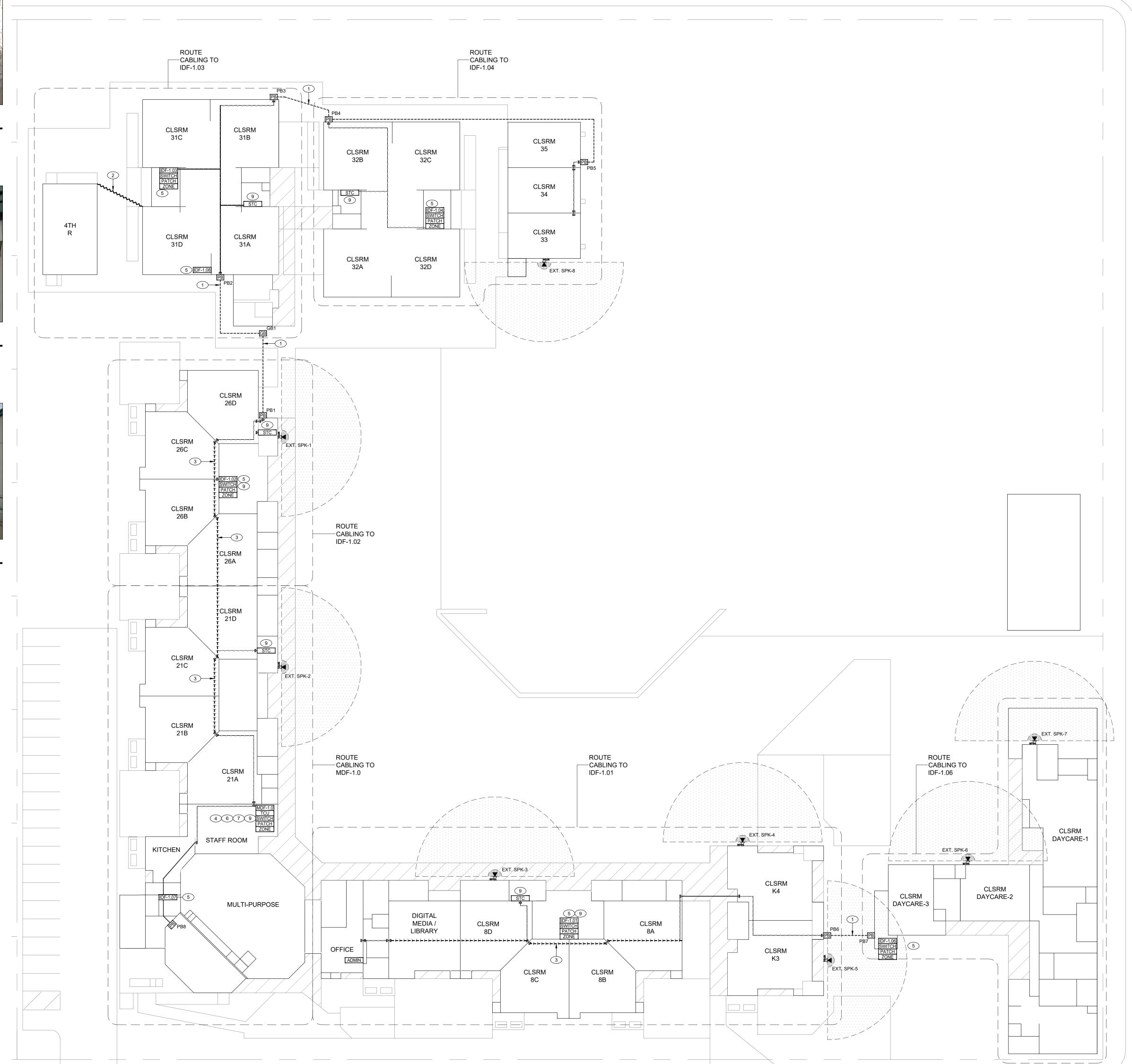


PULL BOX-7 (PB7)





4TH R - AERIAL FEED



SHEET GENERAL NOTES:

ALL EQUIPMENT SHOWN ON CONSTRUCTION DOCUMENTS SHALL BE NEW, CONTRACTOR FURNISHED/CONTRACTOR INSTALLED UNLESS SPECIFIED ON DRAWINGS AND/OR SCHEDULES.

. ALL TECHNOLOGY SYSTEMS MUD RINGS SHALL BE PAINTED GREEN FOR A PRE-WALL FINISH/PANEL BOARD INSPECTION OF IN-WALL HORIZONTAL CABLING INFRASTRUCTURE.

ALL EXPOSED CONDUITS, STRUCTURED CHANNEL, FASTENERS SHALL BE PRIMED WHITE AND PAINTED TO MATCH SURROUNDING AREA.

- WORK AREA OUTLET (WAO), AND FIELD DEVICE CABLING SHALL BE TERMINATED IN MODULAR PATCH PANEL(S) IN SEQUENTIAL ORDER OF
- ROOM NUMBER, DROP ID. ALL NETWORK CABLES SHALL BE MACHINE LABELED AT PATCH PANEL
- FACE, AND AT CATEGORY CABLE (BOTH ENDS AS SHOWN ON DETAILS/SPECIFICATIONS).
- ALL SPEAKER CABLES SHALL BE MACHINE LABELED AT SPEAKER AND
- ALL CLOCKS SHALL BE SET TO NTP SERVER, PACIFIC DAYLIGHT TIME
- ALL EXTERIOR SPEAKERS SHALL BE ADJUSTED TO NOT EXCEED 65dB AT THE SCHOOL PROPERTY LINE.

## **KEYNOTES**:

#### DESCRIPTION

- 1 EXISTING 4 EA. 2" CONDUITS.
- 2) EXISTING OVERHEAD AERIAL CABLING FEED.
- 3 EXISTING HIGH CAPACITY CABLE TRAY / SPLINE.
- 4 EXISTING MDF EQUIPMENT RACK.
- 5 EXISTING IDF EQUIPMENT RACK.
- EXISTING SIGNAL TERMINATION CABINET (STC). SEE FLOOR PLANS FOR DEMOLITION REQUIREMENTS.
- TEXISTING TELECENTER U MAIN EQUIPMENT RACK. SEE FLOOR PLANS FOR DEMOLITION REQUIREMENTS.
- EXISTING TELECENTER ANALOG GATEWAY. SEE FLOOR PLANS FOR DEMOLITION REQUIREMENTS.
- EXISTING TELECENTER EXTERNAL AMPLIFIER. SEE FLOOR PLANS FOR DEMOLITION REQUIREMENTS.

MEP & FS / Sustainability / CxA Job #: 23-2032

AGENCY APPROVAL STAMP

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PROFESSIONAL STAMP

ENGINEERS



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# SACRAMENTO CITY UNIFIED SCHOOL DISTRICT

5735 47TH AVENUE, SACRAMENTO CA. 95824

**BRET HARTE ELEMENTARY** SCHOOL

2751 9TH AVENUE, SACRAMENTO CA. 95818

# SITE-WIDE INTERCOM AND CLOCK MODERNIZATION

TECHNOLOGY SITE PLAN

LPCE PROJECT NO.	23-2032
DESIGNED BY:	JZ/RL
CHECKED BY:	LPCE
ISSUE DATE:	2023/06/08
WORKING DATE:	2023/06/08

SHEET NUMBER

T1.00

ALL EQUIPMENT SHOWN ON CONSTRUCTION DOCUMENTS SHALL BE NEW, CONTRACTOR FURNISHED/CONTRACTOR INSTALLED UNLESS SPECIFIED ON DRAWINGS AND/OR SCHEDULES.

. ALL TECHNOLOGY SYSTEMS MUD RINGS SHALL BE PAINTED GREEN FOR A PRE-WALL FINISH/PANEL BOARD INSPECTION OF IN-WALL HORIZONTAL CABLING INFRASTRUCTURE.

ALL EXPOSED CONDUITS, STRUCTURED CHANNEL, FASTENERS SHALL BE PRIMED WHITE AND PAINTED TO MATCH SURROUNDING AREA.

ALL NETWORK CABLES SHALL BE MACHINE LABELED AT PATCH PANEL FACE, AND AT CATEGORY CABLE (BOTH ENDS AS SHOWN ON

ALL EXTERIOR SPEAKERS SHALL BE ADJUSTED TO NOT EXCEED 65dB AT THE SCHOOL PROPERTY LINE.

## **DEMO KEYNOTES:**

DEMO EXISTING INTERCOM CAMPUS CONTROLLER AND DEMO ALL ASSOCIATED CONTROL HARDWARE

DEMO EXISTING SIGNAL TERMINATION CABINET AND TERMINAL BLOCKS. DEMO ALL CABLING FROM EXISTING TERMINAL BLOCKS TO FIELD SPEAKER LOCATIONS.

BAFFLE SHALL BE RE USED, TYP., U.N.O.

DEMO EXISTING CLOCK, WIPE DOWN, INVENTORY AND RETURN

## **KEYNOTES**:

NEW EXTERIOR SPEAKER ZONE AMPLIFIER.

INSTALL NEW EXTERIOR INTERCOM SPEAKER. REUSE EXISTING BACK BOX, BAFFLE. ROUTE NEW SPEAKER (1 EA. 2C #18) CABLE TO THE NEAREST TELECENTER U AMPLIFIER.

INSTALL NEW INTERIOR INTERCOM SPEAKER. REUSE EXISTING BACK BOX, BAFFLE. ROUTE NEW SPEAKER (1 EA. CAT6) CABLE TO

INSTALL NEW IP ANALOG SWEEP TYPE CLOCK. ROUTE (1 EA. CAT6) CABLE TO THE NEAREST IDF.

INSTALL NEW SURFACE RACEWAY WITH APPROPRIATE TRANSITION AND END FITTINGS, MOUNT HIGH ON

EXISTING HIGH CAPACITY CABLE TRAY / SPINE.

EXISTING SIGNAL TERMINATION CABINET (STC). SEE DEMO NOTES FOR ADDITIONAL REQUIREMENTS.

SHEET GENERAL NOTES:

WORK AREA OUTLET (WAO), AND FIELD DEVICE CABLING SHALL BE TERMINATED IN MODULAR PATCH PANEL(S) IN SEQUENTIAL ORDER OF ROOM NUMBER, DROP ID.

DETAILS/SPECIFICATIONS).

ALL SPEAKER CABLES SHALL BE MACHINE LABELED AT SPEAKER AND

ALL CLOCKS SHALL BE SET TO NTP SERVER, PACIFIC DAYLIGHT TIME

#### DESCRIPTION

ASSOCIATED HARDWARE. WIPE DOWN CONTROL EQUIPMENT, INVENTORY AND RETURN TO THE DISTRICT IN "AS-IS" CONDITION. INTERCONNECTION CABLING, INCLUDING MULTI-PAIR COPPER FEEDERS TO EXISTING SIGNAL TERMINATION CABINETS, TERMINATION BLOCKS.

DEMO EXISTING SPEAKER DRIVER, EXISTING BACK BOX AND

TO THE DISTRICT IN "AS-IS" CONDITION.

ALL DEMO EQUIPMENT AND MATERIALS SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR UNLESS NOTED OTHERWISE. USE OF SCHOOL WASTE DISPOSAL CONTAINERS SHALL NOT BE PERMITTED.

### DESCRIPTION

NEW TELECENTER U IP SYSTEM SITE CONTROLLER.

NEW EXTERIOR SPEAKER AMPLIFIER W/ TELECENTER IP MODULE.

INSTALL NEW INTERCOM SPEAKER / CLOCK COMBO IN CLASSROOM. ROUTE NEW IP SPEAKER (1 EA. CAT6) / CLOCK (1 EA. CAT6) CABLES TO THE NEAREST IDF.

THE NEAREST IDF.

INSTALL NEW IP DIGITAL DISPLAY CLOCK. ROUTE (1 EA. CAT6) CABLE TO THE NEAREST IDF.

WALL-APPROXIMATE 6" FROM CEILING.

EXISTING BACK BOX AND UNDERGROUND CONDUIT. SEE SITE PLAN FOR ADDITIONAL INFORMATION.

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AGENCY APPROVAL STAMP

PROFESSIONAL STAMP

ENGINEERS



SACRAMENTO CITY UNIFIED SCHOOL

> DISTRICT 5735 47TH AVENUE,

SACRAMENTO CA. 95824

**BRET HARTE ELEMENTARY** 

SCHOOL

2751 9TH AVENUE, SACRAMENTO CA. 95818

SITE-WIDE INTERCOM AND CLOCK MODERNIZATION

**TECHNOLOGY BUILDING-A** PARTIAL FLOOR PLAN

	LPCE PROJECT NO.	23-2032
	DESIGNED BY:	JZ/RL
	CHECKED BY:	LPCE
	ISSUE DATE:	2023/06/08
	WORKING DATE:	2023/06/08
	SHEET NUMBER	

T2.00

TECHNOLOGY BUILDING-A - PARTIAL FLOOR PLAN SCALE: 1/8"=1'-0"

ALL EQUIPMENT SHOWN ON CONSTRUCTION DOCUMENTS SHALL BE NEW, CONTRACTOR FURNISHED/CONTRACTOR INSTALLED UNLESS SPECIFIED ON DRAWINGS AND/OR SCHEDULES.

. ALL TECHNOLOGY SYSTEMS MUD RINGS SHALL BE PAINTED GREEN FOR A PRE-WALL FINISH/PANEL BOARD INSPECTION OF IN-WALL HORIZONTAL CABLING INFRASTRUCTURE.

ALL EXPOSED CONDUITS, STRUCTURED CHANNEL, FASTENERS SHALL BE PRIMED WHITE AND PAINTED TO MATCH SURROUNDING AREA.

WORK AREA OUTLET (WAO), AND FIELD DEVICE CABLING SHALL BE

TERMINATED IN MODULAR PATCH PANEL(S) IN SEQUENTIAL ORDER OF ROOM NUMBER, DROP ID. ALL NETWORK CABLES SHALL BE MACHINE LABELED AT PATCH PANEL

FACE, AND AT CATEGORY CABLE (BOTH ENDS AS SHOWN ON

DETAILS/SPECIFICATIONS). . ALL SPEAKER CABLES SHALL BE MACHINE LABELED AT SPEAKER AND

ALL CLOCKS SHALL BE SET TO NTP SERVER, PACIFIC DAYLIGHT TIME

ALL EXTERIOR SPEAKERS SHALL BE ADJUSTED TO NOT EXCEED 65dB AT

**DEMO KEYNOTES:** 

### DESCRIPTION

THE SCHOOL PROPERTY LINE.

- DEMO EXISTING INTERCOM CAMPUS CONTROLLER AND ASSOCIATED HARDWARE. WIPE DOWN CONTROL EQUIPMENT. INVENTORY AND RETURN TO THE DISTRICT IN "AS-IS" CONDITION. DEMO ALL ASSOCIATED CONTROL HARDWARE INTERCONNECTION CABLING, INCLUDING MULTI-PAIR COPPER FEEDERS TO EXISTING SIGNAL TERMINATION CABINETS, TERMINATION BLOCKS.
- DEMO EXISTING SIGNAL TERMINATION CABINET AND TERMINAL BLOCKS. DEMO ALL CABLING FROM EXISTING TERMINAL BLOCKS TO FIELD SPEAKER LOCATIONS.
- DEMO EXISTING SPEAKER DRIVER, EXISTING BACK BOX AND BAFFLE SHALL BE RE USED, TYP., U.N.O.
- DEMO EXISTING CLOCK, WIPE DOWN, INVENTORY AND RETURN TO THE DISTRICT IN "AS-IS" CONDITION.
- ALL DEMO EQUIPMENT AND MATERIALS SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR UNLESS NOTED OTHERWISE. USE OF SCHOOL WASTE DISPOSAL CONTAINERS SHALL NOT BE PERMITTED.

**KEYNOTES**:

# DESCRIPTION

# NEW TELECENTER U IP SYSTEM SITE CONTROLLER.

- NEW EXTERIOR SPEAKER ZONE AMPLIFIER.
- NEW EXTERIOR SPEAKER AMPLIFIER W/ TELECENTER IP MODULE.
- INSTALL NEW INTERCOM SPEAKER / CLOCK COMBO IN CLASSROOM. ROUTE NEW IP SPEAKER (1 EA. CAT6) / CLOCK (1 EA. CAT6) CABLES TO THE NEAREST IDF.
- INSTALL NEW EXTERIOR INTERCOM SPEAKER. REUSE EXISTING BACK BOX, BAFFLE. ROUTE NEW SPEAKER (1 EA. 2C #18) CABLE TO THE NEAREST TELECENTER U AMPLIFIER.
- INSTALL NEW INTERIOR INTERCOM SPEAKER. REUSE EXISTING BACK BOX, BAFFLE. ROUTE NEW SPEAKER (1 EA. CAT6) CABLE TO
- INSTALL NEW IP ANALOG SWEEP TYPE CLOCK. ROUTE (1 EA. CAT6) CABLE TO THE NEAREST IDF.
- INSTALL NEW IP DIGITAL DISPLAY CLOCK. ROUTE (1 EA. CAT6) CABLE TO THE NEAREST IDF.
- INSTALL NEW SURFACE RACEWAY WITH APPROPRIATE TRANSITION AND END FITTINGS, MOUNT HIGH ON WALL-APPROXIMATE 6" FROM CEILING.
- EXISTING HIGH CAPACITY CABLE TRAY / SPINE.

NOTES FOR ADDITIONAL REQUIREMENTS.

THE NEAREST IDF.

- EXISTING BACK BOX AND UNDERGROUND CONDUIT. SEE SITE PLAN FOR ADDITIONAL INFORMATION.

EXISTING SIGNAL TERMINATION CABINET (STC). SEE DEMO

AGENCY APPROVAL STAMP



1209 Pleasant Grove Blvd. Roseville, CA 95678 Ph: (916) 771-0778

PROFESSIONAL STAMP



# SACRAMENTO CITY UNIFIED SCHOOL DISTRICT

5735 47TH AVENUE, SACRAMENTO CA. 95824

PROJECT

**BRET HARTE ELEMENTARY** SCHOOL

2751 9TH AVENUE, SACRAMENTO CA. 95818

SITE-WIDE INTERCOM AND CLOCK MODERNIZATION

**TECHNOLOGY BUILDING-A** PARTIAL FLOOR PLAN

	LPCE PROJECT NO.	23-2032
	DESIGNED BY:	JZ/RL
	CHECKED BY:	LPCE
	ISSUE DATE:	2023/06/08
	WORKING DATE:	2023/06/08
	SHEET NUMBER	

T2.01

TECHNOLOGY BUILDING-A - PARTIAL FLOOR PLAN SCALE: 1/8"=1'-0"

ALL EQUIPMENT SHOWN ON CONSTRUCTION DOCUMENTS SHALL BE NEW, CONTRACTOR FURNISHED/CONTRACTOR INSTALLED UNLESS SPECIFIED ON DRAWINGS AND/OR SCHEDULES.

2. ALL TECHNOLOGY SYSTEMS MUD RINGS SHALL BE PAINTED GREEN FOR A PRE-WALL FINISH/PANEL BOARD INSPECTION OF IN-WALL HORIZONTAL CABLING INFRASTRUCTURE.

ALL EXPOSED CONDUITS, STRUCTURED CHANNEL, FASTENERS SHALL BE PRIMED WHITE AND PAINTED TO MATCH SURROUNDING AREA.

WORK AREA OUTLET (WAO), AND FIELD DEVICE CABLING SHALL BE TERMINATED IN MODULAR PATCH PANEL(S) IN SEQUENTIAL ORDER OF ROOM NUMBER, DROP ID.

ALL NETWORK CABLES SHALL BE MACHINE LABELED AT PATCH PANEL FACE, AND AT CATEGORY CABLE (BOTH ENDS AS SHOWN ON DETAILS/SPECIFICATIONS).

. ALL SPEAKER CABLES SHALL BE MACHINE LABELED AT SPEAKER AND

ALL CLOCKS SHALL BE SET TO NTP SERVER, PACIFIC DAYLIGHT TIME

ALL EXTERIOR SPEAKERS SHALL BE ADJUSTED TO NOT EXCEED 65dB AT THE SCHOOL PROPERTY LINE.

## DEMO KEYNOTES:

### DESCRIPTION

- DEMO EXISTING INTERCOM CAMPUS CONTROLLER AND ASSOCIATED HARDWARE, WIPE DOWN CONTROL EQUIPMENT. INVENTORY AND RETURN TO THE DISTRICT IN "AS-IS" CONDITION. DEMO ALL ASSOCIATED CONTROL HARDWARE INTERCONNECTION CABLING, INCLUDING MULTI-PAIR COPPER FEEDERS TO EXISTING SIGNAL TERMINATION CABINETS, TERMINATION BLOCKS.
- DEMO EXISTING SIGNAL TERMINATION CABINET AND TERMINAL BLOCKS. DEMO ALL CABLING FROM EXISTING TERMINAL BLOCKS TO FIELD SPEAKER LOCATIONS.
- DEMO EXISTING SPEAKER DRIVER, EXISTING BACK BOX AND BAFFLE SHALL BE RE USED, TYP., U.N.O.
- DEMO EXISTING CLOCK, WIPE DOWN, INVENTORY AND RETURN TO THE DISTRICT IN "AS-IS" CONDITION.
- ALL DEMO EQUIPMENT AND MATERIALS SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR UNLESS NOTED OTHERWISE. USE OF SCHOOL WASTE DISPOSAL CONTAINERS SHALL NOT BE PERMITTED.

DESCRIPTION

- NEW TELECENTER U IP SYSTEM SITE CONTROLLER.
- NEW EXTERIOR SPEAKER ZONE AMPLIFIER.
- NEW EXTERIOR SPEAKER AMPLIFIER W/ TELECENTER IP MODULE.
- INSTALL NEW INTERCOM SPEAKER / CLOCK COMBO IN CLASSROOM. ROUTE NEW IP SPEAKER (1 EA. CAT6) / CLOCK (1 EA. CAT6) CABLES TO THE NEAREST IDF.
- INSTALL NEW EXTERIOR INTERCOM SPEAKER. REUSE EXISTING BACK BOX, BAFFLE. ROUTE NEW SPEAKER (1 EA. 2C #18) CABLE TO THE NEAREST TELECENTER U AMPLIFIER.
- INSTALL NEW INTERIOR INTERCOM SPEAKER. REUSE EXISTING BACK BOX, BAFFLE. ROUTE NEW SPEAKER (1 EA. CAT6) CABLE TO THE NEAREST IDF.
- INSTALL NEW IP ANALOG SWEEP TYPE CLOCK. ROUTE (1 EA. CAT6) CABLE TO THE NEAREST IDF.
- INSTALL NEW IP DIGITAL DISPLAY CLOCK. ROUTE (1 EA. CAT6) CABLE TO THE NEAREST IDF.
- INSTALL NEW SURFACE RACEWAY WITH APPROPRIATE TRANSITION AND END FITTINGS, MOUNT HIGH ON
- WALL-APPROXIMATE 6" FROM CEILING. EXISTING HIGH CAPACITY CABLE TRAY / SPINE.

NOTES FOR ADDITIONAL REQUIREMENTS.

EXISTING BACK BOX AND UNDERGROUND CONDUIT. SEE SITE PLAN FOR ADDITIONAL INFORMATION.

SACRAMENTO CA. 95824 EXISTING SIGNAL TERMINATION CABINET (STC). SEE DEMO

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1209 Pleasant Grove Blvd. Roseville, CA 95678 Ph: (916) 771-0778

Job #: 23-2032

No. E 16762

**BRET HARTE ELEMENTARY** SCHOOL

SACRAMENTO CITY

UNIFIED SCHOOL

DISTRICT

5735 47TH AVENUE,

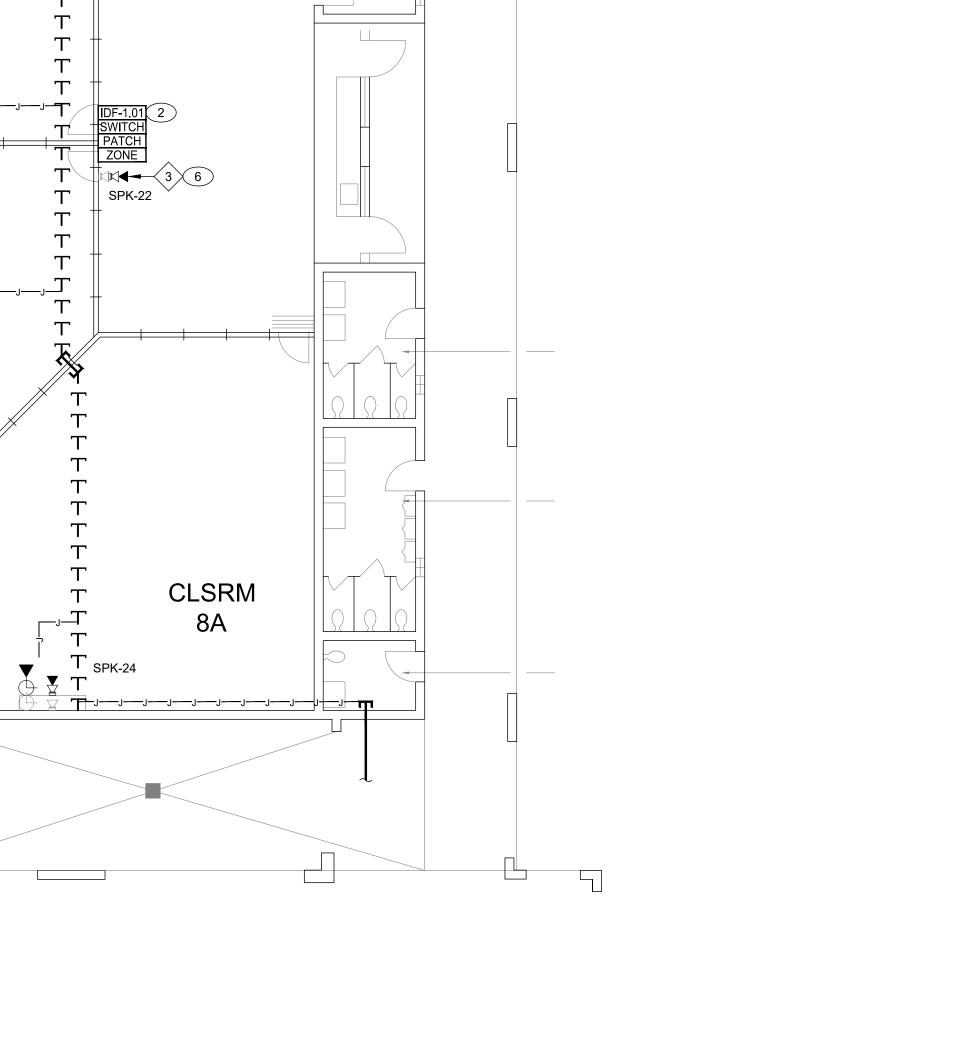
2751 9TH AVENUE, SACRAMENTO CA. 95818

SITE-WIDE INTERCOM AND CLOCK MODERNIZATION

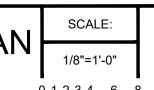
TECHNOLOGY **BUILDING-A** PARTIAL FLOOR PLAN

LPCE PROJECT NO.	23-203
DESIGNED BY:	JZ/R
CHECKED BY:	LPC
ISSUE DATE:	2023/06/0
WORKING DATE:	2023/06/0
SHEET NUMBER	

T2.02

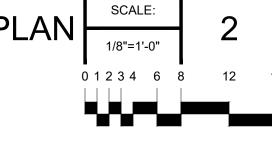


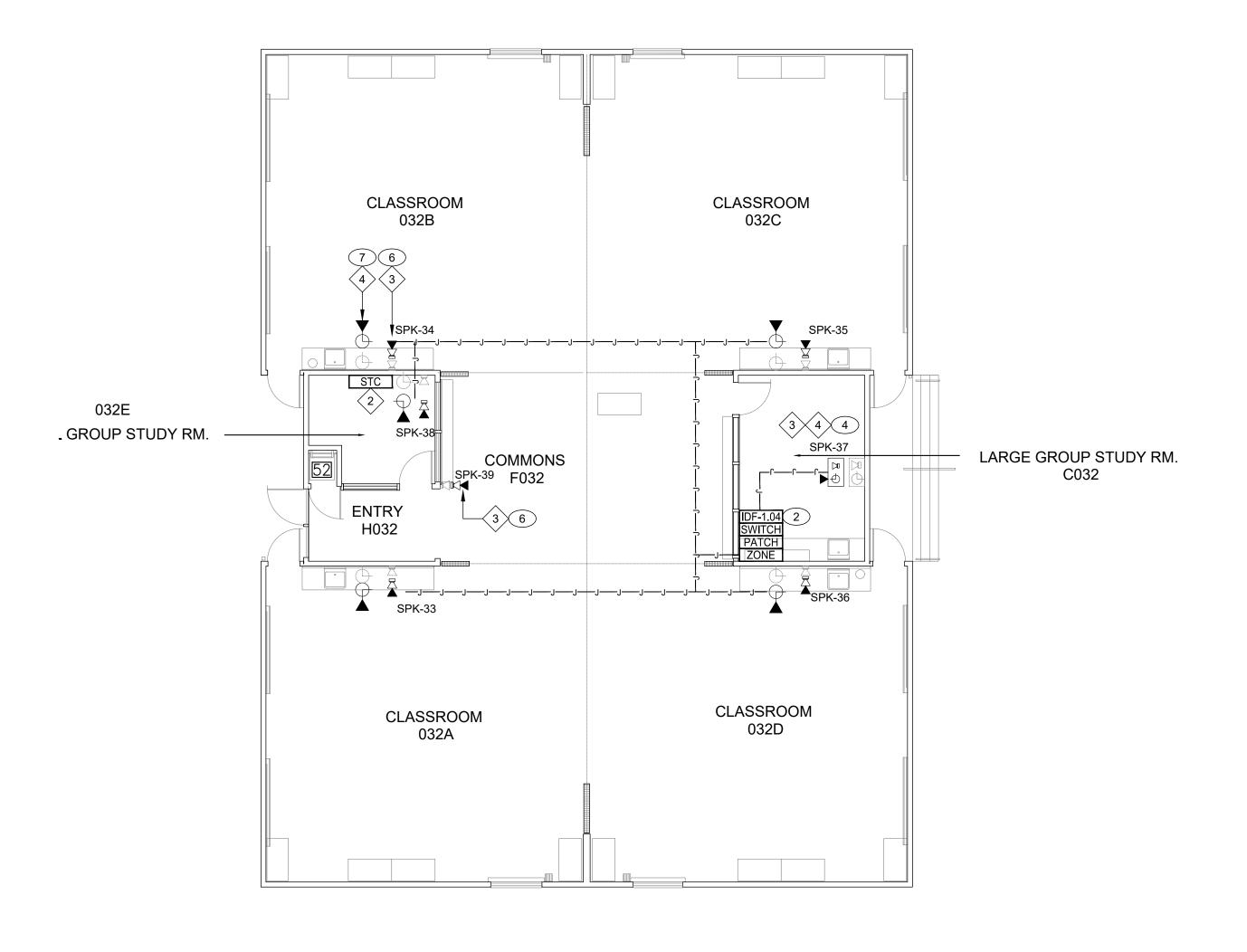






TECHNOLOGY BUILDING-B - FLOOR PLAN





TECHNOLOGY BUILDING-C - FLOOR PLAN SCALE: 1/8"=1'-0"

ALL EQUIPMENT SHOWN ON CONSTRUCTION DOCUMENTS SHALL BE NEW CONTRACTOR FURNISHED/CONTRACTOR INSTALLED UNLESS SPECIFIED ON DRAWINGS AND/OR SCHEDULES.

ALL TECHNOLOGY SYSTEMS MUD RINGS SHALL BE PAINTED GREEN FOR A PRE-WALL FINISH/PANEL BOARD INSPECTION OF IN-WALL HORIZONTAL CABLING INFRASTRUCTURE.

ALL EXPOSED CONDUITS, STRUCTURED CHANNEL, FASTENERS SHALL BE PRIMED WHITE AND PAINTED TO MATCH SURROUNDING AREA.

WORK AREA OUTLET (WAO), AND FIELD DEVICE CABLING SHALL BE TERMINATED IN MODULAR PATCH PANEL(S) IN SEQUENTIAL ORDER OF ROOM NUMBER, DROP ID.

ALL NETWORK CABLES SHALL BE MACHINE LABELED AT PATCH PANEL FACE, AND AT CATEGORY CABLE (BOTH ENDS AS SHOWN ON DETAILS/SPECIFICATIONS).

ALL SPEAKER CABLES SHALL BE MACHINE LABELED AT SPEAKER AND

ALL CLOCKS SHALL BE SET TO NTP SERVER, PACIFIC DAYLIGHT TIME

ALL EXTERIOR SPEAKERS SHALL BE ADJUSTED TO NOT EXCEED 65dB AT THE SCHOOL PROPERTY LINE.

**DEMO KEYNOTES:** 

DESCRIPTION

DEMO EXISTING INTERCOM CAMPUS CONTROLLER AND ASSOCIATED HARDWARE. WIPE DOWN CONTROL EQUIPMENT, INVENTORY AND RETURN TO THE DISTRICT IN "AS-IS" CONDITION. DEMO ALL ASSOCIATED CONTROL HARDWARE INTERCONNECTION CABLING, INCLUDING MULTI-PAIR COPPER FEEDERS TO EXISTING SIGNAL TERMINATION CABINETS, TERMINATION BLOCKS.

DEMO EXISTING SIGNAL TERMINATION CABINET AND TERMINAL BLOCKS. DEMO ALL CABLING FROM EXISTING TERMINAL BLOCKS TO FIELD SPEAKER LOCATIONS.

DEMO EXISTING SPEAKER DRIVER, EXISTING BACK BOX AND BAFFLE SHALL BE RE USED, TYP., U.N.O.

DEMO EXISTING CLOCK, WIPE DOWN, INVENTORY AND RETURN TO THE DISTRICT IN "AS-IS" CONDITION.

ALL DEMO EQUIPMENT AND MATERIALS SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR UNLESS NOTED OTHERWISE. USE OF SCHOOL WASTE DISPOSAL CONTAINERS SHALL NOT BE PERMITTED.

**KEYNOTES:** 

KEYNOTE DESCRIPTION

NEW TELECENTER U IP SYSTEM SITE CONTROLLER.

CAT6) CABLES TO THE NEAREST IDF.

2 NEW EXTERIOR SPEAKER ZONE AMPLIFIER.

NEW EXTERIOR SPEAKER AMPLIFIER W/ TELECENTER IP MODULE. INSTALL NEW INTERCOM SPEAKER / CLOCK COMBO IN

CLASSROOM. ROUTE NEW IP SPEAKER (1 EA. CAT6) / CLOCK (1 EA.

BACK BOX, BAFFLE. ROUTE NEW SPEAKER (1 EA. CAT6) CABLE TO

INSTALL NEW EXTERIOR INTERCOM SPEAKER. REUSE EXISTING BACK BOX, BAFFLE. ROUTE NEW SPEAKER (1 EA. 2C #18) CABLE

TO THE NEAREST TELECENTER U AMPLIFIER. INSTALL NEW INTERIOR INTERCOM SPEAKER. REUSE EXISTING

INSTALL NEW IP ANALOG SWEEP TYPE CLOCK. ROUTE (1 EA.

THE NEAREST IDF.

CAT6) CABLE TO THE NEAREST IDF. INSTALL NEW IP DIGITAL DISPLAY CLOCK. ROUTE (1 EA. CAT6)

CABLE TO THE NEAREST IDF. INSTALL NEW SURFACE RACEWAY WITH APPROPRIATE TRANSITION AND END FITTINGS, MOUNT HIGH ON

WALL-APPROXIMATE 6" FROM CEILING. EXISTING HIGH CAPACITY CABLE TRAY / SPINE.

EXISTING BACK BOX AND UNDERGROUND CONDUIT. SEE SITE PLAN FOR ADDITIONAL INFORMATION.

EXISTING SIGNAL TERMINATION CABINET (STC). SEE DEMO NOTES FOR ADDITIONAL REQUIREMENTS.

SHEET GENERAL NOTES:

MEP & FS / Sustainability / CxA 1209 Pleasant Grove Blvd. Roseville, CA 95678

Ph: (916) 771-0778

Job #: 23-2032

PROFESSIONAL STAMP

**ENGINEERS** 

AGENCY APPROVAL STAMP



# SACRAMENTO CITY UNIFIED SCHOOL DISTRICT

5735 47TH AVENUE, SACRAMENTO CA. 95824

PROJECT

**BRET HARTE ELEMENTARY** SCHOOL

2751 9TH AVENUE, SACRAMENTO CA. 95818

SITE-WIDE INTERCOM AND CLOCK MODERNIZATION

SHEET TITLE

TECHNOLOGY BUILDINGS-B AND C FLOOR PLANS

LPCE PROJECT NO.	23-2032
DESIGNED BY:	JZ/RL
CHECKED BY:	LPCE
ISSUE DATE:	2023/06/08
WORKING DATE:	2023/06/08
SHEET NUMBER	

T2.03

TECHNOLOGY BUILDING-D - FLOOR PLAN | SCALE: | 1 | 1/8"=1'-0" | 1 | 1/8" | 1 | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1/8" | 1

SHEET GENERAL NOTES:

1. ALL EQUIPMENT SHOWN ON CONSTRUCTION DOCUMENTS SHALL BE NEW, CONTRACTOR FURNISHED/CONTRACTOR INSTALLED UNLESS SPECIFIED ON DRAWINGS AND/OR SCHEDULES.

2. ALL TECHNOLOGY SYSTEMS MUD RINGS SHALL BE PAINTED GREEN FOR A PRE-WALL FINISH/PANEL BOARD INSPECTION OF IN-WALL HORIZONTAL CABLING INFRASTRUCTURE.

3. ALL EXPOSED CONDUITS, STRUCTURED CHANNEL, FASTENERS SHALL BE PRIMED WHITE AND PAINTED TO MATCH SURROUNDING AREA.

ALL NETWORK CABLES SHALL BE MACHINE LABELED AT PATCH PANEL

4. WORK AREA OUTLET (WAO), AND FIELD DEVICE CABLING SHALL BE

TERMINATED IN MODULAR PATCH PANEL(S) IN SEQUENTIAL ORDER OF ROOM NUMBER, DROP ID.

FACE, AND AT CATEGORY CABLE (BOTH ENDS AS SHOWN ON DETAILS/SPECIFICATIONS).

3. ALL SPEAKER CABLES SHALL BE MACHINE LABELED AT SPEAKER AND STC.

 ALL CLOCKS SHALL BE SET TO NTP SERVER, PACIFIC DAYLIGHT TIME (PST).

8. ALL EXTERIOR SPEAKERS SHALL BE ADJUSTED TO NOT EXCEED 65dB AT THE SCHOOL PROPERTY LINE.

## DEMO KEYNOTES:

## KEYNOTE DESCRIPTION

- DEMO EXISTING INTERCOM CAMPUS CONTROLLER AND ASSOCIATED HARDWARE. WIPE DOWN CONTROL EQUIPMENT, INVENTORY AND RETURN TO THE DISTRICT IN "AS-IS" CONDITION. DEMO ALL ASSOCIATED CONTROL HARDWARE INTERCONNECTION CABLING, INCLUDING MULTI-PAIR COPPER FEEDERS TO EXISTING SIGNAL TERMINATION CABINETS, TERMINATION BLOCKS.
- DEMO EXISTING SIGNAL TERMINATION CABINET AND TERMINAL BLOCKS. DEMO ALL CABLING FROM EXISTING TERMINAL BLOCKS TO FIELD SPEAKER LOCATIONS.
- DEMO EXISTING SPEAKER DRIVER, EXISTING BACK BOX AND BAFFLE SHALL BE RE USED, TYP., U.N.O.
- DEMO EXISTING CLOCK, WIPE DOWN, INVENTORY AND RETURN TO THE DISTRICT IN "AS-IS" CONDITION.
- ALL DEMO EQUIPMENT AND MATERIALS SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR UNLESS NOTED OTHERWISE. USE OF SCHOOL WASTE DISPOSAL CONTAINERS SHALL NOT BE PERMITTED.

	KEYNOTES:
KEYNOTE ID	DESCRIPTION
1	NEW TELECENTER U IP SYSTEM SITE CONTROLLER.
2	NEW EXTERIOR SPEAKER ZONE AMPLIFIER.
3	NEW EXTERIOR SPEAKER AMPLIFIER W/ TELECENTER IP MODULE.
4	INSTALL NEW INTERCOM SPEAKER / CLOCK COMBO IN CLASSROOM. ROUTE NEW IP SPEAKER (1 EA. CAT6) / CLOCK (1 EA. CAT6) CABLES TO THE NEAREST IDF.
5	INSTALL NEW EXTERIOR INTERCOM SPEAKER. REUSE EXISTING BACK BOX, BAFFLE. ROUTE NEW SPEAKER (1 EA. 2C #18) CABLE TO THE NEAREST TELECENTER U AMPLIFIER.
6	INSTALL NEW INTERIOR INTERCOM SPEAKER. REUSE EXISTING BACK BOX, BAFFLE. ROUTE NEW SPEAKER (1 EA. CAT6) CABLE TO THE NEAREST IDF.
7	INSTALL NEW IP ANALOG SWEEP TYPE CLOCK. ROUTE (1 EA. CAT6) CABLE TO THE NEAREST IDF.
8	INSTALL NEW IP DIGITAL DISPLAY CLOCK. ROUTE (1 EA. CAT6) CABLE TO THE NEAREST IDF.

INSTALL NEW SURFACE RACEWAY WITH APPROPRIATE TRANSITION AND END FITTINGS, MOUNT HIGH ON WALL-APPROXIMATE 6" FROM CEILING.

EXISTING BACK BOX AND UNDERGROUND CONDUIT. SEE SITE PLAN FOR ADDITIONAL INFORMATION.

EXISTING SIGNAL TERMINATION CABINET (STC). SEE DEMO NOTES FOR ADDITIONAL REQUIREMENTS.

EXISTING HIGH CAPACITY CABLE TRAY / SPINE.

SACRAMENTO CITY UNIFIED SCHOOL DISTRICT

> 5735 47TH AVENUE, SACRAMENTO CA. 95824

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ENGINEERS

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1209 Pleasant Grove Blvd. Roseville, CA 95678 Ph: (916) 771-0778

www.lpengineers.com Job #: 23-2032

No. E 16762

BRET HARTE ELEMENTARY SCHOOL

2751 9TH AVENUE, SACRAMENTO CA. 95818

SITE-WIDE INTERCOM AND CLOCK MODERNIZATION

SHEET TIT

TECHNOLOGY BUILDING-D FLOOR PLAN

LPCE PROJECT NO.	23-2032
DESIGNED BY:	JZ/RL
CHECKED BY:	LPCE
ISSUE DATE:	2023/06/08
WORKING DATE:	2023/06/08
SHEET NUMBER	

T2.04

ALL EQUIPMENT SHOWN ON CONSTRUCTION DOCUMENTS SHALL BE NEW, CONTRACTOR FURNISHED/CONTRACTOR INSTALLED UNLESS SPECIFIED ON DRAWINGS AND/OR SCHEDULES.

2. ALL TECHNOLOGY SYSTEMS MUD RINGS SHALL BE PAINTED GREEN FOR A PRE-WALL FINISH/PANEL BOARD INSPECTION OF IN-WALL HORIZONTAL CABLING INFRASTRUCTURE.

ALL EXPOSED CONDUITS, STRUCTURED CHANNEL, FASTENERS SHALL BE PRIMED WHITE AND PAINTED TO MATCH SURROUNDING AREA.

WORK AREA OUTLET (WAO), AND FIELD DEVICE CABLING SHALL BE TERMINATED IN MODULAR PATCH PANEL(S) IN SEQUENTIAL ORDER OF

ROOM NUMBER, DROP ID. ALL NETWORK CABLES SHALL BE MACHINE LABELED AT PATCH PANEL FACE, AND AT CATEGORY CABLE (BOTH ENDS AS SHOWN ON

. ALL SPEAKER CABLES SHALL BE MACHINE LABELED AT SPEAKER AND

ALL CLOCKS SHALL BE SET TO NTP SERVER, PACIFIC DAYLIGHT TIME

ALL EXTERIOR SPEAKERS SHALL BE ADJUSTED TO NOT EXCEED 65dB AT

THE SCHOOL PROPERTY LINE.

DEMO KEYNOTES:

## DESCRIPTION

DETAILS/SPECIFICATIONS).

- DEMO EXISTING INTERCOM CAMPUS CONTROLLER AND ASSOCIATED HARDWARE. WIPE DOWN CONTROL EQUIPMENT, INVENTORY AND RETURN TO THE DISTRICT IN "AS-IS" CONDITION. DEMO ALL ASSOCIATED CONTROL HARDWARE INTERCONNECTION CABLING, INCLUDING MULTI-PAIR COPPER FEEDERS TO EXISTING SIGNAL TERMINATION CABINETS, TERMINATION BLOCKS.
- DEMO EXISTING SIGNAL TERMINATION CABINET AND TERMINAL BLOCKS. DEMO ALL CABLING FROM EXISTING TERMINAL BLOCKS TO FIELD SPEAKER LOCATIONS.
- DEMO EXISTING SPEAKER DRIVER, EXISTING BACK BOX AND BAFFLE SHALL BE RE USED, TYP., U.N.O.
- DEMO EXISTING CLOCK, WIPE DOWN, INVENTORY AND RETURN TO THE DISTRICT IN "AS-IS" CONDITION.
- ALL DEMO EQUIPMENT AND MATERIALS SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR UNLESS NOTED OTHERWISE. USE OF SCHOOL WASTE DISPOSAL CONTAINERS SHALL NOT BE PERMITTED.

**KEYNOTES:** 

NEW TELECENTER U IP SYSTEM SITE CONTROLLER.

DESCRIPTION

- NEW EXTERIOR SPEAKER ZONE AMPLIFIER.
- NEW EXTERIOR SPEAKER AMPLIFIER W/ TELECENTER IP MODULE.
- INSTALL NEW INTERCOM SPEAKER / CLOCK COMBO IN CLASSROOM. ROUTE NEW IP SPEAKER (1 EA. CAT6) / CLOCK (1 EA. CAT6) CABLES TO THE NEAREST IDF.
- INSTALL NEW EXTERIOR INTERCOM SPEAKER. REUSE EXISTING BACK BOX, BAFFLE. ROUTE NEW SPEAKER (1 EA. 2C #18) CABLE
- TO THE NEAREST TELECENTER U AMPLIFIER. INSTALL NEW INTERIOR INTERCOM SPEAKER. REUSE EXISTING
- BACK BOX, BAFFLE. ROUTE NEW SPEAKER (1 EA. CAT6) CABLE TO THE NEAREST IDF.
- INSTALL NEW IP ANALOG SWEEP TYPE CLOCK. ROUTE (1 EA. CAT6) CABLE TO THE NEAREST IDF.
- INSTALL NEW IP DIGITAL DISPLAY CLOCK. ROUTE (1 EA. CAT6) CABLE TO THE NEAREST IDF.
- INSTALL NEW SURFACE RACEWAY WITH APPROPRIATE TRANSITION AND END FITTINGS, MOUNT HIGH ON WALL-APPROXIMATE 6" FROM CEILING.
- (10) EXISTING HIGH CAPACITY CABLE TRAY / SPINE.

NOTES FOR ADDITIONAL REQUIREMENTS.

- EXISTING BACK BOX AND UNDERGROUND CONDUIT. SEE SITE PLAN FOR ADDITIONAL INFORMATION.

EXISTING SIGNAL TERMINATION CABINET (STC). SEE DEMO

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# SACRAMENTO CITY UNIFIED SCHOOL DISTRICT

5735 47TH AVENUE, SACRAMENTO CA. 95824

PROJECT

**BRET HARTE ELEMENTARY** SCHOOL

2751 9TH AVENUE, SACRAMENTO CA. 95818

# SITE-WIDE INTERCOM AND CLOCK MODERNIZATION

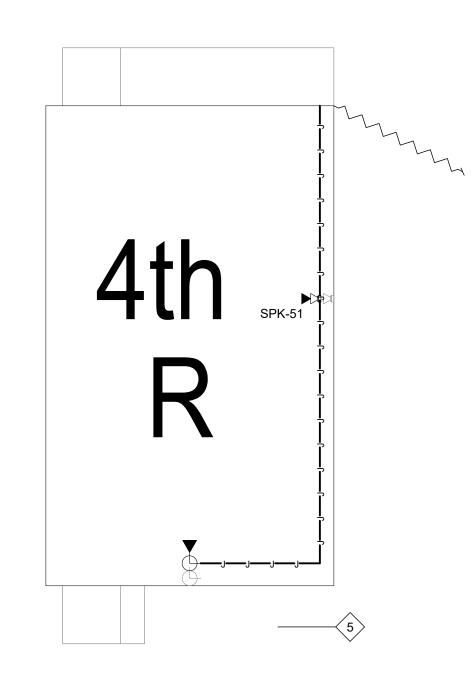
SHEET TITLE

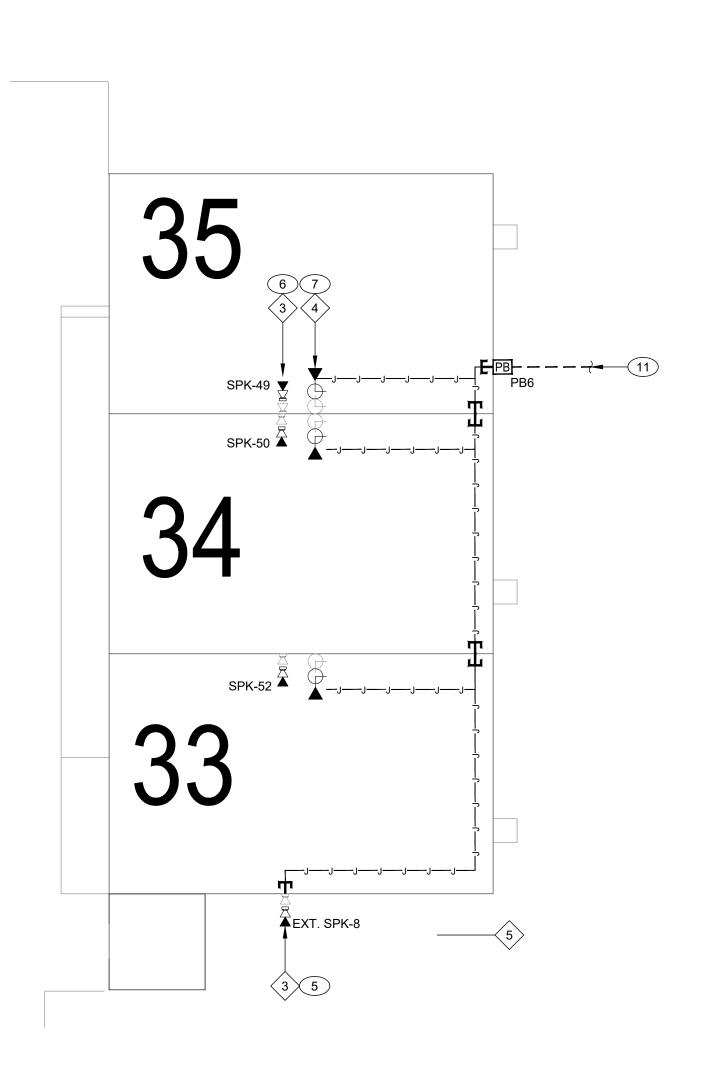
TECHNOLOGY **BUILDING-K** FLOOR PLAN

LPCE PROJECT NO.	23-203
DESIGNED BY:	JZ/R
CHECKED BY:	LPC
ISSUE DATE:	2023/06/0
WORKING DATE:	2023/06/0
SHEET NUMBER	

T2.05

TECHNOLOGY BUILDING-K - FLOOR PLAN SCALE:





ALL EQUIPMENT SHOWN ON CONSTRUCTION DOCUMENTS SHALL BE NEW, CONTRACTOR FURNISHED/CONTRACTOR INSTALLED UNLESS SPECIFIED ON DRAWINGS AND/OR SCHEDULES.

2. ALL TECHNOLOGY SYSTEMS MUD RINGS SHALL BE PAINTED GREEN FOR A PRE-WALL FINISH/PANEL BOARD INSPECTION OF IN-WALL HORIZONTAL CABLING INFRASTRUCTURE.

ALL EXPOSED CONDUITS, STRUCTURED CHANNEL, FASTENERS SHALL BE PRIMED WHITE AND PAINTED TO MATCH SURROUNDING AREA.

WORK AREA OUTLET (WAO), AND FIELD DEVICE CABLING SHALL BE TERMINATED IN MODULAR PATCH PANEL(S) IN SEQUENTIAL ORDER OF ROOM NUMBER, DROP ID.

ALL NETWORK CABLES SHALL BE MACHINE LABELED AT PATCH PANEL FACE, AND AT CATEGORY CABLE (BOTH ENDS AS SHOWN ON DETAILS/SPECIFICATIONS).

. ALL SPEAKER CABLES SHALL BE MACHINE LABELED AT SPEAKER AND

. ALL CLOCKS SHALL BE SET TO NTP SERVER, PACIFIC DAYLIGHT TIME

. ALL EXTERIOR SPEAKERS SHALL BE ADJUSTED TO NOT EXCEED 65dB AT THE SCHOOL PROPERTY LINE.

**DEMO KEYNOTES:** 

ENGINEERS

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1209 Pleasant Grove Blvd. Roseville, CA 95678 Ph: (916) 771-0778

Job #: 23-2032

AGENCY APPROVAL STAMP

### DESCRIPTION

DEMO EXISTING INTERCOM CAMPUS CONTROLLER AND ASSOCIATED HARDWARE. WIPE DOWN CONTROL EQUIPMENT, INVENTORY AND RETURN TO THE DISTRICT IN "AS-IS" CONDITION. DEMO ALL ASSOCIATED CONTROL HARDWARE INTERCONNECTION CABLING, INCLUDING MULTI-PAIR COPPER FEEDERS TO EXISTING SIGNAL TERMINATION CABINETS, TERMINATION BLOCKS.

DEMO EXISTING SIGNAL TERMINATION CABINET AND TERMINAL BLOCKS. DEMO ALL CABLING FROM EXISTING TERMINAL BLOCKS TO FIELD SPEAKER LOCATIONS.

DEMO EXISTING SPEAKER DRIVER, EXISTING BACK BOX AND BAFFLE SHALL BE RE USED, TYP., U.N.O.

DEMO EXISTING CLOCK, WIPE DOWN, INVENTORY AND RETURN TO THE DISTRICT IN "AS-IS" CONDITION.

ALL DEMO EQUIPMENT AND MATERIALS SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR UNLESS NOTED OTHERWISE. USE OF SCHOOL WASTE DISPOSAL CONTAINERS SHALL NOT BE PERMITTED.

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## KEYNOTES:

- 2 NEW EXTERIOR SPEAKER ZONE AMPLIFIER.
- INSTALL NEW INTERCOM SPEAKER / CLOCK COMBO IN CLASSROOM. ROUTE NEW IP SPEAKER (1 EA. CAT6) / CLOCK (1 EA.
- INSTALL NEW INTERIOR INTERCOM SPEAKER. REUSE EXISTING BACK BOX, BAFFLE. ROUTE NEW SPEAKER (1 EA. CAT6) CABLE TO
- INSTALL NEW IP ANALOG SWEEP TYPE CLOCK. ROUTE (1 EA. CAT6) CABLE TO THE NEAREST IDF.
- INSTALL NEW IP DIGITAL DISPLAY CLOCK. ROUTE (1 EA. CAT6) CABLE TO THE NEAREST IDF.
- TRANSITION AND END FITTINGS, MOUNT HIGH ON WALL-APPROXIMATE 6" FROM CEILING.
- (10) EXISTING HIGH CAPACITY CABLE TRAY / SPINE.
- EXISTING BACK BOX AND UNDERGROUND CONDUIT. SEE SITE PLAN FOR ADDITIONAL INFORMATION.
- EXISTING SIGNAL TERMINATION CABINET (STC). SEE DEMO NOTES FOR ADDITIONAL REQUIREMENTS.

## DESCRIPTION

### (1) NEW TELECENTER U IP SYSTEM SITE CONTROLLER.

- NEW EXTERIOR SPEAKER AMPLIFIER W/ TELECENTER IP MODULE.
- CAT6) CABLES TO THE NEAREST IDF.
- INSTALL NEW EXTERIOR INTERCOM SPEAKER. REUSE EXISTING BACK BOX, BAFFLE. ROUTE NEW SPEAKER (1 EA. 2C #18) CABLE TO THE NEAREST TELECENTER U AMPLIFIER.
- THE NEAREST IDF.
- INSTALL NEW SURFACE RACEWAY WITH APPROPRIATE

# SACRAMENTO CITY UNIFIED SCHOOL DISTRICT

5735 47TH AVENUE, SACRAMENTO CA. 95824

# **BRET HARTE ELEMENTARY** SCHOOL

2751 9TH AVENUE, SACRAMENTO CA. 95818

# SITE-WIDE INTERCOM AND CLOCK **MODERNIZATION**

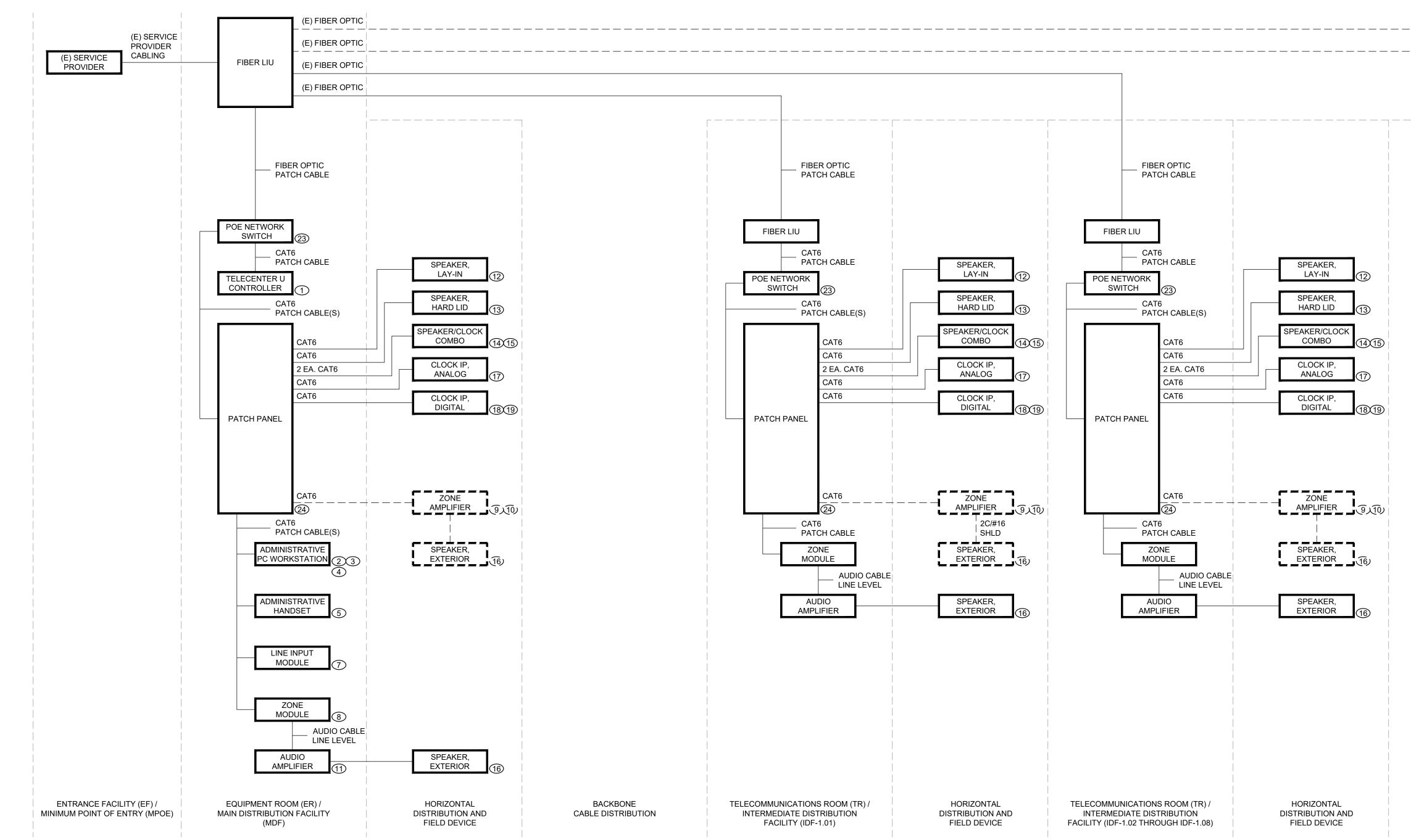
TECHNOLOGY PORTABLES FLOOR PLAN

LPCE PROJECT NO.	23-203
DESIGNED BY:	JZ/R
CHECKED BY:	LPC
ISSUE DATE:	2023/06/0
WORKING DATE:	2023/06/0

SHEET NUMBER

T2.06

TECHNOLOGY PORTABLES - FLOOR PLAN SCALE: 1/8"=1'-0"



TELECENTER U - INTERCOM AND CLOCK SYSTEM ONE-LINE

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**BRET HARTE ELEMENTARY** SCHOOL

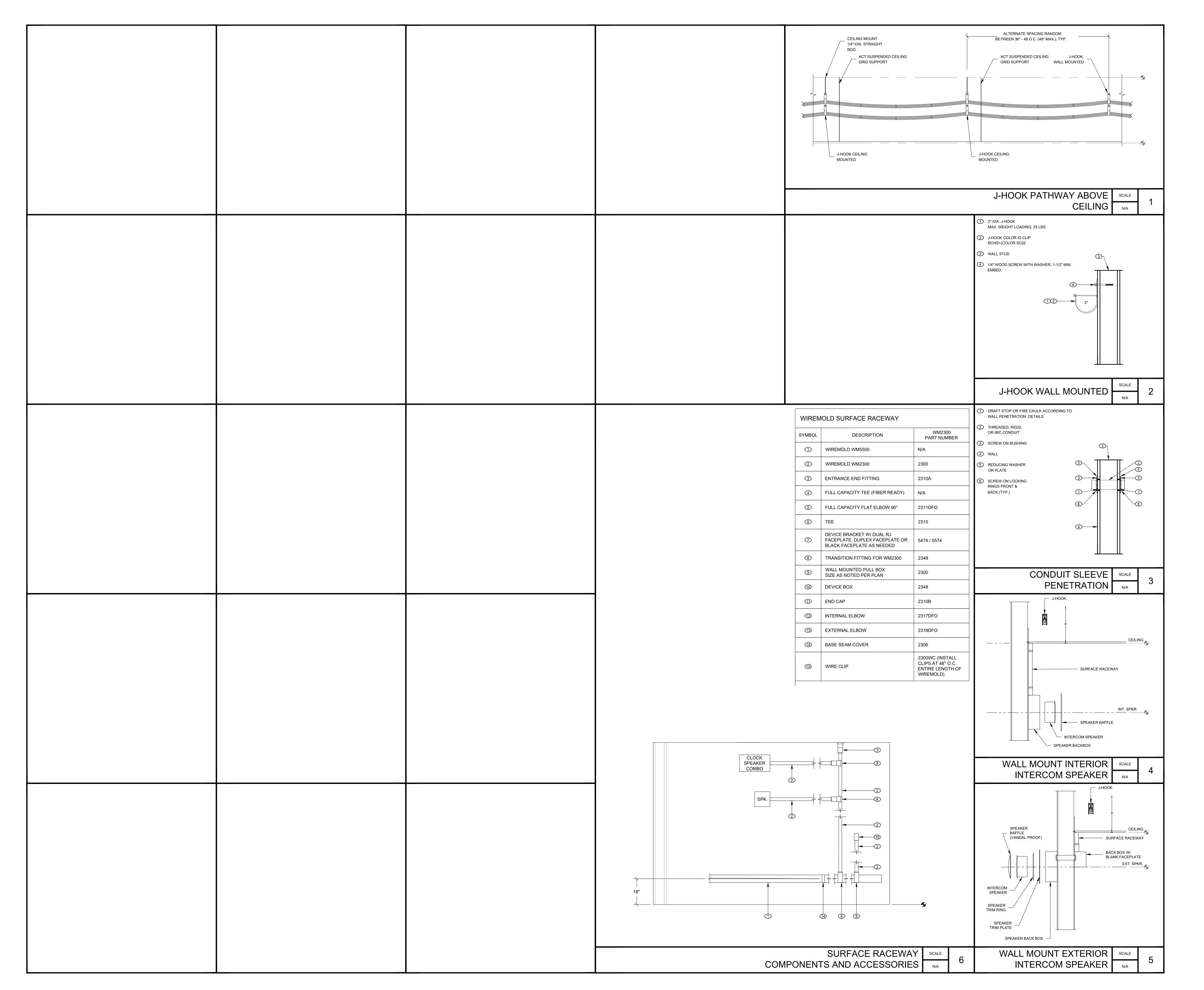
2751 9TH AVENUE, SACRAMENTO CA. 95818

# SITE-WIDE INTERCOM AND CLOCK MODERNIZATION

TECHNOLOGY ONE-LINES AND **EQUIPMENT** SCHEDULE

LPCE PROJECT NO.	23-2032
DESIGNED BY:	JZ/RL
CHECKED BY:	LPCE
ISSUE DATE:	2023/06/08
WORKING DATE:	2023/06/08
SHEET NUMBER	

T3.00



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Job #: 23-2032

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VICOT

BRET HARTE ELEMENTARY SCHOOL

2751 9TH AVENUE, SACRAMENTO CA. 95818

SITE-WIDE INTERCOM AND CLOCK MODERNIZATION

SHEET TITLE

TECHNOLOGY DETAILS

LPCE PROJECT NO.	23-2032
DESIGNED BY:	JZ/RL
CHECKED BY:	LPCE
ISSUE DATE:	2023/06/08
WORKING DATE:	2023/06/08
SHEET NUMBER	

T4.00

Inderwiters Laboratories. In

CLIV.R14288 Wall-opening Protective Materials

SpecSeal Power Shield Box Inserts, for use with flush device UL Listed Metallic Outlet Boxes without internal clamps installed with steel mud rings in framed wall assemblies. When protective material is used in outlet boxes on both sides of the wall as directed, the horizontal separation between outlet boxes on opposite sides of the wall may be less than 24 in. (610 mm) provided that the boxes are not installed back-to-back. Installation shall comply with the National Electrical Code (NFPA 70). The max outlet box dimensions, hourly rating, type of stud, use of stud cavity insulation and type of faceplate are tabulated below. Additional general construction features shall comply as follows:

A. Studs - Unless otherwise specified, the minimum stud width is 3-1/2 in. (89 mm). B. Stud Cavity Insulation - Where indicated in the table below, stud cavity insulation to consist of min 3-1/2 in. (89 mm) thick fiberglass (min 0.5 pcf or 8 kg/m3) or mineral fiber (min 4 pcf or 64 kg/m3). Unless indicated as required, stud cavity insulation

C. Wall Design - Stud composition is indicated in the table below. Wall construction shall comply with the individual U300, U400 or V400 Series Wall and Partition Design in the Fire Resistance Directory. D. Pad Dimensions - The minimum dimensions of the insert pad are shown in the table below. Pads may be cut to achieve

nensions	shown in table and partia	l insert pad	ls may be	utilized.					
Product	Max Outlet Box Size, in. (mm)	Outlet Box Type	Outlet Box Mfr	Pad Size, in. (mm)	Rating, hr	Stud	Cavity Insulation	Face Plate Type	Putty Ball
EP 23	2 x 3 x 2-1/4 (51 x 76 x 57) deep	-	-	1-7/8 x 2-3/4 (48 x 70)	2	Steel	No	Steel	-
EP 23	2 x 3 x 2-1/4 (51 x 76 x 57) deep	-	-	1-7/8 x 2-3/4 (48 x 70)	2	Steel	Yes	Plastic	-
EP 23	2 x 3 x 2-1/4 (51 x 76 x 57) deep	-	-	1-7/8 x 2-3/4 (48 x 70)	1	Steel or Wood	Yes	Plastic or Steel	-
EP 24	2-1/8 x 4 x 2-1/8 (54 x 102 x 54) deep	-	-	1-7/8 x 3-3/4 (48 x 95)	2	Steel	No	Steel	-
EP 24	2-1/8 x 4 x 2-1/8 (54 x 102 x 54) deep	-	-	1-7/8 x 3-3/4 (48 x 95)	2	Steel	Yes	Plastic	-
EP 24	2-1/8 x 4 x 2-1/8 (54 x 102 x 54) deep	-	-	1-7/8 x 3-3/4 (48 x 95)	1	Steel or Wood	Yes	Plastic or Steel	-
EP 44	4 x 4 x 2-1/8 (102 x 102 x 54) deep	-	-	3-3/4 x 3-3/4 (95 x 95)	2	Steel	No	Steel	-
EP 44	4 x 4 x 2-1/8 (102 x 102 x 54) deep	-	-	3-3/4 x 3-3/4 (95 x 95)	2	Steel	Yes	Plastic	-
EP 44	4 x 4 x 2-1/8 (102 x 102 x 54) deep	-	-	3-3/4 x 3-3/4 (95 x 95)	1	Steel or Wood	Yes	Plastic or Steel	-
EP 45	4-11/16 x 4-11/16 x 2-1/8 (119 x 119 x 54) deep	-	-	4-1/2 x 4-1/2 (114 x 114)	1 or 2	Steel or Wood	Yes	Plastic or Steel	-
EP 45	4-1/2 x 5 x 2-3/8 (114 x 127 x 60) deep	-	-	4-1/2 x 4-1/2 (114 x 114)	1 or 2	Steel or Wood	165	Plastic or Steel	-
EP 45	4-1/2 x 14 x 2-1/2 (114 x 356 x 64) deep	-	-	4-1/2 x 13-3/4 (114 x 349)	1 or 2	Steel or Wood	Yes	Plastic or Steel	-

SpecSeal Putty Pads, for use with flush device UL Listed Metallic Outlet Boxes installed with steel mud rings or UL Listed lonmetallic Outlet Boxes in framed wall assemblies. When protective material is used on outlet boxes on both sides of the wall as directed, the horizontal separation between outlet boxes on opposite sides of the wall may be less than 24 in. (610 mm) provided that the boxes are not installed back-to-back. Installation shall comply with the National Electrical Code (NFPA 70). Min 3/16 in. (5 mm) thick moldable putty pads are to be installed to completely cover the exterior surfaces of the outlet box (except for the side of the outlet box against the stud) and to completely seal against the stud within the stud cavity. Adjoining pieces of moldable putty pads to be overlapped approx 1/2 in. (13 mm) at the seam. An additional 3/16 in. (5 mm) thickness of putty to be formed around the connector securing the end of each Type MC cable, electrical metallic tube (EMT) or conduit to the box. When nonmetallic box is used with Type NM cable, a 3/16 in. (5 mm) thickness of putty shall be formed around the cable at its connection to the box and extending a min of 1 in. (25 mm). The box composition, max device dimensions, hourly rating, type of stud and type of faceplate are tabulated below. Additional general construction features shall comply as follows: A. Studs - Unless otherwise specified, the minimum stud width is 3-1/2 in. (89 mm).

B. Stud Cavity Insulation - Unless indicated as required, stud cavity insulation is optional and may consist of min 3-1/2 in. (89 mm) thick fiberglass (min 0.5 pcf or 8 kg/m3) or mineral fiber (min 4 pcf or 64 kg/m3). C. Wall Design - Stud composition is indicated in the table below. Wall construction shall comply with the individual U300, U400 or V400 Series Wall and Partition Design in the Fire Resistance Directory.

Specified Technologies Inc. 210 Evans Way Somerville, NJ 08876 Reproduced courtesy of Underwriters Laboratories, Inc. Created or ReviseOctober 30, 2013 (800)992-1180 · (908)526-8000 · FAX (908)231-8415 · E-Mail:techserv@stifirestop.com · Website:www.stifirestop.com



D. Metallic Outlet Boxes - Except as indicated in the table below, when steel outlet boxes are used and the boxes are interconnected by means of electrical metallic tube or conduit, a ball of putty is to be installed to plug the open end of each electrical metallic tube (EMT) or conduit within the outlet box. When MC cable is used and/or when the outlet boxes are not

Nonmetallic Outlet Boxes - The box manufacturer is indicated in the table below. Boxes shall bear a 2 hr rating under the "Outlet Boxes and Fittings Classified for Fire Resistance" category in the Fire Resistance Directory.

Model	Max Outlet Box in. (mm)	Outlet Box Type	Outlet Box Mfr	Pad Size in. (mm		Stud	Cavity Insulation	Face Plate Type	Putty Ball
-	4 x 4 x 2-1/8 (102 x 102 x 54) deep	Steel	N.A.	-	1	Steel or Wood	-	Steel	No
-	4 x 4 x 2-1/8 (102 x 102 x 54) deep	Steel	N.A.	-	1	Steel or Wood	-	Plastic	Yes
-	4-11/16 x 4-11/16 x 2-1/8 (119 x 119 x 54) deep	Steel	N.A.	-	1 or 2	Steel or Wood	-	Steel	Yes
-	4-1/2 x 5 x 2-3/8 (114 x 127 x 60) deep	Steel	N.A.	-	1 or 2	Steel or Wood	-	Steel	Yes
-	4-1/2 x 14 x 2-1/2 (114 x 127 x 60) deep	Steel	N.A.	-	1 or 2	Steel or Wood	-	Steel	Yes
-	3-3/4 x 4 x 3 (95 x 102 x 76) deep	Polyvinyl Chloride	Lamson & Sessions or Carlon	,	1 or 2	Wood	-	Plastic or Steel	N.A
-	3-3/4 x 4 x 3 (95 x 102 x 76) deep	Phenolic	Allied Moulded Prods	•	1 or 2	Wood	-	Plastic or Steel	N.A
-	(95 X 102 X 76) deep	Polycarbonate	Thomas & Betts	-	1 or 2	Wood	-	Steel	N.A
-	3-3/4 x 4 x 3 (95 x 102 x 76) deep		Thomas & Betts	-	1 or 2	Wood	-	Plastic or Steel	N.A
-	2-1/4 x 3-3/4 x 2-3/4 (57 x 95 x 70) deep	Polyvinyl Chloride	Pass & Seymour	-	1 or 2 \	Vood	-	Plastic or Steel	N.A

SpecSeal Putty Pads, for use with maximum 4 by 4 by 2-1/8 in. (102 by 102 by 54 mm) deep flush device UL Listed Metallic Outlet Boxes installed with steel mud rings and with steel faceplates in 1 hr or 2 hr fire rated gypsum board wall assemblies onstructed with min 5-1/2 in. (140 mm) wide wood or steel studs and with stud cavities filled with fiberglass (nom 0.5 pcf or 8 kg/m3) or mineral fiber (nom 4 pcf or 64 kg/m3) insulation. When protective material is used on outlet boxes on both sides of the wall as directed, the boxes may be installed back-to-back provided that the boxes on opposite sides of the wall are not nterconnected with conduit or, when interconnected, the open end of the conduit within the outlet box is filled with a ball of putty. nstallation shall comply with the National Electrical Code (NFPA 70). Min 3/16 in. (5 mm) thick moldable putty pads are to be nstalled to completely cover the exterior surfaces of the outlet box (except for the side of the outlet box against the stud) and to completely seal against the stud within the stud cavity. Adjoining pieces of moldable putty pads to be overlapped approx 1/2 in. (1 mm) at the seam. An additional 3/16 in. (5 mm) thickness of putty to be formed around the connector securing the end of each Type MC cable, electrical metallic tube (EMT) or conduit to the box.

SpecSeal EP23, EP24 and EP44 Power Shield Box Inserts and SpecSeal Putty Pads, for use with maximum 4 by 4 by 1-1/2 or 2-1/8 in. (102 by 102 by 38 or 54 mm) deep flush device UL Listed Metallic Outlet Boxes installed with steel mud rings and with steel or plastic faceplates in 1 hr or 2 hr fire rated gypsum board wall assemblies constructed with min 3-1/2 in. (89 mm) wide wood or steel studs. When both protective materials are used with outlet boxes on both sides of the wall as directed, the boxes may be installed back-to-back provided that the backs of the boxes are minimum 1/2 in. (13 mm) apart and provided that the oxes are not interconnected. Installation shall comply with the National Electrical Code (NFPA 70). Min 3/16 in. (5 mm) thick noldable putty pads are to be installed to completely cover the exterior surfaces of the outlet box (except for the side of the outlet pox against the stud) and to completely seal against the stud within the stud cavity. Adjoining pieces of moldable putty pads to be overlapped approx 1/2 in. (13 mm) at the seam. An additional 3/16 in. (5 mm) thickness of butty to be formed around the connector securing the end of each Type MC cable, electrical metallic tube (ÉMT) or conduit to the box. An insert pad shall be installed to completely cover the back inside surface of each outlet box.



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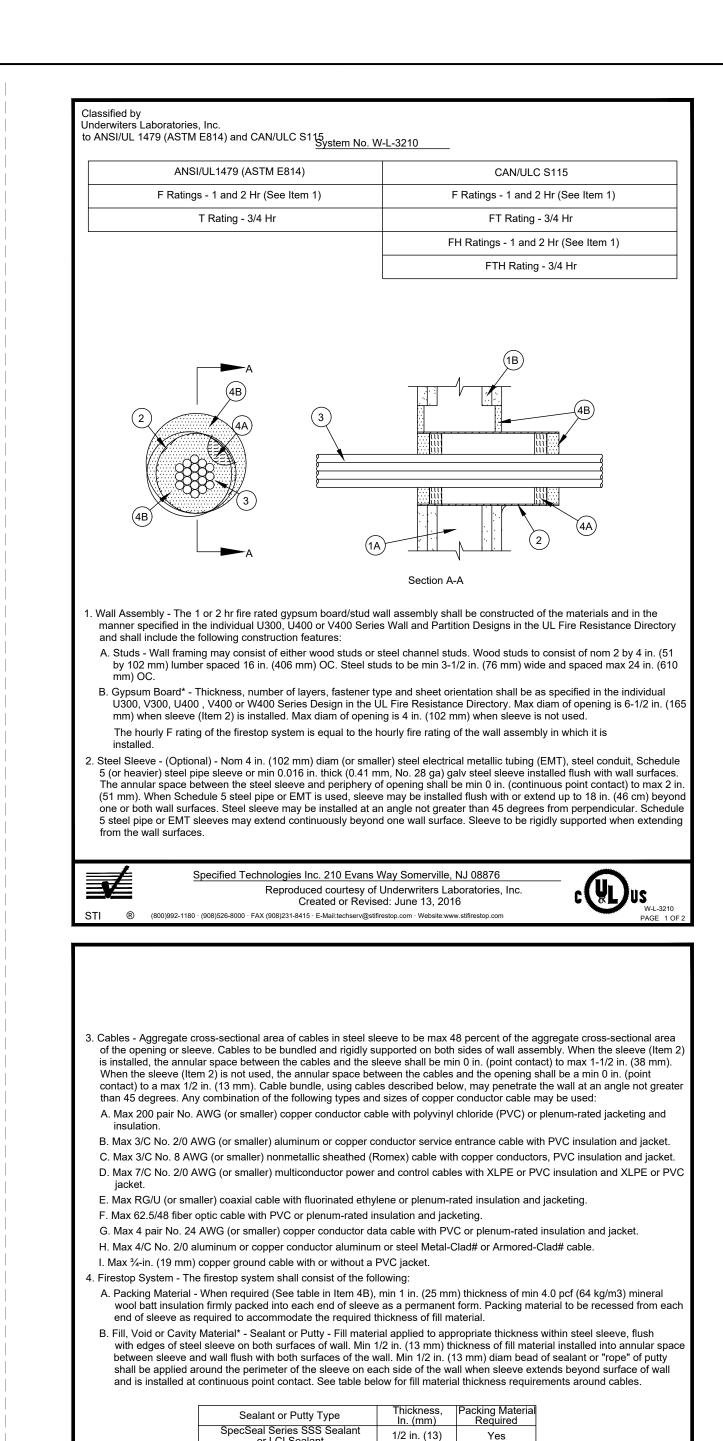
SpecSeal Putty Pads, for use with max 5 by 5 by 2 7/8 in. (127 by 127 by 73 mm) deep flush device UL Listed Metallic Outlet Boxes or UL Listed Communications-Circuit Accessories manufactured by Randl Industries Inc for use in 1 hr or 2 hr fire rated gypsum board wall assemblies framed with min 3-5/8 in. (92 mm) wide wood or steel studs and constructed as specified in the ndividual U300, U400, or V400 or W400 Series Wall and Partition Designs in the Fire Resistance Directory, Metallic outlet boxes to be provided with UL Listed Signal Appliance with steel cover plate manufactured by Cooper Wheelock Inc. Moldable putty pade are to be installed to completely cover the exterior surfaces of the outlet box (except for the side of the outlet box against the stud unless otherwise noted) including nailing tabs and to completely seal against the stud within the stud cavity. Multiple moldable putty pads may be installed on an outlet box to attain the required minimum thickness of putty material. Additional putty material used to seal around each conduit and/or cable fitting on the exterior of each box. A min 3/16 in. (4.8 mm) thickness of putty material is required on the exterior surfaces of flush device boxes in 1 and 2 hr fire rated Wall and Partition Designs. When the moldable putty pad outlet box protective material is used on boxes on both sides of wall as directed, the horizontal separation between outlet boxes on opposite sides of the wall may be less than 24 in. (610 mm) provided that the outlet boxes are not

SpecSeal EP55 Power Shield Box Inserts, for use with max 5 by 5 by 2 7/8 in. (127 by 127 by 73 mm) deep flush device UL isted Metallic Outlet Boxes or UL Listed Communications-Circuit Accessories manufactured by Randl Industries Inc for use in 1 or 2 hr fire rated gypsum board wall assemblies framed with min 3-5/8 in. (92 mm) wide wood or steel studs and constructed as specified in the individual U300, U400, or V400 or W400 Series Wall and Partition Designs in the Fire Resistance Directory. etallic outlet boxes to be provided with UL Listed Signal Appliance with steel cover plate manufactured by Cooper Wheelock Inc Power Shield Box Insert is to be applied to the back surface of the box and may be slit to accommodate communications-circuit accessories. When the Power Shield Box Insert is used on boxes on both sides of wall as directed, the horizontal separation between outlet boxes on opposite sides of the wall may be less than 24 in. (610 mm) provided that the outlet boxes are not

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or LCI Sealant
SpecSeal Series SSS Sealant

or LCI Sealant

SpecSeal Putty

Certification (such as Canada), respectively.

1 in. (25)

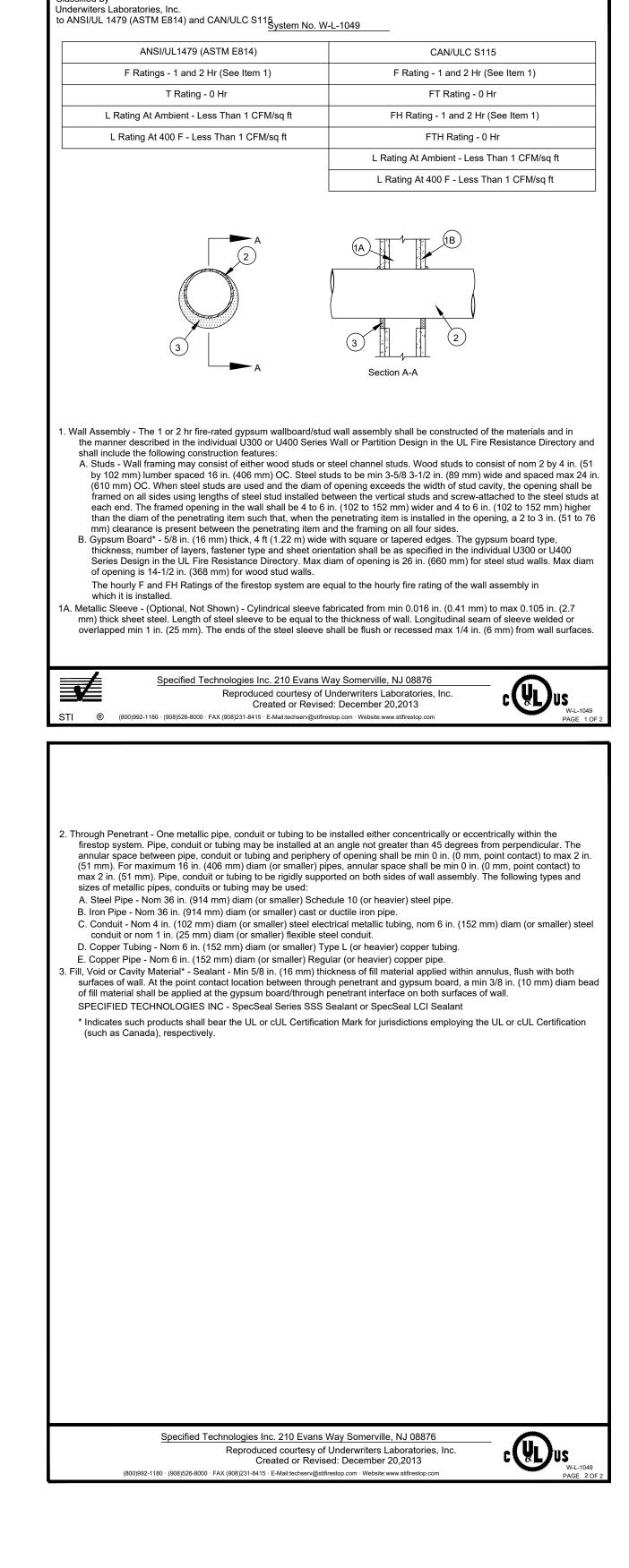
SPECIFIED TECHNOLOGIES INC - SpecSeal Series SSS Sealant, SpecSeal LCI Sealant or SpecSeal Putty

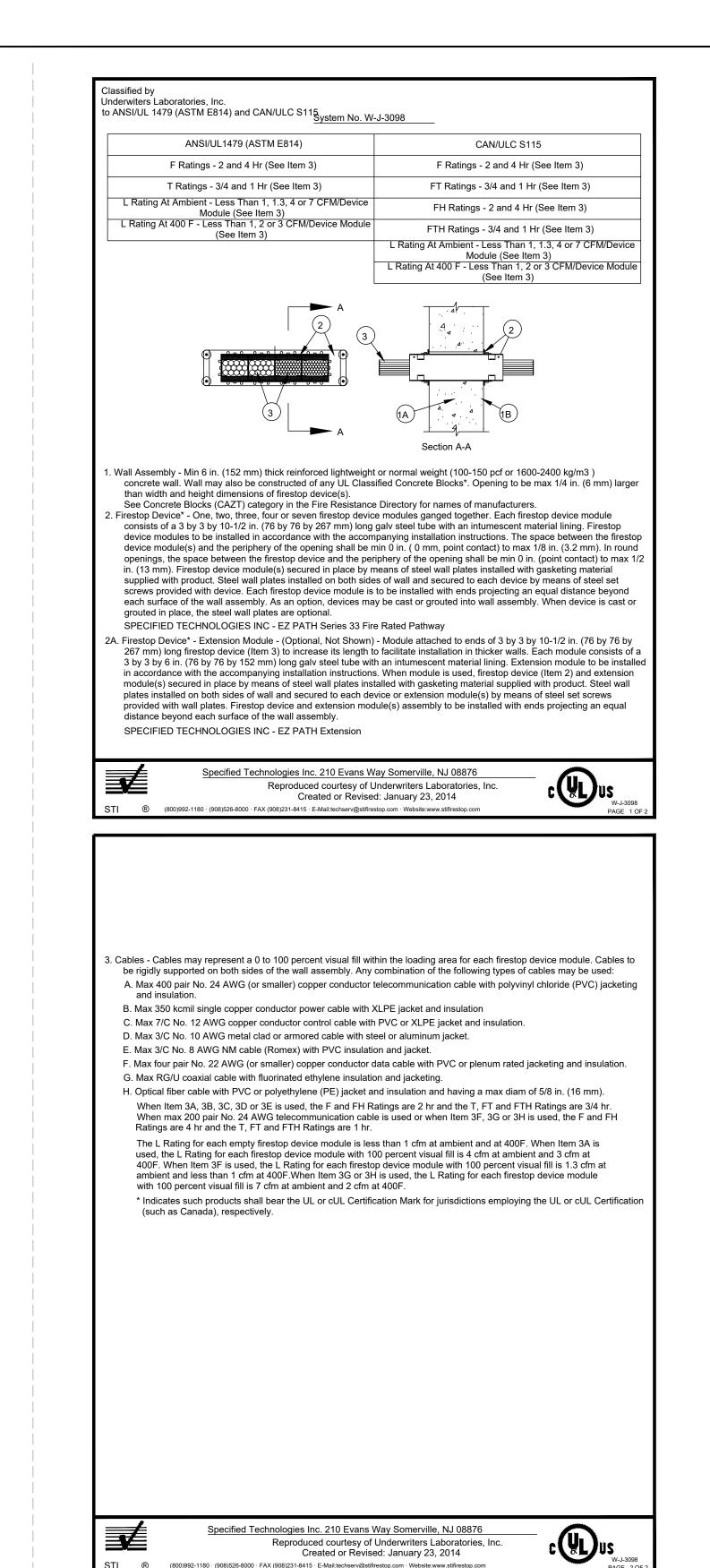
\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL

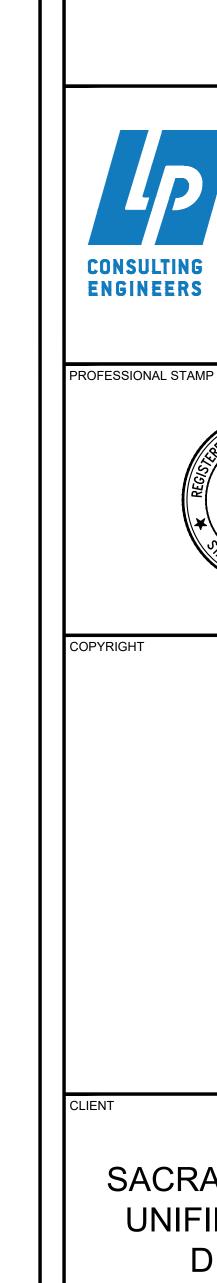
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MEP & FS / Sustainability / CxA

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Job #: 23-2032

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**BRET HARTE ELEMENTARY** SCHOOL

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SITE-WIDE INTERCOM AND CLOCK **MODERNIZATION** 

FIRE RATED ASSEMBLY DETAILS

LPCE PROJECT NO **DESIGNED BY** CHECKED BY: ISSUE DATE: 2023/06/08 **WORKING DATE** SHEET NUMBER